GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Ministry of Local Government, Rural Development and Co-operatives
Local Government Division
Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762 **IDA Credit No. 5561-BD**

Environmental Screening Report

Under the package no. EMCRP/W25

Strengthening and widening of 9 roads under Cox's Bazar Districts.

Funded by:

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Contents

ACRONYMS

BOQ	Bill of Quantities
BFS	Brick Flat Soiling
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIA	Project Influence Area
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
UNO	Upazila Nirbahi Officer
VAT	Value-Added Tax
WB	World Band

1. INTRODUCTION

1.1 Project background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained social service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. Almost all of these displaced people are hosted in Ukhiya and Teknaf Upazila of Cox's Bazar, in extremely congested settlements in areas having very minimal access to basic infrastructure and services and is prone to natural disasters. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District and improve the social service delivery systems to both the communities. This project will follow a sustainable development pathway that is resilient to disaster, climate change and promote developed communication mechanisms.

The objective of the Project is to provide greater protection for the FDMN and host communities through:

- Reducing the vulnerability to natural disasters
- Improving social service delivery system and providing better communication facility through physical interventions
- Improving water and sanitation facilities
- Reducing vulnerability to accidental fire
- Provisioning better educational facilities and
- Strengthening and scaling up of GBV prevention services to the FDMN

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Apart from the interventions in Addressing Gender and Social Inclusiveness and Preventing Gender Based Violence with the Support from UNFPA and building Communication and Awareness among all affected parties through an effective engagement of BCCP (Bangladesh Center for Communication Programs) in the areas, LGED is implementing a good number of infrastructural facilities, namely improvement of hat bazars, roads (both inside and outside of the camps), bridges, culverts, construction of School cum multi-purpose disaster shelters, Satellite Fire Stations, Relief Distribution Center, Community Service Center and many other different types of facilities. Given the project interventions, sensitivity of the areas and volume of people in or around the sites, the project is more likely to trigger certain Operational Policies and Bank Procedures, namely Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forest (OP/BP 4.36) and Physical Cultural Resources (OP /BP 4.11).

[1] ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)
[2] IOM Needs and Population Monitoring round 12 as of October 10, 2018

1.2 Elementary information of Work Package Components:

It is imperative to recognize proposed components under Work Package-25 in Ukhiya and Teknaf Upazila in order to assess and verify its interventions according to stipulated screening requisites from WB. Acknowledging this matter, such details are accounted for as given below in Table 1.2.1 along with visual presentation (General Upazila Map) given in Figure 1.2.1. Aerial maps for each sub-project are given in Appendix -5.

Table 1.2.1: Basic Featured Information of components [Sources of data: Field survey, 2020: DDC & LGED]

SL. NO.	COMPONENT'S NAME UNDER W-25	GPS COORDINATES	DISTANCE FROM UPAZILA HQ	UNION	WARD	LOCATIONS UNDER PROJECT INFLUENCE AREA	PRE-EXISTING CONDITION OF ROAD	PROPOSED ROAD TYPE	ROAD DIMENSION(M) (LENGTH X WIDTH) = FOOTPRINT (SQ.M) *
1.	Sonapara GC-Marinedrive R&H road ID 422942004	**Starting Point** 21^{0}17'2.4" N 92^{0}03'30.4" E **Ending Point** 21^{0}17'10.1" N 92^{0}02'54.4" E	10 Km	Jaliapalong	3	North Sonarpara & South Sonarpara	BC & RCC (Broken)	Bituminous Carpeting (BC) & RCC	(1185m X 5.5m) = 6,517.5 sqm
2.	Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005	**Starting Point** 21^{0}18'41.6" N 92^{0}05'50.6" E **Ending Point** 21^{0}19'11.6" N 92^{0}06'45.5" E	11 Km	Haldiapalong	1 & 2	Kathalia, Halukia, Boardpara, Bandojjoghona & Paglirbill	BC (Broken)	Bituminous Carpeting (BC)	(1900m X 5.5m) = 10,450 sqm
3.	Hijolia Horinmra Rd ID 422944005	**Starting Point** 21.26337^0 N 92.11481^0 E **Ending Point** 21.24569^0 N	3km	Rajapalong	02, 01 and 03	Middle Rajapalong, Khal kun para, Horinmara	Broken BC	Bituminous Carpeting (BC)	(2566m X 5.5m) = 14,113 sqm

		92.11348^0 E							
4.	Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024	**Starting Point** 21.26759^0 N 92.14441^0 E **Ending Point** 21.26863^0 N 92.15021^0 E	3km	Ratnapalong, Ukhiya	05 and 06	Goilmara, North, South, West and East Chakboitha, koroboinna	Broken BC	Bituminous Carpeting (BC)	(750m X 5.5m) = 4,125 sqm
5.	Ukhya-Hatimora Rd ID 422944058	**Starting Point** 21^{0}14'40" N 92^{0}08'21" E **Ending Point** 21^{0}15'02" N 92^{0}09'13" E	0.5 Km	Rajapalong	5 & 8	Patabari, Shikdarbill, Dargahbill, Taipalong & West Dargahbill	BC (Broken)	Bituminous Carpeting (BC)	(1820m X 5.5m) = 10,010 sqm
6.	Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002	**Starting Point** 21^{0}08'38.8" N 92^{0}09'31.6" E **Ending Point** 21^{0}08'59.7" N 92^{0}10'28.4" E	17 Km	Palongkhali	7, 8 & 9	East Palongkhali, Poschim parerbill, Bottoli bazar, East Bottoli, Uttarpara, Paglamarket & Anjumanpara	BC (Broken)	Bituminous Carpeting (BC)	(3630m X 5.5m) = 19,910 sqm
7.	Sonarpara GC-Seabeach Marinedrive ID422944087	**Starting Point** 21^{0}16'48.9" N 92^{0}03'21.0" E **Ending Point** 21^{0}16'40.4" N 92^{0}02'56.5" E	10.5 Km	Jaliapalong	3 & 4	Sonarpara & Delpara	BC (Broken)	Bituminous Carpeting (BC)	(782m X 5.5m) =

8.	Hnilla Baharchara Road ID 422903001	**Starting Point** 21^{0}00'49.3" N 92^{0}14'46.2" E **Ending Point** 21^{0}01'12.2" N 92^{0}13'17.7" E	22 Km	Hnilla, Teknaf	1, 4 & 5	Shikdarpara, Hokiapara, East Pankhali, West Pankhali, Villagerpara & Moricchaghona	BC, HBB & RCC (Broken)	Bituminous Carpeting (BC)	(2754m X 5.5m) = 15,147 sqm
9.	Hnilla UP Office to Natmura Pacca Road ID 422903007	**Starting Point** 21.01202^0 N 92.25215^0 E **Ending Point** 21.00503 N 92.25304 E	16km	Nila, Teknaf	03 & 05	North, South, east and west Nila, North Jaliapara,	Broken BC	Bituminous Carpeting (BC)	(830m X 5.5m) = 4,565 sqm

*Note: Roads are proposed to have carriage way from 4.9m to 5.5 m because while construction, special conditions may prompt adjustments. However, footprints for roads are calculated considering an average width of 4.9 meters.

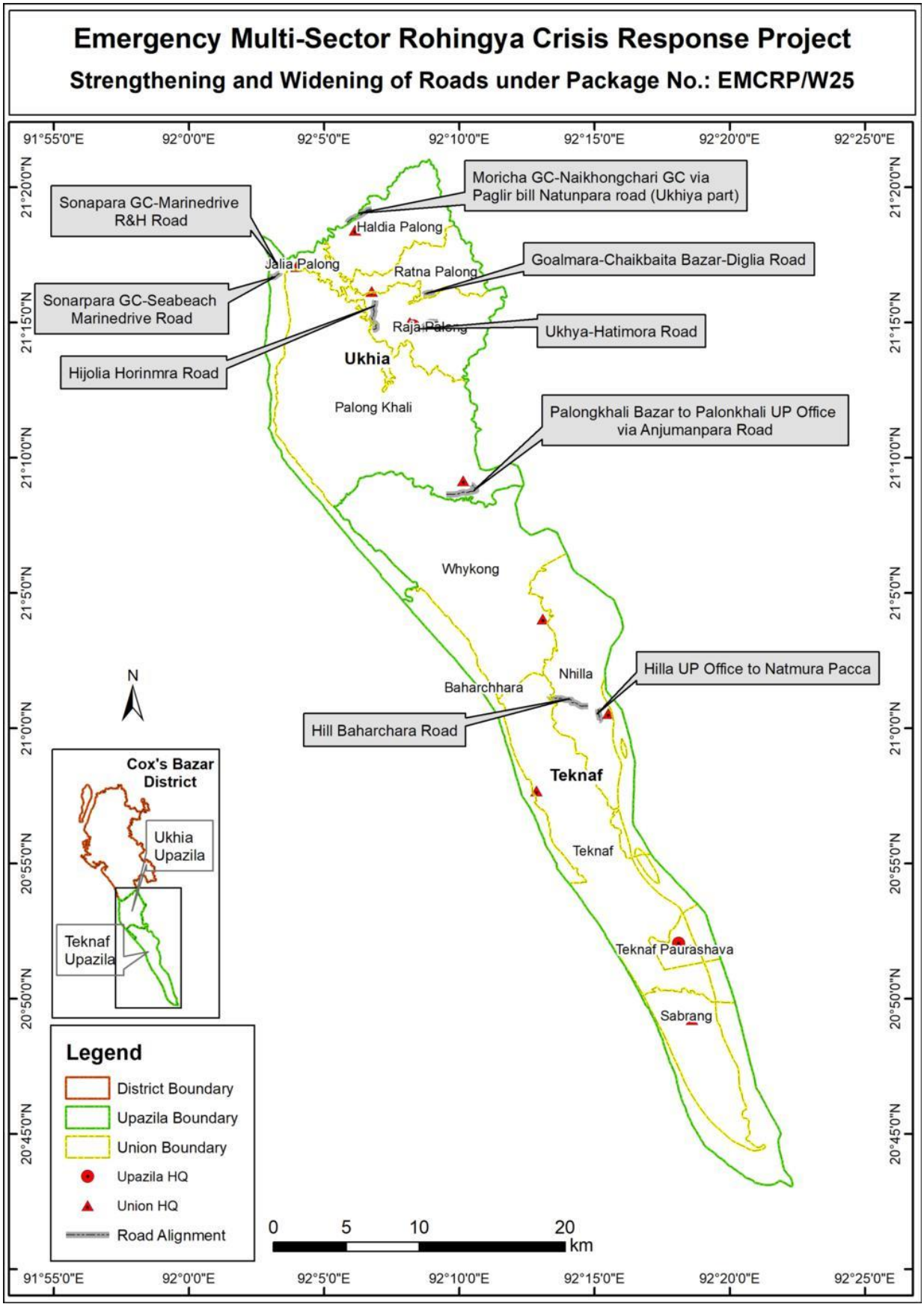


Figure 1.2.1: Map illustrating Roads of Work Package EMCRP/W25 locations in the Ukhiya & Teknaf Upazila

1.3 Proposed intervention items of sub-projects

The roads under work package 25 have been proposed with specific need base dimensions to accommodate and ensure best quality interventions for local stakeholders. In context of governing environmental circumstances and geo-meteorological conditions, protection works have been added to construction design for safety and sustainability of each proposed roads. These roads are abutting agriculture fields, vegetable yards and homestead vegetation which are dependent on natural water flow. Hence, construction and improvement works will descent these roads into new circumstances in some parts. These items have been included on the basis of field survey and analysis of the prevailing conditions. Please follow the table to acknowledge all these items.

Table 1.3.1: Proposed safety interventions of each sub-project

W25-1: Sonapara GC-Marinedrive R&H road ID 422942004
01 no. Cross Drain (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 326.0m of chainage and **02 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 7.30m) at Ch. 225.0m & Ch. 752.0m of chainage, construction of **20.0m Long outlet Drain**, Maintenance of **186.0m Toe wall** and construction of **128.0m Palisading work (Brick)** at different Chainage, **Earth** works, **Road safety** works and **Environmental Mitigation** and **Enhancement** works.
W25-2: Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005
01 no. RCC Box Culvert (dimension: 2.00mX1.50m; Roadway: 7.30m) and 02 nos. **RCC Box Culvert** (dimension: 2 vent-4.00mX4.00m; Roadway: 7.30m) at Ch. 637.0m, 70.0m & Ch. 898.0m of chainage, construction of **74.0m Brick Toe wall (height=3.0m)** and 1**8.0m Palisading work (Brick)** at different Chainage, **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.
W25-3: Hijolia Horinmra Rd ID 422944005
03 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 1609m, Ch. 2130m, Ch. 2230m and **01 nos. Box Culverts** (dimension: 2.0mX1.5m) at Ch:1839, **207.0m L-Drain** at different chainage, **25.0m Retaining wall** (H=3.0m) and **436.0m Palisading work**. **Road safety** work and **Environmental Mitigation and Enhancement** works are also included.
W25-4: Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024
03 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 119m, Ch. 710m, Ch. 728m and **81.0m Retaining wall** (H=5.0m) and **51.0m Palisading work**. **Road safety** work and **Environmental Mitigation and Enhancement** works are also included.
W25-5: Ukhya-Hatimora Rd ID 422944058
04 nos. Cross Drain (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 485.0m, Ch. 680.0m, Ch. 785.0m & Ch. 862.0m of chainage and **02 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at Ch. 408.0m & Ch. 1287.0m of chainage, **586.0m L-drain** at different chainage, **217.0m U-drain** at different chainage, construction of **524.0m Palisading work (Brick)** at different Chainage, **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.

W25-6: Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002
11 nos. Cross Drain (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 869.0m, Ch. 1714.0m, Ch. 1761.0m, Ch. 1174.0m Link Rd L/S, Ch. 1322.0m Link Rd R/S, Ch. 1453.0m Link Rd R/S, Ch. 1975.0m, Ch. 2367.0m, Ch. 2420.0m, Ch. 2667.0m & Ch. 2335.0m of chainage and **04 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at Ch. 2607.0m, Ch. 2728.0m, Ch. 2787.0m & Ch. 3038.0m of chainage, **509.0m L-drain** at different chainage, construction of **538.0m Brick Toe wall** (0.60m, 1.0m, 1.5m & 2.0m height) at different chainage, construction of **856.0m Palisading work (Brick)** at different Chainage, Construction of **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.
W25-7: Sonarpara GC-Seabeach Marinedrive ID422944087
01 no. Box Culvert (dimension: 2.00mX1.50m; Roadway: 5.50m) at 254.0m of chainage and 01 nos. **Box Culvert** (dimension: 3.00mX2.50m; Roadway: 5.50m) at Ch. 652.0m of chainage, construction of **47.0m Brick Toe wall** (height=1.5m) **and 50.0m Palisading work (Brick)** at different Chainage, Construction of **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.
W25-8: Hnilla Baharchara Road ID 422903001
01 no. Cross Drain (dimension: 0.975mX 0.975m; Roadway: 5.50m) at Ch. 299.0m of chainage, **03 nos. Box Culvert** (dimension: 1 vent-1.50mX1.50m; Roadway: 5.50m) at Ch. 516.0m, Ch. 1288.0m & Ch. 1392.0m of chainage and 01 no. **Box Culvert** (dimension: 2 vent-4.50mX4.50m; Roadway: 5.50m) at Ch. 1006.0m of chainage, **707.0m RCC U-drain** (dimension: 0.60mX0.60m) at different chainage, construction of **385.0m L-drain** and **104.0m Palisading work (Brick)** at different Chainage, Construction of **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.
W23-9: Hilla UP Office to Natmura Pacca Road ID 422903007
01 nos. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 410m and **98m of Surface Drain** from Ch:272 to Ch: 370 and **162m of Palisading work. Road safety** work and **Environmental Mitigation and Enhancement** works are also included.

2. PUBLIC CONSULTATION, PARTICIPATION AND SURVEY FINDINGS

2.1 Methodology

Public participation and community consultation have been taken up as an integral part of environmental assessment process of the project. As part of the impact assessment, participatory public consultation was conducted in areas of concern for proposed roads by the field level staffs and consultants from PIU and D&SC. The consultation meeting was attended by different social groups representing local habitants of separate age groups, social class and occupations. In some cases, IUCN employees in charge of elephant watch tower were present where frequent elephant movements occur. The participants were also selected from different segments of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and

construction phases. In order to serve our screening process, relevant items were thrown towards the audience to discuss and troubleshoot confusing or worrying matters regarding the proposed intervention under package work. Impacts in regards to environment, socio-economic matters during pre-construction, construction and post construction phase have been put forth. Possible mitigation measures and relevant needs have turned out during these sessions as well. Moreover, their comprehension as a stakeholder has been up lifted in light of project guidelines. With utter seriousness, avoiding ambivalence from the curators was assured in all aspects of these public consultations.

However, public consultation is a living process as the types of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution processes are more likely to differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

All components under the work package have been put through review for locating impediments or possible adversity effecting future environment and socio-economic conditions. In order to comprehend surrounding features and impacts which may stipulate with it, screening has acknowledged having a Project Influence Area (PIA) of 0.5-kilometer radius. Extrapolation is not under any method of judgement therefore; specific items has been dealt with and considered distinctively. Sensitive findings have been identified if any, and relevant mitigation or minimization measures were suggested to subdue such complication for over the project life span. Moreover, evaluation was inspired to enhance environmental features and include monitoring initiatives under ESMP budget to ensure exertion of environmental improvement propositions. Contractor's responsibility has been taken into account while identifying possible impacts through sets of intervention accounts. These steps have been initiated strictly following ESMF guidelines and requirements. Environmental screening procedure was motivated by ingredients highlighted in Appendix-2 of ESMF. During survey, detail chainage length of the sub-projects was taken into account for detailing environmental and socio-cultural features within 100 meters buffer zone of both Left and Right side from the center line of the road. Longitudinal intervals of 300 meters have helped to identify positions of located features. These findings are illustrated in **Annexure-01**.

2.2 Important features/establishments around the PIA

Initial screening process is conducted through direct involvement of PIU and D&SC in the influence area of the proposed component, which allows to raise significant questions and ideas towards participants. In combination of both field walk-through and inputs of audience, a register of existing features is formed. Allow the following table to describe such elements in all the work package components.

Table 2.2.1: Important features under Project Influence Area

Sl. No.	Component's name under W-25	Direction	Important features/ establishment (approx. distance from the proposed site)
1.	Sonapara GC-Marinedrive R&H road ID 422942004	North	Sonarpara GPS (8m), Sonarpara High School (5m), Sonarpara Dakhil Madrasah & Orphanage (15m), Sonarpara land office (15m), Sonarpra Baytus Salam Mosque (10m), Sonarpara Women friendly space (12m), Reju khal (300m)
		South	West Sonarpara Baitul Mamur Mosque (15m)
		East	Jaliapalong UP (200m), Sonarpara bazar Central Mosque & graveyard (50m)
		West	Bay of Bengal (50m)
2.	Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005	North	Ashrafia Kashemul Ulum Madrasah, Hefjakhana & Orphanage (400m), Paglirbill Dakhil Madrasah (150m), Reju khal (100m)
		South	Kathalia jame mosque (20m), Umme Salma ® Girls Dakhil Madrasah, Hefjakhana, Orphanage & graveyard (120m), Hazipara Baitul Mamur Mosque (10m), Bandojjopara jame mosque (600m)
		East	Paglirbill GPS (1 Km)
		West	Moriccha bazar central mosque & Forkania Madrasah(150m), East Moriccha graveyard (400m), Moricchapalong GPS (300m), West Moriccha Buddhist Bihar (800m), pond (200m)
3.	Hijolia Horinmra Rd ID 422944005	North	Reju khal (100m), Households(30m), Households (20)
		South	Households(100m)
		East	Modhorajapalong GPS (250m), Households(100m), Households (30), Khal (passing east to west at 750m chainage)
		West	Abul kashem nurzahan high school(200m), modho rajapalong central jame mosque (210m), Pond adjacent to Mosque(250m), Rajapalong Nurani Madrassa(500m), Rajapalong KG school(500m), Modho rajapalong Graveyard(500m), households(50m), Fishery Project (1km), pond (30m) chora (passing east to west at 1100m chainage)
4.	Goalmara-Chaikbaita	North	Noyapara Mosque(500m), Amtoli GPS (1km), Uttor Goyal mara Mosque (1km), Bhalukia Mondir(1km), Fish Hachery (500m),

Sl. No.	Component's name under W-25	Direction	Important features/ establishment (approx. distance from the proposed site)
	Bazar-Diglia Rd ID 422944024		West Dekulia Jame Mosque (500m), khal (225m)
		South	Households(50m)
		East	Chairman Mosque(500m), Chokboita high School (150m), Chokboita GPS (100m), Chokboita Graveyard(150m), Degulia Madrassa (200m), Chakboita Hefzokhana(150m)
		West	Kumuria GPS(1km), Goyalmara Central Jame Mosque(100m), West Goyalmara jame mosque(500m), Local Graveyard(500m), Pond(80m), Goyalmara Madrassa(50m)
5.	Ukhya-Hatimora Rd ID 422944058	North	Zilla Porishad Dakbanglow (10m), Bangamata Mohila College (700m), Ghilatoli mosque (10m), Ghilatoli Chorra (5m), Taipalong Baitur Rashid mosque (10m), Taipalong mosque & Madrasah (150m), Shishu Fokir mosque (400m), Hamedia Daruchunnah Dakhil Madrasah (100m)
		South	West Dargahbill mosque, Hefjakhana, Orphanage & graveyard (10m), Taipalong graveyard (20m), Shailerdeba Buddhist Cremation (300m)
		East	East Dargahbill GPS (500m), Haru Munshi bazar mosque (400m), Dokanmora mosque & hefjakhana (600m)
		West	Ricemill (5m), East Shikdarbill mosque (200m), Shikdarbill Baitus Sharaf mosque (600m), Shikdarbill Brac School (300m)
6.	Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002	North	Anjumanpara Ebtedayee Madrasah (10m), Miar barir graveyard (7m), Shah A. Latif mosque (50m), Farirbill GPS (5m), Palongkhali high school (150m)
		South	Miar Pukur (8m), Chakmar kul mosque & Madrasah (500m), Palonkhali khal (300m), Bottoli Bazar mosque & Hefjakhana (12m)
		East	Palongkhali central mosque & graveyards (300m), Palongkhali GPS (400m), Palongkhali Girls Madrasah (350m), Poschim parerbill mosque & graveyard (10m), Palongkhali M.Q Dakhil & Fazil Madrasah (15m), Poschim parerbill GPS (10m), Bottoli GPS (5m), Anjumanpara mosque (3m)
		West	Palongkhali bazar (10m), Tazman Hospita (20m), Omar Faruk mosque (20m), Mao. A. Mabud mosque & madrasah (800m), Rabeta Hospital (700m), Aanjumapara BGB camp (5m)

Sl. No.	Component's name under W-25	Direction	Important features/ establishment (approx. distance from the proposed site)
7.	Sonarpara GC-Seabeach Marinedrive ID422944087	North	North Sonarpara mosque (500m), South-West Sonarpara mosque & Hefjakhana (5m)
		South	North Telpara mosque (200m), Telpara GPS (1km), Jagrertek hill (150m)
		East	Sonarpara bazar (500m), Sonarpara bazar mosque & graveyard (550m), Jaliapalong UP (900m), Sonarpara GPS/High School/ Dakhil madrasah (600m), East Sonarpara mosque (400m), Jaliapalong land office (560m), West Sonarpara mosque (150m)
		West	Bay of Bengal (150m), Sonarpara community center (10m)
8.	Hnilla Baharchara Road ID 422903001	North	Hnilla Darusunnah Madrasah (15m), Hnilla Madrasah (20m), East Pankhali graveyard (10m), Shaplagodha khal (5m), West Pankhali Jumma mosque (10m), Eidgah ground (10m), Labonchorra khal (crosses), Hnillar dala hill (100m), Social forest (100m), Hnilla girls high school (500m), Moricchaghona GPS & Madrasah (600m), Ali Akborpara GPS (500m), Moricchachona hill (300m), Hondakata hill (200m)
		South	LGED godown (10m), Old UP office (7m), pond (8m), Shikdarpara graveyard (10m), Majherpara graveyard (15m), Azizia nurani Madrasah & hafejkhana (25m), Pankhali GPS (60m), Islampur Madrasah (40m), Hnilla Banabit (30m), Villagerpara mosque & madrasah (25m), Bottoli chorra (8m), Lechuaprang mosque & madrasah (1km), Nafmerit Multimedia School (10m)
		East	Arakan road (5m), Hnilla high school (500m), Hnilla model GPS (550m), Hnilla land office (525m), Hnilla Postoffice (510m), BGB camp (600m), Treatment center (530m), Buddhist mondir (505m), Hnilla bazar mosque (490m), Alfalah Academy (400m)
		West	Hnilla dala hill (50m), Gargan garden (100m), Jahazkhola GPS (500m), Jahazkhola post office (650m), land office (655m)
9.	Hnilla UP Office to Natmura	North	Nila GPS (1km), Gulforaz Jame Mosque(1km), Nila Bazar (500m),
		South	Natmorarpara jame Mosque(580m), Nila Barmis GPS/ Cyclone Center(1km), Budhist Mandir(1km)
		East	Naf River (800m), households(100m), Jaliapara Mondir(500m), north Jaliapara Mondir(500m)

Sl. No.	Component's name under W-25	Direction	Important features/ establishment (approx. distance from the proposed site)
	Pacca Road ID 422903007	West	Union Land Office (10m), South Fuler Deil Jame Mosque (20m near starting south), Nila High School(10m), Eid Gah (20m), Natmorar para (400m)

2.3 Issues and Recommendations raised by the Participants in regards to component interventions

After inauguration has set in motion, valuable opinions and remarks of participants came pouring out. At this point, we find our field base knowledge for assessment attributed impact degrees and possibilities. Please follow the table 2.3.1 given below to recognize participants' inputs arranged in relevance with separate component. Consultation meeting summary, attendance sheets and pictures of separate meetings with proposed location for each sub-project can be found in Table 2.3.2 and Annexure-02 and Annexure-03 respectively.

Table 2.3.1: Issues and Recommendations raised by the Participants

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
1.	Sonapara GC-Marinedrive R&H road ID 422942004	•Participants are very much concerned with absence of reliable path route in North Sonarpara & South Sonarpara villages area. • In case of emergency conditions such as ambulance services cannot reach these locations. • Heavy transports are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should not be affected while construction • No trees should be harmed for improvement of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location •Identification of material storage location based on consultation with local communities.	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (Direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority of jobs should also consider for women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •On the alongside of the proposed improvement road since there are available open private lands are used as labor shed and material storage can be arranged • Nearly significant BC road called Courtbazat-Shamlapur connecting road and HBB road called South Sonarpara connecting road and West Sonarpara connecting road are available for concerning ancillary access. Construction raw materials, access road for alternatives

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
			transportation and possible traffic movement will be used as these significant connecting roads.
2.	Moricha GC-Naikho ngchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005	•They are very much concerned with absence of reliable path route in Kathalia, Halukia, Boardpara, Bandojjoghona & Paglirbill villages area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • In case of emergency conditions such as ambulance services cannot reach these locations. • Heavy transports are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should not be affected while construction • No trees should be harmed for improvement of this road • Available pathway to usher material delivering vehicles	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (Direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority of jobs should also consider for women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •On the alongside of the proposed improvement road since there are available open private lands are used as labor shed and material storage can be arranged • Nearly significant HBB road called Kathalia connecting road, Halukia connecting road and Bandojjoghona connecting road are available for Concerning ancillary access

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		• Labor shed availability in the target location	• Construction raw materials, access road for alternatives transportation and possible traffic movement will be used as these significant connecting roads
3.	Hijolia Horinmra Rd ID 422944005	•They are very much concerned with absence of reliable path route in Middle Rajapalong, Khal kun para, Horinmara area. • In case of emergency conditions such as ambulance services cannot reach these locations. • Travelers are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is present on South-West of Horinmara every year which is located 2km away from the proposed road. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should not be affected while construction • No trees should be harmed for improvement of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage location based on consultation with local communities	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (Direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority for jobs should also consider women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •Alongside the road since there are available open space, these can be used as labor shed and material storage • An access point called Horinmara road and Cox's Bazar-Teknaf road is available for ancillary access

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		• Towards the end point of the road, there are forest areas locally known as Osikt Rahman's Jum or Hajirguna Baganer Pahar. Development works will not affect these locations since they are more than 2 kilometers away to the south.	
4.	Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024	•They are very much concerned with absence of reliable path route in Goilmara, North, South, West and East Chakboitha, koroboinna village's area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • In case of emergency conditions such as ambulance services cannot reach these locations. • Heavy transports are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works should be considered. •Safety of children and adults at the sites during construction works. •Elephant movement is not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction	•Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental point of view. It will provide better mobility and access to services in due time. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered moderate amount of lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority for jobs should also consider women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •Ukhiya Dak-Banglo Forest road is available for access of material delivering vehicles. • Open space along the road can be used as labor shed and material storage space. •Intervention should consider necessary preparations and mitigation measures so that this water stream is not restrained in any form.

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		• No trees should be harmed for preparation of this road however some trees will fall for this intervention at several locations, around 10 trees. • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage •The proposed road is to cross Notunpara khal which is seasonally streamed with water, Especially in rainy season.	
5.	Ukhya-Hatimora Rd ID 422944058	•They are very much concerned with absence of reliable path route in Patabari, Shikdarbill, Dargahbill, Taipalong & West Dargahbill villages area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • Big vehicles cannot use this road such as delivery trucks. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is not present in the targeted area. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should be affected	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (Direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority for jobs should also consider women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted.

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		while construction • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage	•Existing available private lands are used as open space to settle material storage and labor shed alongside the road. •Nearly significant HBB road called Patabari connecting road, Dargahbill connecting road and Delpara connecting road and BC road called Ukhiya-Teknaf highway and T&T connecting roads are available for Concerning ancillary access
6.	Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002	•They are very much concerned with absence of reliable path route in East Palongkhali, Poschim parerbill, Bottoli bazar, East Bottoli, Uttarpara, Paglamarket & Anjumanpara village's area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • Big vehicles cannot use this road such as delivery trucks. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is not present in the targeted area. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should be affected while construction • Available pathway to usher material delivering vehicles • Labor shed availability in the target location	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (Direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority for jobs should also consider women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •On the alongside of the proposed improvement road since there are available open private lands are used as labor shed and material storage can be arranged • Nearly significant HBB road called East Palongkhali-Nalbunia connecting road,

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		• Identification of material storage	Anjumanpara connecting road and Purboparer bill connecting road are available for Concerning ancillary access
7.	Sonarpara GC-Seabeach Marinedrive ID422944087	•They are very much concerned with absence of reliable path route in Sonarpara & Delpara villages area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • Big vehicles cannot use this road such as delivery trucks. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is not present in the targeted area. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should be affected while construction • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (Direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority for jobs should also consider women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Nearly significant BC road called Courtbazar-Shamlapur connecting road and Marine drive connecting road are available for Concerning ancillary access

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
8.	Hnilla Baharchara Road ID 422903001	• They are very much concerned with absence of reliable path route in Shikdarpara, Hokiapara, East Pankhali, West Pankhali, Villagerpara & Moricchaghona villages area. • Big vehicles cannot use this road such as delivery trucks or buses •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to nearby households or agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Material storage is available • Electricity is available	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (Direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority for jobs should also consider women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •On the alongside of the proposed improvement road since there are available open private lands are used as labor shed and material storage can be arranged

SL. NO.	COMPONENT'S NAME UNDER W-25	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
9.	Hnilla UP Office to Natmura Pacca Road ID 422903007	• In Nila, North Jaliapara,area, this proposed road is previously BC developed although they feel this improvement initiative is highly needed for them to ensure quality road for better communication facility. This road has very unsettling conditions in some parts which makes the road risky for three wheelers to pass. • Big vehicles use this road but gets stuck where shoulders are broken badly. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to nearby households or agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Material storage is available	•Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental point of view. It will provide better mobility and access to services in due time. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Enough pathway is expected for vehicle movement so that comfort travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They considered small lumbering and suggested tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is not available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. •Priority for jobs should also consider women. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •An open space is available along the road which can be rented for material storage and labor camp. •Cox's Bazar- Teknaf highway road in Nila Union is available for material delivery. • Electricity is available and contractor can install tube wells as deemed necessary.

Table 2.3.2: Consultation Meetings Summary

Road Package Number	Date DD-MM-YYYY	Venue	Main Participant Groups	No. of Participants	Remarks (If any)
W25-1	08-10-2020	Vai Vai Store at North Sonarpara	Host Community	11	The local individuals, elites, chairman and/or member of respective Union Parishad, representatives from different agencies participated in those consultation events.
W25-2	08-10-2020	Mobarak Hossain's shop at East Moriccha-Halukia	Host Community	12	Ó
W25-3	11-10-2020	Horinmara Badsha's Shop	Host Community	19	Ó
W25-4	5-10-2020	Shahriar Store, Goyalmara	Host Community	26	Ó
W25-5	05-10-2020	Abdul Halim's shop at Taipalong (Patabari)	Host Community	15	Ó
W25-6	11-10-2020	Battoli Station (East Farirbill)	Host Community	17	Ó
W25-7	08-10-2020	Farzin Beach Corner (Grocery shop of Nur Mohammad)	Host Community	12	Ó
W25-8	12-10-2020	Hazi Sabbir Market (West Pankhali)	Host Community	18	Ó
W25-9	12-10-2020	Yusuf's Shop, Middle Fuler Dail	Host Community	12	Ó

Note: Here, Meeting number column corresponds with Serial Number column in Table 2.3.1

3. ENVIRONMENTAL SCREENING

3.1 General

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological, socio-economic and environmental impacts of the proposed sub-project sites and the influence area in regards to the implementation measures, an extensive field visit was carried out in each proposed sub-project PIA. Environmental Screening form, as adopted in **Appendix 2** of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents. The screening data and information for each sub-project under this work package and details screening summary have been formulated and shown in **Appendix-01.**

3.2 Major Findings

A complete view of current environmental conditions of individual sub-projects in relation to interested queries has been congregated in order to understand the degree of impacts corresponding with marked interventions. Interestingly, most sub-projects have correspondence with its surrounding features and uphold interchangeable impacts. However, the degree is not an interchangeable factor since scale is not parallel to each of these components which are where, mitigation measure differentiation is implied. There are some cases where unique circumstances have been met with while environmental screening took place which is also accounted for and should be a matter of concern for other parts of the ESMF initiative. The significant issues observed in each sub-project are enlisted in following Table 3.2.1 with pertaining impacts. Moreover, impacts that are adventitious have also been embraced for promoting best practices.

Table 3.2.1: Concerning environmental issues relating to each proposed subproject and influence area.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
1.	Sonapara GC-	It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
	Marinedrive R&H road ID 422942004	Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No drainage system, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless GPS, boundary wall, trees, electric pole, agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Fair amounts of bush (sapling) will be cut down at different chainage during construction period.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected here
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Vibration effects generated from mixing, grinding, pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Sonarpara GPS (8m), Sonarpara High School (5m), Sonarpara Dakhil Madrasah & Orphanage (15m), Sonarpara land office (15m), Sonarpra Baytus Salam Mosque (10m), Sonarpara Women friendly space (12m) and Reju khal (300m), at south side West Sonarpara Baitul Mamur Mosque (15m), at east side Jaliapalong UP (200m), Sonarpara bazar Central Mosque & graveyard (50m) and west side Bay of Bengal (50m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
2.	Moricha GC-Naikhongchari GC via Paglir bill Natunpara road	It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Few amounts of bush (sapling) will be cut down during construction phase at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
	(Ukhiya part) ID 422942005	No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from mixing or grinding, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from grinding, mixing, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Ashrafia Kashemul Ulum Madrasah, Hefjakhana & Orphanage (400m), Paglirbill Dakhil Madrasah (150m) and Reju khal (100m). At south side Kathalia jame mosque (20m), Umme Salma ® Girls Dakhil Madrasah, Hefjakhana, Orphanage & graveyard (120m), Hazipara Baitul Mamur Mosque (10m), Bandojjopara jame mosque (600m), at east side Paglirbill GPS (1 Km) and west side Moriccha bazar central mosque & Forkania Madrasah(150m), East Moriccha graveyard (400m), Moricchapalong GPS (300m), West Moriccha Buddhist Bihar (800m) and pond (200m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
		It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
3.	Hijolia Horinmra Rd ID 422944005	Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Several trees (around 10) will need cutting on both sides of the road at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing plantation incentives around the proposed location.
		Elephant Movement is not present on the ROW subproject location. There is movement over 2 kilometers away but elephants do not find its way towards the proposed road and surrounding 1km radius.	No impact is expected
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Reju khal (100m), Households(30m), Households (20) to the north. Households(100m) to the south. Modhorajapalong GPS (250m), Households(100m), Households (30m) and khal (passing east to west at 750m chainage) to the east. Abul kashem nurzahan high school(200m), modho rajapalong central jame mosque (210m), Pond adjacent to Mosque(250m), Rajapalong Nurani Madrassa(500m), Rajapalong KG school(500m), Modho rajapalong Graveyard(500m), households(50m), Fishery Project (1km), pond (30m), chora)passing east to west at 1100m chainage) to the west.	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
		It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW	No agriculture land or any forest coverage will get degraded or lost

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
4.	Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024	nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) will be cut down during construction phase at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes to the north Noyapara Mosque(500m), Amtoli GPS (1km), Uttor Goyal mara Mosque (1km), Bhalukia Mondir(1km), Fish Hachery (500m), West Dekulia Jame Mosque (500m). To the south Households(50m), to the east Chairman Mosque(500m), Chokboita high School (150m), Chokboita GPS (100m), Chokboita Graveyard(150m), Degulia Madrassa (200m), Chakboita Hefzokhana(150m). To the west Kumuria GPS(1km), Goyalmara Central Jame Mosque(100m), West Goyalmara jame	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		mosque(500m), Local Graveyard(500m), Pond(80m), Goyalmara Madrassa(50m).	
5.	Ukhya-Hatimora Rd ID 422944058	It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve biological usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing water body and frustrate the water quality which will be acute however.
		Few amounts of bushes (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impacts
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from mixing or grinding, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from mixing, grinding, pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Zilla Porishad Dakbanglow (10m), Bangamata Mohila College (700m), Ghilatoli mosque (10m), Ghilatoli Chorra (5m), Taipalong Baitur Rashid mosque (10m), Taipalong mosque & Madrasah (150m), Shishu Fokir mosque (400m), Hamedia Daruchunnah Dakhil Madrasah (100m), at south side West Dargahbill mosque, Hefjakhana, Orphanage & graveyard (10m), Taipalong graveyard (20m), Shailerdeba Buddhist Cremation (300m), at east side East Dargahbill GPS (500m), Haru Munshi bazar mosque (400m), Dokanmora mosque & hefjakhana (600m) and west side Ricemill (5m), East Shikdarbill mosque (200m), Shikdarbill Baitus Sharaf mosque (600m), Shikdarbill Brac School (300m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
		It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
6.	Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002	No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve biological usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing water body and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) will be cut down during construction phase at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from mixing or grinding, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from mixing, grinding, pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Anjumanpara Ebtedayee Madrasah (10m), Miar barir graveyard (7m), Shah A. Latif mosque (50m), Farirbill GPS (5m) and palongkhali high school (150m). At south side Miar pukur (8m), Chakmar kul mosque & Madrasah (500m), Palonkhali khal (300m), Bottoli Bazar mosque & Hefjakhana (12m), at east	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		side Palongkhali central mosque & graveyars (300m), Palongkhali GPS (400m), Palongkhali Girls Madrasah (350m), Poschim parerbill mosque & graveyard (10m), Palongkhali M.Q Dakhil & Fazil Madrasah (15m), Poschim parerbill GPS (10m), Bottoli GPS (5m), Anjumanpara mosque (3m) and at west side Palongkhali bazar (10m), Tazman Hospita (20m), Omar Faruk mosque (20m), Mao. A. Mabud mosque & madrasah (800m), Rabeta Hospital (700m), Anjumapara BGB camp (5m).	materials, etc.
7.	Sonarpara GC-Seabeach Marinedrive ID422944087	It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) will be cut down during construction phase at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side North Sonarpara mosque (500m), South-West Sonarpara mosque & Hefjakhana (5m), at south side North Delpara mosque (200m), Delpara GPS (1km), Jagrertek hill (150m), at east side Sonarpara bazar (500m), Sonarpara bazar mosque & graveyard (550m), Jaliapalong UP (900m), Sonarpara GPS/High School/ Dakhil madrasah (600m), East Sonarpara mosque (400m), Jaliapalong land office (560m) and west sonarpara mosque 9150m) and west side Bay of Bengal (150m), Sonarpara community center (10m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
	Hnilla Baharchara Road ID 422903001	It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
8.		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing water body and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) will be cut down during construction phase at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the sub-project area.	No impact is expected
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from mixing, grinding, pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Hnilla Darusunnah Madrasah (15m), Hnilla Madrasah (20m), East Pankhali graveyard (10m), Shaplagodha khal (5m), West Pankhali Jumma mosque (10m), Eidgah ground (10m), Labonchorra khal (crosses), Hnillar dala hill (100m), Social forest (100m), Hnilla girls high school (500m), Moricchaghona GPS & Madrasah (600m), Ali Akborpara GPS (500m), Moricchachona hill (300m), Hondakata hill (200m), at south side LGED godown (10m), Old UP office (7m), pond (8m), Shikdarpara graveyard (10m), Majherpara graveyard (15m), Azizia nurani Madrasah & hafejkhana (25m), Pankhali GPS (60m), Islampur Madrasah (40m), Hnilla Banabit (30m), Villagerpara mosque & madrasah (25m), Bottoli chorra (8m), Lechuaprang mosque & madrasah (1km), Nafmerit Multimedia School (10m), at east side Arakan road (5m), Hnilla high school (500m), Hnilla model GPS (550m), Hnilla land office (525m), Hnilla Postoffice (510m), BGB camp (600m), Treatment center (530m), Buddhist mondir (505m), Hnilla bazar mosque (490m), Alfalah Academy (400m) and west side Hnilla dala hill (50m), Gargan garden (100m), Jahazkhola GPS (500m), Jahazkhola post office (650m), land office (655m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
9.	Hnilla UP Office to Natmura Pacca Road ID 422903007	It is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		gardens/forest are found beside the road.	might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) will be cut down during construction phase at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Vibration effects generated from pilling, drilling or other construction works	Any vibration would result in nuisance effects to nearby faunal species, and but will be localized and temporary and will unlikely to result in structural damages to buildings or walls of the adjacent private properties.
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Nila GPS (1km), Gulforaz Jame Mosque (1km), Nila Bazar (500m) to the north. Natmorarpara jame Mosque (580m), Nila Barmis GPS/ Cyclone Center (1km), Budhist Mandir(1km) to the south. Naf River (800m), households(100m), Jaliapara Mondir(500m), north Jaliapara Mondir(500m) to the east. Union Land Office (10m), South Fuler Deil Jame Mosque (20m near starting south), Nila High	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system-including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.

SL. NO.	COMPONENT'S NAME UNDER W-25	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		School(10m), Eid Gah (20m), Natmorar para (400m) to the west.	

A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are zero, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur. A map of elephant movement is given in Annexure 04.

In order to offset the loss or attenuating the environmental degradation, a set of mitigation measures will be adopted, on top of general practice of standard construction procedure or following the relevant codes of practices.

3.3 Climate Change Impact Screening

3.3.1 General Overview of the area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones, as forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above-mentioned hazardous situation, again due to sudden extraction of huge amount of groundwater, availability of potable water from shallow tube wells that pump water up from about 150 feet has already reached to a critical level. Averting the problem requires new tube wells to be plumbing deeper into the poorly mapped aquifer, but going deeper than 700 feet in some places may cause salt water to contaminate freshwater resources.

In this case, it is possible that a stationary position of the freshwater-saltwater transition zone can be established via proper management of pumping in the confined aquifer.

The groundwater resource is seen to suffer more from the climate change impact. The impact on groundwater due to climate change impact include

- Sea-level rise could result in a transgression of the sea and a loss of land area. This could also lead to the secondary effect of population migration in the new coastal band due to migration of the coastal population from the encroaching sea, thereby increasing domestic water needs in the new coastal area.

- Transgression of the coast implies that saline storm surges of 1 or more meters depth would penetrate beyond the new coast to new land areas. Storm surges transport saline water far inland of the coast and much of this floodwater may infiltrate the ground in areas where the aquifer is not fully saturated. Even where the aquifer is saturated, denser saline water may

[3] https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf

sink into the aquifer during the flood and later from pools of saltwater that remain following the flood[4].

- It has been identified that the salinity is found in the shallow aquifers along the coastline. So the salinity which are found in the groundwater are of lesser concern as salinity will subside over time

- Several researches show that through modeling of groundwater flow that the depletion of groundwater in the host community will persist up until 2022 and the replenishment of water will take place.

Considering the general climate change effects in Cox's Bazar area and offsetting the aggravating environmental situation due to the mass arrival of Rohingya communities, several specific measures including tree planation in sub-project areas, rainwater harvesting from every disaster shelter, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time.

Site specific climate change impacts are often not so easy to measure or deduce plausibly while the site is confined to a narrow strip of roadways, and associated mitigation or offsetting measures are really hard to plot on the impact areas, though an overall set of measures are often considered in practical aspect. Fig: 3.3.2.1 shows the inundation risk map of the subprojects under W-25, none of the subprojects are in vicinity of the severe river flood inundation area. So the risk of flooding is low around the sub-project area. In addition, tree planation on the road slope/ within the premises is also suggested to sooth the temperature effect and increase the water retaining capacity of soil, at the same time.

[4] "Implications of Climate Change for Fresh Groundwater Resources in Coastal Aquifers in Bangladesh", World Bank report.2010

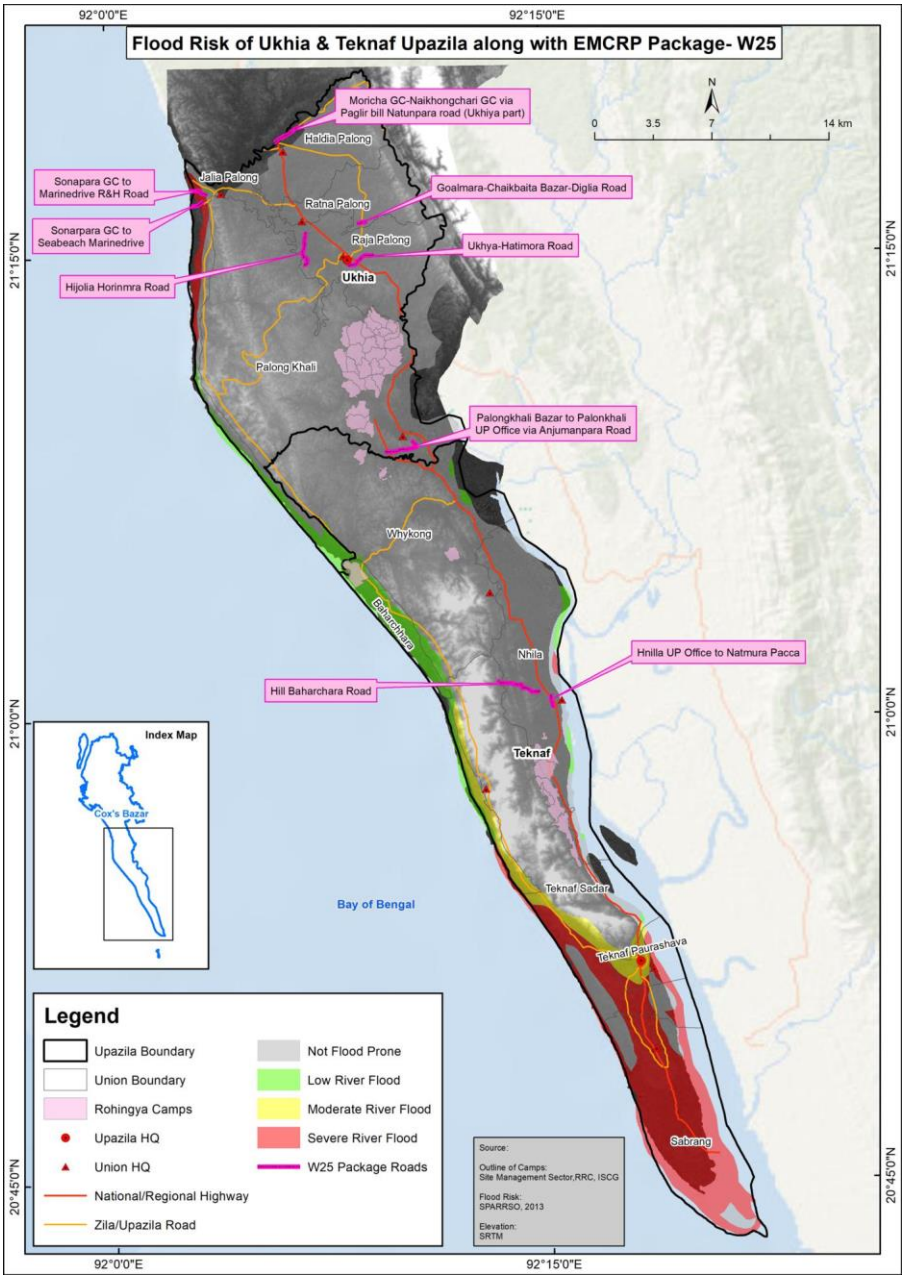


Figure 3.3.2.1: Flood inundation risk map near the subprojects.

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.

Table 4.1.1: Site Specific Impact and Mitigation measures under package W25

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
1.	Sonapara GC-Marinedrive R&H road ID 422942004	To the north side Sonarpara GPS (8m), Sonarpara High School (5m), Sonarpara Dakhil Madrasah & Orphanage (15m), Sonarpara land office (15m), Sonarpra Baytus Salam Mosque (10m), Sonarpara Women friendly space (12m), to the south side West Sonarpara Baitul Mamur Mosque (15m), to the east side Sonarpara bazar Central Mosque & graveyard (50m) and to the west side Bay of Bengal (50m). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 01 no. Cross Drain (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 326.0m of chainage and 02 nos. RCC Box Culvert (dimension: 2.00mX1.50m; Roadway: 7.30m) at Ch. 225.0m & Ch. 752.0m of chainage, construction of 20.0m Long outlet Drain, Maintenance of 186.0m Toe wall and construction of 128.0m Palisading work (Brick) at different Chainage, Earth works, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and Cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. U-drain is also considered for drainage facility that runs along the road for uninterrupted water flow. Some low land is found

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
			beside the proposed road so palisading wall and Toe wall will be constructed during construction period for used to "correct" the natural slope.
2.	Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005	Nearly to the sub-project different religious establishments are on the south side Kathalia jame mosque (20m), Hazipara Baitul Mamur Mosque (10m). A pond is located at 200m west of the subproject. Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 01 no. RCC Box Culvert (dimension: 2.00mX1.50m; Roadway: 7.30m) and 02 nos. RCC Box Culvert (dimension: 2 vent-4.00mX4.00m; Roadway: 7.30m) at Ch. 637.0m, 70.0m & Ch. 898.0m of chainage, construction of 74.0m Brick Toe wall (height=3.0m) and 18.0m Palisading work (Brick) at different Chainage, Earth works, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
			low land is found beside the proposed road so protection wall, Toe wall and palisading work will be constructed during construction period for used to "correct" the natural slope.
3.	Hijolia Horinmra Rd ID 422944005	To the North Households(30m), Households (20), to the South Households(100m), to the east and Households (30m).	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		03 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 1609m, Ch. 2130m, Ch. 2230m and **01 nos. Box Culverts** (dimension: 2.0mX1.5m) at Ch:1839, **207.0m L-Drain** at different chainage, **25.0m Retaining wall** (H=3.0m) and **436.0m Palisading work**.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. **Box culvert** and **Cross drain** will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. Some high land is found beside the road. So, **L-Drain** will be

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
			constructed for drainage high land eel water during rainy season. Some low land is found beside the proposed road so **palisading wall** will be constructed during construction period for used to "correct" the natural slope. Some high land is found beside the road where **Retaining wall** will be constructed to avoid landslips and soil erosion.
4.	Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024	Pond(80m) and Goyalmara Madrassa(50m) is located to the west. To the north, south and east settlements as shops and households are located adjacent to the sub-project area which can be subject to air pollution. However, none are on the ROW.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		03 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 119m, Ch. 710m, Ch. 728m and **81.0m Retaining wall** (H=5.0m) and **51.0m Palisading work**. **Road safety** work and **Environmental Mitigation and Enhancement** works are also included.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. **Box culvert** and **Cross drain** will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
			land to provide a sustainable irrigated agricultural system. Some low land is found beside the proposed road so **palisading wall** will be constructed during construction period for used to "correct" the natural slope. Some high land is found beside the road where **Retaining wall** will be constructed to avoid landslips and soil erosion.
5.	Ukhya-Hatimora Rd ID 422944058	To the north side Zilla Porishad Dakbanglow (10m), Ghilatoli mosque (10m), Ghilatoli Chorra (5m), Taipalong Baitur Rashid mosque (10m), to the south side West Dargahbill mosque, Hefjakhana, Orphanage & graveyard (10m), Taipalong graveyard (20m) and to the west side Ricemill (5m). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 04 nos. Cross Drain (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 485.0m, Ch. 680.0m, Ch. 785.0m & Ch. 862.0m of chainage and 02 nos. RCC Box Culvert (dimension: 2.00mX1.50m; Roadway: 5.50m) at Ch. 408.0m & Ch. 1287.0m of chainage, 586.0m L-drain at different chainage, 217.0m U-drain at different chainage, construction of 524.0m Palisading work (Brick) at different Chainage, Earth works, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
			land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So L-Drain will be constructed for drainage high land eel water during rainy season. U-drain is also considered for drainage facility that runs along the road for uninterrupted water flow. Some low land is found beside the proposed road so protection wall and palisading work will be constructed during construction period for used to "correct" the natural slope.
	Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002	To the north side Anjumanpara Ebtedayee Madrasah (10m), Miar barir graveyard (7m), Shah A. Latif mosque (50m), Farirbill GPS (5m), to the south side Miar pukur (8m), Bottoli Bazar mosque & Hefjakhana (12m), to the east side Poschim parerbill mosque & graveyard (10m), Palongkhali M.Q Dakhil & Fazil Madrasah (15m), Poschim parerbill GPS (10m), Bottoli GPS (5m), Anjumanpara mosque (3m) and to the west side Palongkhali bazar (10m), Tazman Hospita (20m), Omar Faruk mosque (20m), Aanjumapara BGB camp (5m). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 11 nos. Cross Drain (dimension: 0.750mX 0.750m; Roadway: 7.30m) at different chainage and 04 nos. RCC Box Culvert (dimension: 2.00mX1.50m; Roadway: 5.50m) at different chainage, 509.0m L-drain at different chainage, construction	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and cross drain will be constructed to

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
6.		of 538.0m Brick Toe wall (0.60m, 1.0m, 1.5m & 2.0m height) at different chainage, construction of 856.0m Palisading work (Brick) at different Chainage, Construction of Earth works, Road safety works and Environmental Mitigation and Enhancement works.	terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some low land is found beside the proposed road so protection wall, Toe wall and palisading work will be constructed during construction period for used to "correct" the natural slope.
	Sonarpara GC-Seabeach Marinedrive ID422944087	To the north South-West Sonarpara mosque & Hefjakhana (5m), to the west side Sonarpara community center (10m). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 01 no. Box Culvert (dimension: 2.00mX1.50m; Roadway: 5.50m) at 254.0m of chainage and 01 nos. Box Culvert (dimension: 3.00mX2.50m; Roadway: 5.50m) at Ch.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
7.		652.0m of chainage, construction of 47.0m Brick Toe wall (height=1.5m) and 50.0m Palisading work (Brick) at different Chainage, Construction of Earth works, Road safety works and Environmental Mitigation and Enhancement works.	land. Box culvert and cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some low land is found beside the proposed road so protection wall, Toe wall and palisading work will be constructed during construction period for used to "correct" the natural slope.
8.	Hnilla Baharchara Road ID 422903001	To the north Hnilla Darusunnah Madrasah (15m), Hnilla Madrasah (20m), East Pankhali graveyard (10m), Shaplagodha khal (5m), West Pankhali Jumma mosque (10m), Eidgah ground (10m), Labonchorra khal (crosses), to the south LGED godown (10m), Old UP office (7m), pond (8m), Shikdarpara graveyard (10m), Majherpara graveyard (15m), Azizia nurani Madrasah & hafejkhana (25m), Pankhali GPS (60m), Islampur Madrasah (40m), Hnilla Banabit (30m), Villagerpara mosque & madrasah (25m), Bottoli chorra (8m), Nafmerit Multimedia School (10m), to the east Arakan road (5m) and to the west Hnilla dala hill (50m). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
		Proposed safety structures are **01 no. Cross Drain** (dimension: 0.975mX 0.975m; Roadway: 5.50m) at Ch. 299.0m of chainage, **03 nos. Box Culvert** (dimension: 1 vent-1.50mX1.50m; Roadway: 5.50m) at different chainage and 01 no. **Box Culvert** (dimension: 2 vent-4.50mX4.50m; Roadway: 5.50m) at Ch. 1006.0m of chainage, **707.0m RCC U-drain** (dimension: 0.60mX0.60m) at different chainage, construction of **385.0m L-drain** and **104.0m Palisading work (Brick)** at different Chainage, Construction of **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So L-Drain will be constructed for drainage high land eel water during rainy season. U-drain is also considered for drainage facility that runs along the road for uninterrupted water flow. Some low land is found beside the proposed road so protection wall and palisading work will be constructed during construction period for used to "correct" the natural slope.
		To the north, south and east settlements as shops and households are located adjacent to the sub-project area which can be subject to air pollution. Union Land Office (10m), South Fuler Deil Jame Mosque (20m near starting south), Nila High School(10m), Eid Gah (20m) is located on the west. However, none are on the ROW.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipment, conducting relatively noisy works during the day time, adopting best

SL. No.	Component's name under W-25	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
			workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
9.	Hnilla UP Office to Natmura Pacca Road ID 422903007	**01 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 410m and **98m of Surface Drain** from Ch:272 to Ch: 370 and **162m of Palisading work**. **Road safety** work and **Environmental Mitigation and Enhancement** works are also included.	Some part of the proposed road is passing by the agricultural land. **Box culvert** and **cross drain** will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some low land is found beside the proposed road so **protection wall** and **palisading work** will be constructed during construction period for used to "correct" the natural slope. The road is comparatively on plain land without much variation of elevation and the surrounding settlements are not placed in a manner that it can allow space for water to follow up on lower grounds. Therefore, to consider undisrupted horizontal water flow, **Surface Drain** is considered to make path.

Further improvement related activities which may result in adverse impacts in the surrounding environment of the sub project must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Once the effects are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities. The subproject specific environmental management plans have been outlined in **Appendix-2**. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

Environmental quality enhancement: Under the additional financing to the EMCRP project, Forest Department of the Government of Bangladesh will afforest along 200 km of road length area, primarily under the Ukhiya and Teknaf Upazila of Cox's Bazar district in order to offset the environmental and ecological devastation, that had been occurred due to the evolution of Rohingya Crisis, to an achievable level. Many of these road lengths will go through and by the Rohingya Camps, up on the hill and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said additional financing component and oversee the progress of works with due diligence. However, this enhancement work will improve the environmental quality of the area and reinstate some parts of the ecosystem services to those areas, though primarily.

4.2 Health and Safety Measures under COVID Situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed guideline containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site office.

However, among many other relevant issues, the guidelines emphasize on following line of directives:

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.
c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement are to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols have to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

Following the additional health and safety measures presented in that guideline, sub-project specific BOQ items have been inserted to supplement the budget considering the country-specific situation, capacities, and scope of interventions. The additional cost to Health and Safety Measures under COVID 19 situation is shown in **Appendix-3.**

4.3 Cost of Environmental Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, a set of items are included in the BOQ of this sub-project. Social Safeguard Personnel for Environmental and Social Management for Work Package EMCRP/W25 have also been

added in the whole BOQ in order to take supervision and leadership to organize Environmental Management under Environmental Enhancement Works. The total costing and estimation have included enhancements such as Grass turfing plans, Tree plantation initiatives, Dust Suppression mechanisms. On the other hand, in order to ensure health safety and sanitary measures of workers PPE, First Aid Box, Labor shed, Environmental management, drinking water facility with water tests, Temporary latrine for male and female as well as waste disposal systems has been accounted for. Ensuring sustainable labor performance in regards to environmental and social considerations motivational training has been taken into account. An overview of the estimation is given below and the detailed estimated cost to implement the ESMP is shown in **Appendix-3**.

Table 4.3.1: Summary of estimated bill of quantity for Work Package EMCRP/W25.

Road Package Number	Road Name	Environmental Enhancement works estimated amount (BDT)	H&S measures for COVID Situation (BDT)
W25-1	Sonapara GC-Marinedrive R&H road ID 422942004	218,679.32	98,395.00
W25-2	Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005	236,509.72	118,915.00
W25-3	Hijolia Horinmra Rd ID 422944005	262,214.68	137,935.00
W25-4	Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024	187,565.72	81,845.00
W25-5	Ukhya-Hatimora Rd ID 422944058 –	232,304.92	117,205.00
W25-6	Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002	314,938.52	167,320.00
W25-7	Sonarpara GC-Seabeach Marinedrive ID422944087	197,647.64	83,100.00
W25-8	Hnilla Baharchara Road ID 422903001	272,695.96	140,375.00
W25-9	Hnilla UP Office to Natmura Pacca Road ID 422903007	197,770.52	85,135.00
Total		**2,120,327.00**	**1,030,225.00**
Sub-Total (Enhancement work & H&S COVID BOQ) (BDT)		**3,150,552.00**	
Three Environmental Management Personnel for 9 (Nine) roads (BDT)		**1,260,000.00**	
Grand Total (BDT)		**4,410,552.00**	

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

Monitoring, as such, is required to ensure that the mitigation and enhancement measures are being properly implemented and at the same time, to determine whether the benefits of these measures are being realized over time. A comprehensive monitoring framework is suggested in Project ESMF

and the responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

There will be several tiers in monitoring framework to ensure the proper implementation of ESMP. Contractors, throughout the construction or implementation period, must ensure that environmental and social risks and impacts are minimized effectively while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities and DRPs. Contractors' employed site managers and safeguard supervisors (or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive measures delineated in ESMP, on top of the best engineering practices at sites including Occupational Health and Safety (OHS). D&SC firm will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

PIU will have safeguards specialists stationed in Cox's Bazar and will conduct field visits very frequently. Moreover, Executive Engineer's office in Cox's Bazar and Upazila Engineers' office in Ukhiya and Teknaf will play a vital role in upholding the proper monitoring and supervision of civil works and associated project activities, including social and environmental safeguards in and around the sub-project sites. Safeguards specialists of PIU will monitor that all staffs of the contractors and other counterparts who are involved in project implementation receive both initial and ongoing environmental and social safeguard awareness and training sufficient to ensure the best practices in the field. Local Engineers from LGED and PIU safeguards specialists shall ascertain that contractors cleaning and reclamation works after the decommissioning of sites/ end of construction works are perfectly done and will also suggest for punitive measures against the contractors if any negligence or indifference is found in following the ESMP to the fullest effectiveness.

The highest tier in the monitoring system is bestowed upon the respective Ministerial Project Steering Committee (PSC) chaired by the Sr. Secretary/Secretary, LGD, MoLGRD&C. The PIU, in collaboration with the PSC, will also ensure that Environmental and social safeguards training are provided to all Project personnel.

Widespread COVID 19 situation prevailing across the country has put further intense necessity for all concerned parties to scale up their monitoring frequency and activities in line with the prescribed

guidelines to be followed in the field, camp site, and project offices. Frequent and abrupt visit to the working sites and labor camps is quite necessary in this crisis period and is strongly suggested.

6. LIMITATION OF THIS STUDY

With the countrywide spread of coronavirus and its huge detrimental including fatal effects on people and livelihood had made the government of Bangladesh to impose a nationwide lockdown from March 26, 2020 onward coupled with banning on passenger traveling across the districts. This development was accompanied by all office works to be suspended or postponed. However, in the backdrop of continued fragile economic and human plight being observed across the country which has primarily been caused by this COVID situation, Government of Bangladesh has had no other option but to reopen all the economic and official activities by early June, with strong guidance on limiting movement to the least. This neo-normal situation is still limiting the movement of consultants and supervising staffs to the proposed working sites for undertaking the screening survey along with conducting effective consultation meetings, which is in turn affecting the overall progress of the project and there might have a likely chance to remain the gaps in overall screening process and outcomes.

7. CONCLUSION AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are implemented in full, there will be no significant negative environmental impacts in regards to the selection of location, design, construction, and/or operation procedure of the proposed Sub-project. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

The conclusions of the Screening study can be summarized as follows:

- The communities will receive large benefits through improved infrastructural facilities, transportation & communication etc.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety need to be minimized through the management plan.
- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development, if necessary, for the road site, with large-growing trees at the periphery of the site will give the places a more natural and pleasing appearance.
- A comprehensive Environmental and Social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities.

Implementation of this Sub-project will have large positive impacts to the communities in terms of improved infrastructural transportation & communication facilities, which would eventually develop the socio-economic condition of the catchment areas. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Annexure-1: Important Environmental Features (IEFs) near site:

Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Road Name	Sonapara GC-Marinedrive R&H road ID 422942004 **(W25-1)**	**Total Chainage**	1185.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Big raintree, electric pole, name plate, shops of Sonarpara bazar, bamboo fencing, bamboo bushes, open space, raintrees, CNG filling station, culvert, paddy land, brick boundary wall, betelnut garden
		R	Hotel, electric pole, shops of Sonarpara bazar, tin shed fencing, mango trees, betelnut garden, shop, brick boundary wall, mobile tower, electric pole, bamboo fencing, tin shed fencing, household connecting road, ditch, big trees
300-600	L		Bamboo fencing, shop, big rain trees, bamboo fencing, shop, tin shed fencing, tin shed household, trees, shop
		R	Pond, big raintrees, land office, tin shed fencing, GPS, brick boundary wall, mosque, brick boundary wall, shop, connecting road
600-900	L		Trees, brick boundary wall, electric pole, building, betel nut trees, brick boundary wall, culvert, bamboo fencing, betelnut garden, trees, Munaf market, connecting road, trees
		R	Big rain trees, shop, tin shed fencing, building, tin shed household, brick boundary wall, building, paddy land, brick boundary wall, tin shed fencing, Munaf market's shops
900-1185	L		Tin shed fencing, trees, tin shed household, brick boundary wall, tin shed household, bamboo bushes, brick boundary wall, existing u-drain, culvert, brick boundary wall
		R	tin shed household, bamboo fencing, betelnut garden, tin shed household, brick boundary wall, building under cons., brick boundary wall, tin shed household, guide wall, open space

Road Name	Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005 **(W25-2)**	**Total Chainage**	1900.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Electric pole, shops, furniture's shop, existing L-drain, furniture's shop, tin shed fencing, brick boundary wall, homestead garden, electric pole, brick boundary wall, tin shed household, Akashi trees yard, electric

			pole, tin shed fencing, trees
		R	Existing u-drain, shops, tin shed fencing, furniture's shop, culvert on Joyarir chorra, hotel, tin shed fencing, tin shed household, brick boundary wall, shops, bamboo fencing, bamboo bushes, tin shed fencing, bamboo fencing
300-600	L		Building, trees, household connecting road, tin shed fencing, paddy land, Napier grass yard, bamboo bushes, shop, ditch, tin shed household
		R	Bamboo fencing, tin shed fencing, trees, brick boundary wall, tin shed fencing, betelnut garden, ditch, ricemill, big rain tree, warehouse, shop
600-900	L		Paddy land, culvert, household connecting road, open space, tin shed fencing, building, bamboo fencing, bamboo bushes, building, bamboo fencing, tin shed fencing, tin shed household, culvert, raintree
		R	Connecting road, household connecting roads, paddy land, tin shed fences, betel nut garden
900-1200	L		Bamboo bushes, low land, tin shed fencing, tin shed household, household connecting road, vegetables yard, bamboo fencing, paddy land, bushes, connecting road, poultry farm, bamboo fencing, betelnut garden, paddy land, brick field
		R	Low land, vegetables yards, betel leaf yard, bushes, open space, bamboo fencing, paddy land, household connecting road, banana yard, betelnut garden, open space, tin shed household, shop, paddy land
1200-1500	L		Paddy land, trees, culvert
		R	Paddy land, bamboo fencing, betelnut garden, household connecting road, paddy land, connecting road, shop, paddy land
1500-1800	L		Brick boundary wall, electric pole, bushes, paddy lands, vegetables yard, connecting road
		R	Bamboo fencing, paddy lands, household connecting road, bamboo fencing, tin shed household
1800-1900	L		Paddy land, Madrasah connecting road
		R	Paddy land, bamboo fencing, betelnut garden, electric pole

Road Name	Hijolia Horinmra Rd ID 422944005 **(W25-3)**	**Total Chainage**	2566.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Shop, Brick wall, Electric Pole, Crop field, Electric Pole, Electric Pole, Building, Settlement, brick wall, tree, bridge, wash block, crop field, settlement, trees, brick wall, building, shop, electric pole, shop, household connecting road to the left, crop
		R	Shop, tin fence, crop field, brick wall, modho rajapalong GPS, brick wall, household connecting road to the right, shop, mosque
300-600	L		Crop field, shop, electric pole, electric pole, crop field, road turned right, trees, crop field, trees
		R	Brick wall, shop, pond, settlement, building, culvert, electric pole,

			electric pole, electric pole, crop field, brick wall, settlement
600-900	L		Under construction, culvert, brick wall, settlement, households connecting road to the left, dhushori khal, bush, bamboo, electric pole, households connecting road to the left, crop field,
		R	Bamboo fence, tree garden, household connecting road to the right, bridge over dhushori khal, the road turned left, swamp, bambbo fence, settlement, shop, trees, crop
900-1200	L		Crop field, culvert, crop field, bush, vegetable yard, bamboo fence, trees, crop field, open space
		R	Crop field, pond, pond, bush, tree, bridge, household connecting road to the right, bush, settlement, shop, bush
1200-1500	L		Culvert, households, bamboo fence, tin fence, shop, settlement, household, tin fence, tree, tin fence, shop, households, crop field, tree garden, bamboo fence, households connecting road to the left, open space, building, bamboo fence
		R	Bush, bamboo fence, khal, treesm khal, shop, bridge on the right, khal, tree, bush, bamboo bush, khal,
1500-1800	L		Household, connecting road to the left, brick wall, Household, connecting road to the left, brick wall, shop, electric pole, brick wall, crop field, cross drain, bush, bamboo fence, tin fence, high ground, bamboo fence,
		R	Khal, bamboo bush, bamboo fence, mosque, open space, tin fence, brick wall, crop field, tree, crop field,
1800-2100	L		High ground, bamboo fence, bamboo bush, low ground, shop, settlement on low ground, open space, play ground
		R	Mosque, brick wall, settlement, road turned right, settlement on high ground, horinmara school, wash block
2100-2400	L		Trees on high ground, bush, settlement on high gorunds, bamboo fence, connecting road to ukhiya to the left, Electric pole, crop field, household connecting road to the left, bamboo fence, settlement on high grounds, bamboo bush
		R	Brick wall, bamboo bush, crop field, pond, RCC wall, trees, bamboo fence, shop, bush, shop, bush, bamboo fence, settlement on high grounds, bamboo bush
2400-2566	L		Electric Pole, bush, households, bamboo fence, open space, trees on high ground, settlement on high ground (landslide possibility), bush, trees, household connecting road to the left, crop field, earthen drain, protection wall, earthen drain
		R	Crop field, household connecting road to the right, net fence, crop field, cross drain, crop field, bush, electric pole, crop field

Road Name	Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024 **(W25-4)**	**Total Chainage**	750.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Crop field, broken house, culvert, crop field, small tree, bamboo fence, vegetable yard,

		R	Bamboo fence, pond, goyalmara GPS, brick wall, crop field, household connecting to the right, trees, trees, crop field
300-600	L		Tin fence, crop field, household connecting road to the left, bamboo fence, vegetable yard, crop field, culvert, bamboo fence, household, trees, RCC pole with wire fence, households, paka hosue, gate with brick wall, crop field, brick wall, mosque, pond, tin fence, bamboo fence, household, bamboo fence
		R	Crop field, big tree, shop, bamboo fence, brick wall, household, bamboo fence, homestead garden, cow shed, brick wall, bamboo fence, household, garden, bamboo fence, pond, trees, vegetable yard, garden
600-750	L		Bamboo fence, household, tin fence, brick wall, household, bamboo fence, household, tree
		R	Hijolia khal, bamboo bush, broken bridge(saku) over Hijulia Khal, Nut tree, garden, tree

Road Name	Ukhya-Hatimora Rd ID 422944058 **(W25-5)**	**Total Chainage**	1820.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Shops of Dakbanglow market, big tree, brick boundary wall, RCC pole with wire fencing, pond, tin shed households, tin shed fencing, household connecting road, tin shed fencing, electric pole, high land (tila), brick boundary wall, culvert, mosque, electric pole
		R	Shops of Dakbanglow market, tin shed fencing, tin shed households, brick boundary walls, building, connecting road, tin shed fencing
300-600	L		Open space, electric poles, household connecting road, tin shed fences, building, paddy land, tin shed households, agricultural lands, ricemill, bushes, bamboo bushes
		R	Brick boundary wall, building, paddy land, open space, household connecting road, brick boundary wall, Akashi trees yard, tin shed household, local trees, bamboo bushes
600-900	L		Agricultural lands, electric poles, bushes, household connecting road
		R	Tin shed household on high land, bushes, brick boundary wall, building on high land, trees, bamboo fences, bamboo bushes, tin shed household, brick boundary wall, shop, household connecting road
900-1200	L		Electric poles, open space, tila, bamboo fencing, tin shed earthen household, household connecting road, tin shed fencing, brick boundary wall, tin shed households, mosque
		R	Local trees, tin shed earthen household on high land, tila, shops, brick boundary walls, solar lamp post, household connecting road, tin shed fencing, tin shed earthen household
1200-1500	L		Tin shed fencing, electric poles, shops, hotel, culvert, Madrasah connecting road, paddy land, X-drain
		R	Bamboo fencing, tin shed household, shops, Taipalong bazar, ditch, pond, big trees, betelnut garden, brick boundary walls, ricemill, pond, bamboo fencing

1500-1820	L		Paddy land, connecting road, culvert, trees, bridge, household connecting road, brick boundary wall, solar lamp post, shop
		R	Electric poles, bamboo fences, big tree, connecting road, shops, paddy land, trees, pond, vegetables yard, tin shed fencing, poultry farm, pond, mosque/madrasah/graveyard.

Road Name	Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002 **(W25-6)**	**Total Chainage**	3630.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Hazi Hossain Ali market, Existing u-drain, Soudia market, connecting road, electric pole, paddy land, Girls madrasah connecting road, household connecting road, brick boundary wall, Palongkhali GPS
		R	Al Chomi market, bridge on Palongkhali khal, brick boundary wall, mosque, madrasah, pond, paddy land, Akashi trees
300-600	L		Paddy land, household connecting road, brick boundary wall, building, electric pole, ditch
		R	Paddy land, connecting road, pond
600-900	L		Culvert, household connecting road, brick boundary wall, electric poles, paddy land, local earthen drain
		R	Paddy land, brick boundary walls, tin shed household, RCC pole with wire fencing, household on highland, existing L-drain, connecting road, shop
900-1200	L		Playground, Farirbill GPS, paddy land, electric pole, ditch, connecting road
		R	Bamboo fencing, bamboo bushes, household connecting road, high land, culvert, open space, paddy land, brick boundary wall, mosque, graveyard
1200-1500	L		Graveyard on high land, tin shed household, paddy land, solar lamp post
		R	Farirbill M.Q Dakhil madrasah, shops, brick boundary wall, household connecting road
1500-1800	L		Culvert, paddy land, tin shed fences, open spaces, bushes, connecting roads, shops, tin shed earthen household, brick boundary walls, guide walls, tin shed household on high land, X-drain, bamboo fencing
		R	Paddy land, connecting road, existing u-drain, brick boundary walls, tin shed household, electric pole, household connecting roads, tin shed fencing, tila, ponds, shops, Bottoli station
1800-2100	L		Anjumanpara GPS, graveyard, high land, electric pole
		R	Mosque, electric poles, tin shed fencing, paddy land
2100-2400	L		High land, brick boundary wall, BGB camp, RCC pole with wire fencing, culvert
		R	Paddy land, guide wall, canal
2400-2700	L		Tin shed fences, tin shed households, brick boundary wall, trees,

			bamboo fencing
		R	Existing guide walls, paddy land, brick boundary wall, bamboo fencing, shop
2700-3000	L		Tin shed fencing, bamboo fencing, shops, trees, household connecting road
		R	Guide wall, tin shed fencing, shop, paddy land, culvert
3000-3300	L		Tin shed household, tin shed fencing, bamboo fencing, culvert, mosque
		R	Paddy land, trees, local drain, culvert
3300-3630	L		Existing u-drain, tin shed fencing, tin shed household, shops
		R	Paddy land, trees, existing x-drain

Road Name	Sonarpara GC-Seabeach Marinedrive ID422944087 **(W25-7)**	**Total Chainage**	782.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Shops, bamboo fences, tin shed households, culvert, betelnut gardens, electric poles, tin shed fencing, wire fencing, big rain trees, paddy land
		R	Bamboo fencing, tin shed households, mango tree, electric pole, brick boundary walls, bridge on Sonarpara chorra, bamboo bushes, betelnut garden, household connecting road, paddy land
300-600	L		Household connecting roads, brick boundary wall, buildings, wire fences, betelnut garden, paddy land
		R	Bamboo fences, household connecting roads, brick boundary wall, mosque, betelnut gardens, wire fencing, culvert, tin shed household, pond
600-782	L		Pond, local canal, culvert, bamboo fencing, tin shed household, wire fencing, hatchery, building, shops
		R	Household connecting road, bamboo fencing, betelnut garden, local canal, bamboo make house, tin shed fencing, shop, brick boundary wall, Nursery market

Road Name	Hnilla Baharchara Road ID 422903001 **(W25-8)**	**Total Chainage**	2754.0m

Chainage (m)	**Left**	**Right**	**Features**
161-300	L		Shops of Hazi Nochim market, existing u-drains, tin shed fencing, pond, x-drain
		R	Shops of Robi Alom market, vegetables market, tin shed fencing, tin shed household, household connecting road, shop, Madrasah, wire fencing, Hnilla sub-health center
300-600	L		Connecting road, LGED godown, electric poles, ditch, tin shed household, brick boundary wall, shop, connecting road, graveyard on

			high land, Nafmerit Multimedia School, Forid market, connecting road, existing u-drain
		R	Brick boundary walls, ditch, garage, shops, graveyard on hill, connecting road, culvert, paddy land, tin shed shop
600-900	L		Existing u-drain, shops, graveyard connecting road, electric pole, graveyard, local drain, brick boundary wall, Madrasah, shops, tin shed fencing
		R	Garage, electric pole, connecting roads, brick boundary walls, tin shed households, shops, building, tin shed fences, market building,
900-1200	L		Brick boundary wall, bamboo fences, electric pole, connecting roads, shops, tin shed fences, market, tin shed household, paddy land
		R	Paddy land, electric poles, household connecting roads, RCC bridge on Shaplagoda khal, open space, tin shed fencing, brick boundary wall
1200-1500	L		Tin shed fencing, existing u-drain, electric poles, culverts, ditch, brick boundary wall, big trees, household connecting road, paddy land
		R	Brick boundary walls, existing palisading wall, pond, mosque, tin shed fencing, connecting road, shops, raintrees, paddy land
1500-1800	L		Paddy land, connecting roads, fish farm, culvert
		R	Paddy land, raintrees, brick boundary walls, Eidgah ground, building, fish farm, culvert
1800-2100	L		Paddy land, culvert, Hnilla Banabit connecting road
		R	Paddy land
2100-2400	L		Hill, vegetables yard, paddy land, RCC bridge on bottoli chorra, culvert
		R	Paddy land, vegetables yards, RCC bridge on Loboncora khal, connecting road
2400-2700	L		Paddy land, vegetables yards, open land, big raintrees
		R	Paddy land, vegetables yard
2700-2915	L		Vegetables yard, paddy land, guide wall, local drain
		R	Vegetables yard, paddy land

Road Name	Hnilla UP Office to Natmura Pacca Road ID 422903007 **(W25-9)**	**Total Chainage**	830.0m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Tin fence, shop, electric pole, open field, household connecting road to the left, electric pole, open space, brick wall, shop, brick wall, tin fence, electric pole, tin fence, households, electric pole, brick wall, tin fence, shop
		R	Pond, land office, Fuler Dail Mosque, brick wall, crop field, trees, households connecting road to the right, open field, vegetable yard, households, brick wall, households, tin fence, households connecting road to the right
300-600	L		Tin fence, shop, brick wall, electric pole, brick wall, settlements,

			households, open space, crop field, brick wall, electric pole, brick wall, electric pole, households,
		R	Households, tin fence, brick wall, U-drain, households connecting road to the right, tin fence, open space, brick wall, tin fence, households connecting road to the right, brick wall
600-830	L		Brick wall, households connecting road to the left, open space, electric pole, tin fence, shop, households connecting road to the left, crop field, trees, tin fence, electric pole, pond, households connecting road to the left, shop, tin fence, bamboo fence, brick wall, tin fence, household
		R	Tin fence, households, electric pole, south fuler dail jame Mosque, pond, pond, trees, tin fence, households, tin fence

Annexure-2: Attendance of consultation meetings for sub-project components

EMCRP/W25.1

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

০১	[illegible]	৪৫	পুরুষ	[illegible]	[illegible]
০২	[illegible]	৩৪	"	[illegible]	[illegible]
০৩	মো: ইমরান	২২	"	উত্তর মোনারু পাড়া	[illegible]
০৪	সিদ্দিকুর রহমান	২০	"	উত্তর মোনারু পাড়া	[illegible]
০৫	[illegible]	২১	"	[illegible]	[illegible]
০৬	[illegible]	২৪	"	[illegible]	[illegible]
০৭	মজুর আলম	৩১	"	উত্তর মোনারু পাড়া	[illegible]
০৮	ফাইমুল হক	৫৮	"	"	[illegible]
০৯	[illegible]	৪০	"	"	[illegible]
১০	কবির আহমদ	৫০	"	"	[illegible]
১১	নুরুল আমিন	২০	"	"	[illegible]

Figure: Attendance of consultation meeting for W25-1

EMCRP/W25.2

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

সময়: ০৫:৪০ বিকাল   তারিখ: ০৮/১০/২০২০

উপ-প্রকল্প/কম্পোনেন্ট এর নাম: Maricha GC- Naikhonchari GC via Paglirbill Natunpara Road

সভা বিবেচ্য স্থান: পূর্ব মরিচ্যা-পাগলির বিল মোবারক হোসেনের দোকান

ইউনিয়ন: হলদিয়াপালং ওয়ার্ড নং: ১ গ্রাম: মরিচ্যাপালং উপজেলা: উখিয়া জেলা: কক্সবাজার

মোট অংশগ্রহণকারী: ২৫(১)

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
০১	নুরুল আহমদ	৬০	পুং	পূর্ব মরিচ্যা পাগলির বিল	[signature]
০২	মফিজুর রহমান (মেম্বার)	৫২	"	"	[signature]
০৩	নুরুল ইসলাম	৪২	"	"	[signature]
০৪	রহিম আলী	৬৯	"	"	
০৫	আবুল কালাম	৭৫	"	"	[signature]
০৬	আবদুল মোনাফ	৬৪	"	হাসনাকাটা	
০৭	মাহফুজুর রহমান	৩৭	"	পূর্ব মরিচ্যা	[signature]
০৮	আহসান উল্লাহ	৬০	"	"	[signature]
০৯	আবদুস সালাম	৩৭	"	পূর্ব মরিচ্যা	[signature]
১০	জাহাঙ্গীর আলম	২৫	"	"	[signature]
১১	মোবারক হোসেন	২২	"	"	[signature]
১২	আহমদ উল্লাহ	২২	"	"	[signature]

Figure: Attendance of consultation meeting for W25-2

EMCRP/W25.3

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Consultation Participants List

Time: ১১:৩০ .... 25(03) Date 22.10.2020

Subject:

Consultation/FGD with....Host Community

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নাম:
মত বিনিময়ের স্থান: হরিনমারা, বাদশার দোকান

কোড নং:
ইউনিয়ন: Rajapalong
ওয়ার্ড: Ukhya.
উপজেলা: Ukhya.
জেলা: Cox's

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
১	মুজিবুর রহমান	২৪	ব্যবসা	পুরুষ	হরিনমারা	01865-23[illegible]	[illegible]
২	কবির আহমদ	৬৪	ব্যবসা	"	"	"	[illegible]
৩	মো: আলম [illegible]	৬৬	[illegible]	পুরুষ	"	0181[illegible]	[illegible]
৪	মোহাম্মদ [illegible]	৬১	[illegible]	পুরুষ	"	0181766[illegible]	[illegible]
৫	নুরুল আলম	৩৮	"	"	[illegible]	0181[illegible]	[illegible]
৬	মনজুর আলম	৪৫	কৃষক	"	"		[illegible]
৭	নুরুল ইসলাম	৫৫	"	"	"		[illegible]
৮	[illegible]	২৭	[illegible]	"	"		[illegible]
৯	নুরুল আমিন	৪৭	[illegible]	"	"		[illegible]
১০	মো: নুরু	২৮	[illegible]	"	"		[illegible]
১১	মো: [illegible] আলম	২৮	[illegible]	"	"		[illegible]
১২	[illegible] আহমদ	৮০	–	"	[illegible]		[illegible]
১৩	[illegible]	৩৪	[illegible]	"	[illegible]		[illegible]
১৪	মো: [illegible]	২৫	[illegible]	"	"		[illegible]
১৫	মো: [illegible]	১৯	[illegible]	"	"		[illegible]
১৬	[illegible]	৪৫	[illegible]	"	"		[illegible]
১৭	মো: [illegible]	২৫	[illegible]	"	"		[illegible]
১৮	মো: [illegible]	২৭	[illegible]	"	"		[illegible]
১৯	[illegible]	৪৫	ব্যবসা	"	"	0181[illegible]	[illegible]

Figure: Attendance of consultation meeting for W25-3

EMCRP/W25.4

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় বহুমুখী সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

সময়: ০২:৪৫ P.M তারিখ: 05/10/2020

উপ-প্রকল্প/অবকাঠামো এর নাম: Goalmara - Chaikbaita Bazar - Diglia Road

সভা অনুষ্ঠানের স্থান: আড়াইরিয়ার ঘাট সোনারপাড়া

ইউনিয়ন: হলদিয়াপালং ওয়ার্ড নং: ০৬ গ্রাম: চৌকাটিয়া উপজেলা: উখিয়া জেলা: কক্সবাজার

প্যাকেজ নং: W25(4)

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
০১	মোছা: আনোয়ারা বেগম	৪০	নারী	চৌকাটিয়া	আনোয়ারা
০২	নাসরীন আক্তার	৩২	নারী	চৌকাটিয়া	নাসরিন
০৩	রুবিনা বেগম	৪৮	নারী	চৌকাটিয়া	রুবিনা
০৪	মোছা: মালেকা	৬৭	নারী	চৌকাটিয়া	মালেকা
০৫	মোছা: হালিমা বেগম	৬৫	নারী	চৌকাটিয়া	হালিমা
০৬	খাদিজা বেগম	৬০	নারী	চৌকাটিয়া	খাদিজা
০৭	মোছা: নাইমা	৬১	নারী	চৌকাটিয়া নতুন পাড়া	নাইমা
০৮	মোছা: সাফিয়া	২২	নারী	চৌকাটিয়া	সাফিয়া
০৯	মোছা: মিনুয়ারা	৪৫	নারী	চৌকাটিয়া নতুন পাড়া	মিনুয়ারা
১০	মোঃ আব্দুল্লাহ	২২	পুরুষ	চৌকাটিয়া	আব্দুল্লাহ
১১	মোঃ নবি	৪০	পুরুষ	চৌকাটিয়া	মোঃ নবি
১২	মোঃ ফরিদ আলম	৫৬	পুরুষ	চৌকাটিয়া	ফরিদ আলম
১৩	মোঃ নাজির আহমদ	৫০	পুরুষ	চৌকাটিয়া	নজির আহমদ
১৪	মোহাম্মদ ওসমান	২২	পুরুষ	চৌকাটিয়া	মোঃ ওসমান
১৫	নুরুল আমিন	৪২	পুরুষ	চৌকাটিয়া	[illegible] 05/10/2020
১৬	আবদুর রহিম	৬০	পুরুষ	চৌকাটিয়া	আবদুর রহিম
১৭	কবির আহমদ	৬০	পুরুষ	চৌকাটিয়া	কবির আহমদ

EMCRP/W25.4

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় বহুখাত ভিত্তিক প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময়: 01:45 PM তারিখ: 05/10/2020

উপ-প্রকল্প/ক্যাম্পের এর নাম: Goalmara-Chaikbaita Bazar-Diglia Road

সভা অনুষ্ঠানের স্থান: আরবিয়া রোড, গোয়ালমারা

ইউনিয়ন: রত্নাপালং ওয়ার্ড নং: ০৬ মৌজা: [illegible] উপজেলা: উখিয়া জেলা: কক্সবাজার

সাব প্রকল্প নং: EMCRP/W25.4

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
১৮	মো: [illegible]	[illegible]	পুরুষ	[illegible]	Rohan
১৯	মো: [illegible] উদ্দিন	৬০	পুরুষ	[illegible]	[illegible]
20	[illegible]	৮০	পুরুষ	পশ্চিম [illegible]	[illegible]
21	মো: [illegible]	[illegible]	পুরুষ	পশ্চিম [illegible]	[illegible]
22	[illegible] চৌধুরী	৫৯	পুরুষ	পশ্চিম [illegible]	[illegible] 05/10/2020
২৩	[illegible]	৬৭	পুরুষ	পশ্চিম [illegible]	[illegible] ৫/১০/২০২০

Figure: Attendance of consultation meeting for W25-4

EMCRP/W25.5

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

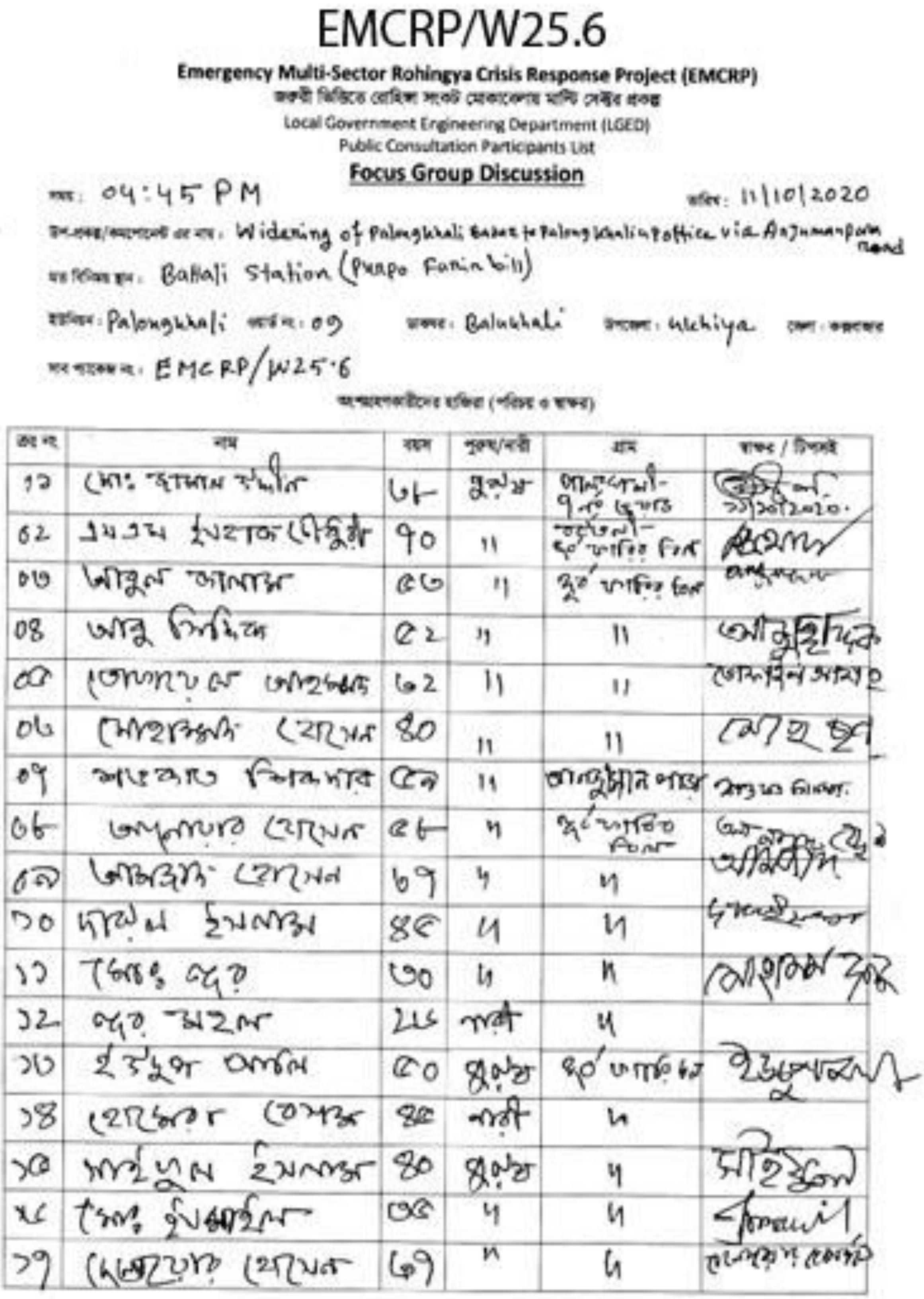
Focus Group Discussion

11:45 AM

EMCRP/W25.5

১	নুরুল ইসলাম	২৫	পুরুষ	পাথারিয়া	
২		২৫	পুরুষ	উখিয়া	
৩		৩২	পুরুষ	উখিয়া	
৪		৩৫	মহিলা	ঐ	
৫		৩০	পুরুষ	পাথারিয়া	
৬	হারুন	২৫	পুরুষ		
৭		৩২	পুরুষ	পাথারিয়া	
৮		২৬	মহিলা	ঐ	
৯		৩৬	পুরুষ	ঐ	
১০		২৬	পুরুষ	উখিয়া	
১১		২৩	পুরুষ		
১২		৩০	পুরুষ	পাথারিয়া	
১৩		৩৫	পুরুষ	উখিয়া	
১৪		৩৬	পুরুষ	উখিয়া	
১৫		৩০	মহিলা	উখিয়া	

Figure: Attendance of consultation meeting for W25-5



EMCRP/W25.6

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময়: 04:45 PM — তারিখ: 11/10/2020

Widening of Palongkhali Bazar to Palongkhali Post office via Anjumanpara Road

Ballali Station

ইউনিয়ন: Palongkhali — ওয়ার্ড নং: 09 — গ্রাম: Balukhali — উপজেলা: Ukhiya — জেলা: কক্সবাজার

EMCRP/W25.6

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
০১	[illegible]	৬৮	পুরুষ	[illegible]	[illegible] 11/10/2020
০২	[illegible]	৭০	"	[illegible]	[illegible]
০৩	[illegible]	৫৬	"	[illegible]	[illegible]
০৪	[illegible]	৫২	"	"	[illegible]
০৫	[illegible]	৬২	"	"	[illegible]
০৬	[illegible]	৪০	"	"	[illegible]
০৭	[illegible]	৫৯	"	[illegible]	[illegible]
০৮	[illegible]	৫৮	"	[illegible]	[illegible]
০৯	[illegible]	৬৭	"	"	[illegible]
১০	[illegible]	৪৫	"	"	[illegible]
১১	[illegible]	৬০	"	"	[illegible]
১২	[illegible]	২৮	নারী	"	
১৩	[illegible]	৫০	পুরুষ	[illegible]	[illegible]
১৪	[illegible]	৪৫	নারী	"	
১৫	[illegible]	৪০	পুরুষ	"	[illegible]
১৬	[illegible]	৩৫	"	"	[illegible]
১৭	[illegible]	৬৭	"	"	[illegible]

Figure: Attendance of consultation meeting for W25-6

EMCRP/W25.7

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময়: ১০:৩০ AM তারিখ: ০৮.১০.২০

উপ-প্রকল্প/কম্পোনেন্ট এর নাম:

মত বিনিময় স্থান: [illegible]

ইউনিয়ন: জালিয়াপালং ওয়ার্ড নং: ৬/৪ মৌজা: ইনানী উপজেলা: উখিয়া জেলা: কক্সবাজার

সাব প্যাকেজ নং: ২৫ (০৭)

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
০১	[illegible]	২৭	পু:	[illegible]	[illegible]
০২	[illegible]	৬২	"	[illegible]	[illegible]
০৩	[illegible]	৪৫	"	"	[illegible]
০৪	[illegible]	৪৮	"	"	[illegible]
০৫	[illegible]	২৯	"	[illegible]	[illegible]
০৬	মঞ্জুর আলম	৬২	"	[illegible]	[illegible]
০৭	জয়নাল আবেদীন	৬৮	"	[illegible]	[illegible]
০৮	[illegible]	৪৮	"	[illegible]	[illegible]
০৯	[illegible]	৬১	"	"	[illegible]
১০	[illegible]	২১	"	[illegible]	[illegible]
১১	জাহাঙ্গীর আলম	৬০	"	"	[illegible]
১২	[illegible]	৫০	"	[illegible]	[illegible]

Figure: Attendance of consultation meeting for W25-7

EMCRP/25.8

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

Focus Group Discussion

সময়: 11:35 AM তারিখ: 12/10/2020

উপ-প্রকল্প/প্যাকেজের নাম: Nhilla Baharchara Road

সভাস্থল: Hari Sabbir Market, West Pankhali

ইউনিয়ন: Hnilla ওয়ার্ড নং: 04 উপজেলা: Nhilla Baharchara, Teknaf জেলা: কক্সবাজার

উপ-প্রকল্প নং: EMCRP/W25.8

অংশগ্রহণকারীদের তালিকা (পরিচয় ও স্বাক্ষর)

ক্রম নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর / টিপসই
০১	[illegible]	৫০	পুরুষ	[illegible]	[illegible]
০২	[illegible]	৬৮	"	পূর্ব পানখালী	[illegible]
০৩	[illegible]	৭০	"	"	[illegible]
০৪	[illegible]	৫০	"	পশ্চিম পানখালী	[illegible]
০৫	[illegible]	৪৭	"	পূর্ব পানখালী	[illegible]
০৬	[illegible]	২৪	"	পশ্চিম পানখালী	[illegible]
০৭	[illegible]	৪৭	"	পূর্ব পানখালী	[illegible]
০৮	[illegible]	৫৫	"	পশ্চিম পানখালী	[illegible]
০৯	[illegible]	৬৫	"	পশ্চিম পানখালী	[illegible]
১০	মো: আলম	২৭	"	পূর্ব পানখালী	[illegible]
১১	[illegible]	২৪	"	পশ্চিম পানখালী	[illegible]
১২	[illegible]	২০	নারী	পশ্চিম পানখালী	[illegible]
১৩	[illegible]	১৯	"	[illegible]	[illegible]
১৪	[illegible]	৪০	"	[illegible]	[illegible]
১৫	[illegible]	৪০	"	[illegible]	[illegible]
১৬	[illegible]	৬৮	পুরুষ	[illegible]	[illegible]
১৭	[illegible]	৪১	নারী	[illegible]	[illegible]
১৮	[illegible]	২৫	পুরুষ	পশ্চিম পানখালী	[illegible]

Figure: Attendance of consultation meeting for W25-8

EMCRP/W25.9

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: 01:15 pm Date: 12/10/20

25(9)

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

প্রকল্পের নাম:
মত বিনিময়ের স্থান: ফুটবলের দোকান মধ্য স্কুলের রোড (আলমগীরের বাড়ির সামনে)

ইউনিয়ন: হ্নীলা
ডাকঘর: হ্নীলা
উপজেলা: টেকনাফ
জেলা: [illegible]

অংশগ্রহণকারীদের হাজিরা (পরিচয় ও স্বাক্ষর)

ক্রমিক নং	নাম	বয়স	পুরুষ/নারী	গ্রাম	স্বাক্ষর
১	ইলিয়াস	৪২	পুরুষ	মুনির আহমেদ	[signature]
২	আব্দুর রহমান	১৯	〃	〃	[signature]
৩	মীর কাসেম	৪৫	〃	〃	[signature]
৪	সাইফুল ইসলাম	১৮	〃	〃	[signature]
৫	মো: ইউনুস	২৬	〃	〃	Yunus
৬	মো: বেলাল উদ্দিন	৪৫	〃	〃	[signature]
৭	মো: তৈয়ব	২৮	〃	〃	[signature]
৮	মো: সাইফুল ইসলাম	২১	〃	〃	[signature]
৯	নুর আহমদ	৫০	〃	〃	[signature]
১০	মো: নাসির	২২	〃	〃	Nasir
১১	সায়মন ইসলাম	১৮	〃	〃	[signature]
১২	মো: রহিম	২৫	〃	〃	[signature]

Figure: Attendance of consultation meeting for W25-9

Annexure-3: Pictures of sub-project location and surrounding features with public consultation

Figures: Present condition of Sonapara GC-Marinedrive R&H road, ID- 422942004 (W25-1) & Public Consultation meeting with Host community

Figures: Present condition of Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part), ID- 422942005 (W25-2) & Public Consultation meeting with Host community





Figures: Present condition of Hijolia Horinmra Rd, ID- 422944005 (W25-3) & Public Consultation meeting with Host community

Figures: Present condition of Goalmara-Chaikbaita Bazar-Diglia Rd, ID- 422944024 (W25-4) & Public Consultation meeting with Host community

Figures: Present condition of Ukhya-Hatimora Rd, ID- 422944058 (W25-5) & Public Consultation meeting with Host community

Figures: Present condition of Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road, ID-422943002 (W25-6) & Public Consultation meeting with Host community

Figures: Present condition of Sonarpara GC-Seabeach Marine drive, ID-422944087 (W25-7) & Public Consultation meeting with Host community

Figures: Present condition of Hnilla Baharchara Road, ID- 422903001 (W25-8) & Public Consultation meeting with Host community

Figures: Present condition of Hnilla UP Office to Natmura Pacca Road, ID- 422903007 (W25-9) & Public Consultation meeting with Host community

Appendix-1: Environmental Screening Form for examining sub-projects
Environmental Screening Form for Sub-project W25-1

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Sonapara GC-Marinedrive R&H road ID 422942004

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **16,130,962.82 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Jaliapalong

Name of Community/Local Area: North Sonarpara & South Sonarpara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) & RCC options. For drainage of rain water Construction of **01 no. Cross Drain** (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 326.0m of chainage and **02 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 7.30m) at Ch. 225.0m & Ch. 752.0m of chainage, construction of **20.0m Long outlet Drain**, Maintenance of **186.0m Toe wall** and construction of **128.0m Palisading work (Brick)** at different Chainage, **Earth** works, **Road safety** works and **Environmental Mitigation** and **Enhancement** works.

Estimated footprint / land area for this sub-project is 6,517.5 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Sonapara GC-Marinedrive R&H road belongs to North Sonarpara & South Sonarpara villages at Jaliapalong union, Ward-3 under Ukhiya Upazila. This road has started from Courtbazar-Shaplapur road on Sonarpara bazar stretching 1185 meters from East side to West side on Marine drive, along with ancillary connecting road, boundary fencing, shop, educational institutions, settlements, trees, mosques, household connecting road, agriculture fields, electric pole, culverts etc.

Overall Comments

The proposed component of the sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water loggings have been observed in the road

area. But, some local trees like betel nut tree, bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within North Sonarpara & South Sonarpara villages at Jaliapalong union, Ward-3 of Ukhiya Upazila, Cox's Bazar. Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Sonarpara GPS (8m), Sonarpara High School (5m), Sonarpara Dakhil Madrasah & Orphanage (15m), Sonarpara land office (15m), Sonarpra Baytus Salam Mosque (10m), Sonarpara Women friendly space (12m) and Reju khal (300m), at south side West Sonarpara Baitul Mamur Mosque (15m), at east side Jaliapalong UP (200m), Sonarpara bazar Central Mosque & graveyard (50m) and west side Bay of Bengal (50m). Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Some human settlements and agricultural land are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were

about 14-15 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of BC & RCC options. According to the design this sub-project will be developed with Bituminous Carpeting (BC) & RCC from Ch. 00 to Ch. 1185.0m.

Subproject interventions:

- **Bituminous Carpeting (BC) & RCC** options.
- **01 no. Cross Drain** (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 326.0m of chainage
- **02 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 7.30m) at Ch. 225.0m & Ch. 752.0m of chainage
- **20.0m Long outlet Drain** at different Chainage
- Maintenance of **186.0m Toe wall** at different Chainage
- **128.0m Palisading work (Brick)** at different Chainage
- **Earth** works
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422942004
District	Cox's Bazar
Upazila	Ukhiya
Union	Jaliapalong
WARD	3
Total Chainage	1185m
Proposed Chainage	1185m
Road Type	Village Road
Proposed Intervention Type	Strengthening & Widening by BC & RCC work
Road Starting Point Coordinates	Latitude: $21^0$17'2.4" N Longitude: $92^0$03'30.4" E
Road Ending Point Coordinates	Latitude: $21^0$17'10.1" N Longitude: $92^0$02'54.4" E

Land ownership

Land is owned by the Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Some existing interventions within the sub-project location at north side Sonarpara GPS (8m), Sonarpara High School (5m), Sonarpara Dakhil Madrasah & Orphanage (15m), Sonarpara land office (15m), Sonarpra Baytus Salam Mosque (10m), Sonarpara Women friendly space (12m) and Reju khal (300m), at south side West Sonarpara Baitul Mamur Mosque (15m), at east side Jaliapalong UP (200m), Sonarpara bazar Central Mosque & graveyard (50m) and west side Bay of Bengal (50m).

Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

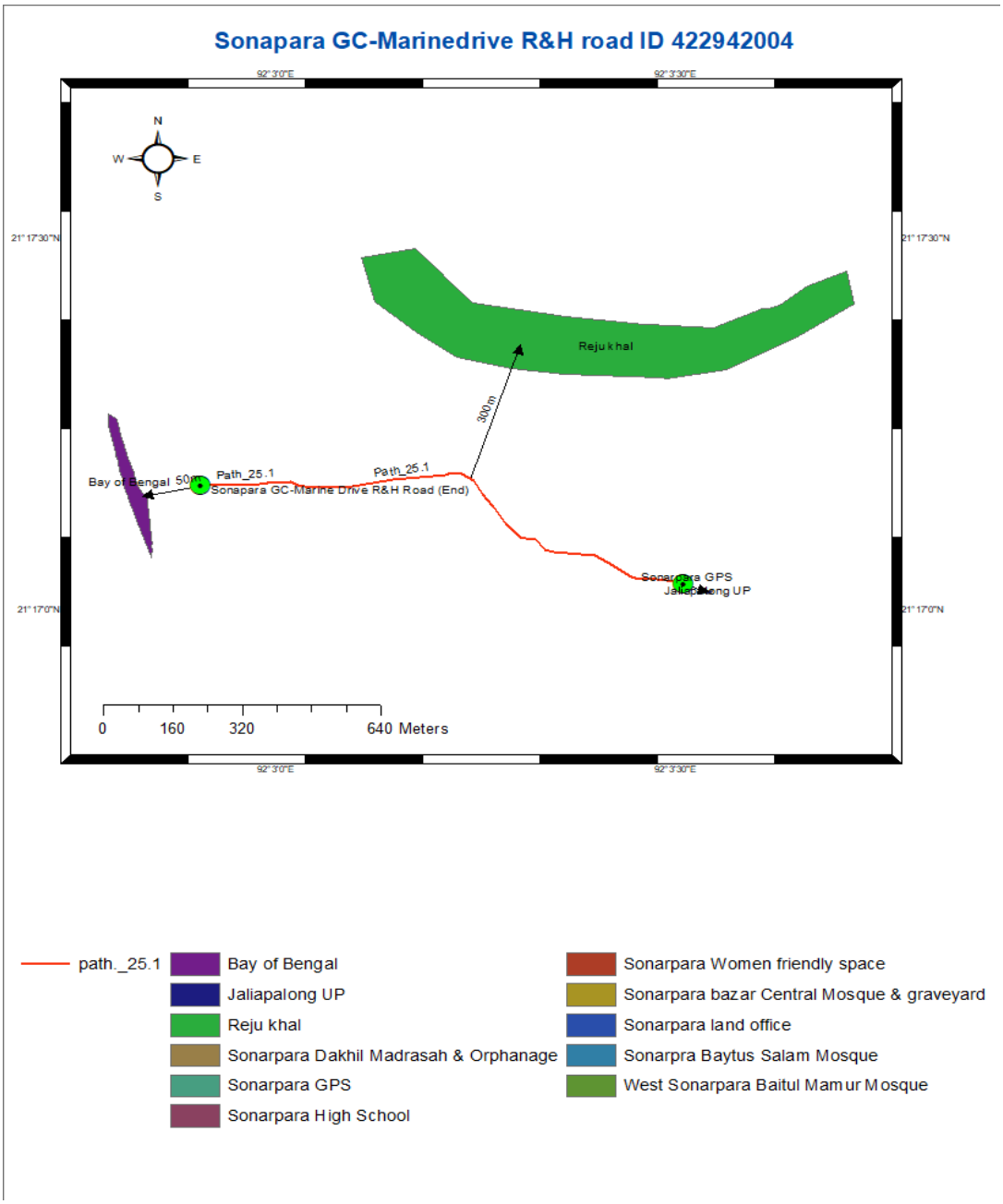
Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Sonarpara GPS (8m), Sonarpara High School (5m), Sonarpara Dakhil Madrasah & Orphanage (15m), Sonarpara land office (15m), Sonarpra Baytus Salam Mosque (10m), Sonarpara Women friendly space (12m) and Reju khal (300m), at south side West Sonarpara Baitul Mamur Mosque (15m), at east side Jaliapalong UP (200m), Sonarpara bazar Central Mosque & graveyard (50m) and west side Bay of Bengal (50m).

There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area, except matured vegetation on the sides of the road which is homestead gardens and forest. Several mosques, madrasa and local settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22

February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet and deep tube well depth is 400 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing large and matured trees across the road side and some social forest on hill of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Existing HBB roads named South Sonarpara connecting road, West Sonarpara connecting road and BC road named Courtbazar-Shaplapur connecting road are concerning ancillary facilities, This subproject is connected to this road. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Existing HBB roads named South Sonarpara connecting road, West Sonarpara connecting road and a BC road named Courtbazar-Shaplapur connecting road are available for the access road.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing pre- drainage channel around the sub-project location.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Reju khal located at 300m distance from the subproject but it is in safe distance from the site. No other existing drainage channels or surface water bodies found in the project area, therefore, no such effect can be anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated. However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC & RCC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-2

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) ID 422942005.

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **22,668,173.29 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Haldiapalong

Name of Community/Local Area: Kathalia, Halukia, Boardpara, Bandojjoghona & Paglirbill

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water Construction of **01 no. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 7.30m) and 02 nos. **RCC Box Culvert** (dimension: 2 vent-4.00mX4.00m; Roadway: 7.30m) at Ch. 637.0m, 70.0m & Ch. 898.0m of chainage, construction of **74.0m Brick Toe wall (height=3.0m)** and 1**8.0m Palisading work (Brick)** at different Chainage, **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.

Estimated footprint / land area for this sub-project is 10,450 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Moricha GC-Naikhongchari GC via Paglir bill Natunpara road (Ukhiya part) belongs to Kathalia, Halukia, Boardpara, Bandojjoghona & Paglirbill villages at Haldiapalong union, Ward-1 & 2 under Ukhiya Upazila. This road has started from Cox's Bazar-Teknaf highway on Moriccha bazar stretching 1900 meters from West side to East side, along with ancillary connecting road, boundary fencing, shops, settlements, trees, mosques, household connecting road, agriculture fields, electric pole, culverts etc.

Overall Comments

The proposed component of the sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water loggings have been observed in the road area. But, some local trees like betel nut tree, bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No

agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Kathalia, Halukia, Boardpara, Bandojjoghona & Paglirbill villages at Haldiapalong union, Ward-1 & 2 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Ashrafia Kashemul Ulum Madrasah, Hefjakhana & Orphanage (400m), Paglirbill Dakhil Madrasah (150m) and Reju khal (100m), at south side Kathalia jame mosque (20m), Umme Salma Girls Dakhil Madrasah, Hefjakhana, Orphanage & graveyard (120m), Hazipara Baitul Mamur Mosque (10m), Bandojjopara jame mosque (600m), at east side Paglirbill GPS (1 Km) and west side Moriccha bazar central mosque & Forkania Madrasah(150m), East Moriccha graveyard (400m), Moricchapalong GPS (300m), West Moriccha Buddhist Bihar (800m) and pond (200m). Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Some human settlements and agricultural land are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were

about 15-16 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC). According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1900.0m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **01 no. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 7.30m) and 02 nos. **RCC Box Culvert** (dimension: 2 vent-4.00mX4.00m; Roadway: 7.30m) at Ch. 637.0m, 70.0m & Ch. 898.0m of chainage
- **74.0m Brick Toe wall (height=3.0m)** at different Chainage
- 1**8.0m Palisading work (Brick)** at different Chainage
- **Earth** works
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422942005
District	Cox's Bazar
Upazila	Ukhiya
Union	Haldiapalong
WARD	1 & 2
Total Chainage	1900m
Proposed Chainage	1900m
Road Type	Village Road
Proposed Intervention Type	Strengthening & Widening by BC
Road Starting Point Coordinates	Latitude: 21^{0}18'41.6" N Longitude: 92^{0}05'50.6" E
Road Ending Point Coordinates	Latitude: 21^{0}19'11.6" N Longitude: 92^{0}06'45.5" E

Land ownership

Land is owned by the Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water

bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Some existing interventions within the sub-project location at north side Ashrafia Kashemul Ulum Madrasah, Hefjakhana & Orphanage (400m), Paglirbill Dakhil Madrasah (150m) and Reju khal (100m), at south side Kathalia jame mosque (20m), Umme Salma Girls Dakhil Madrasah, Hefjakhana, Orphanage & graveyard (120m), Hazipara Baitul Mamur Mosque (10m), Bandojjopara jame mosque (600m), at east side Paglirbill GPS (1 Km) and west side Moriccha bazar central mosque & Forkania Madrasah(150m), East Moriccha graveyard (400m), Moricchapalong GPS (300m), West Moriccha Buddhist Bihar (800m) and pond (200m).

Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

Section B: Environmental Screening

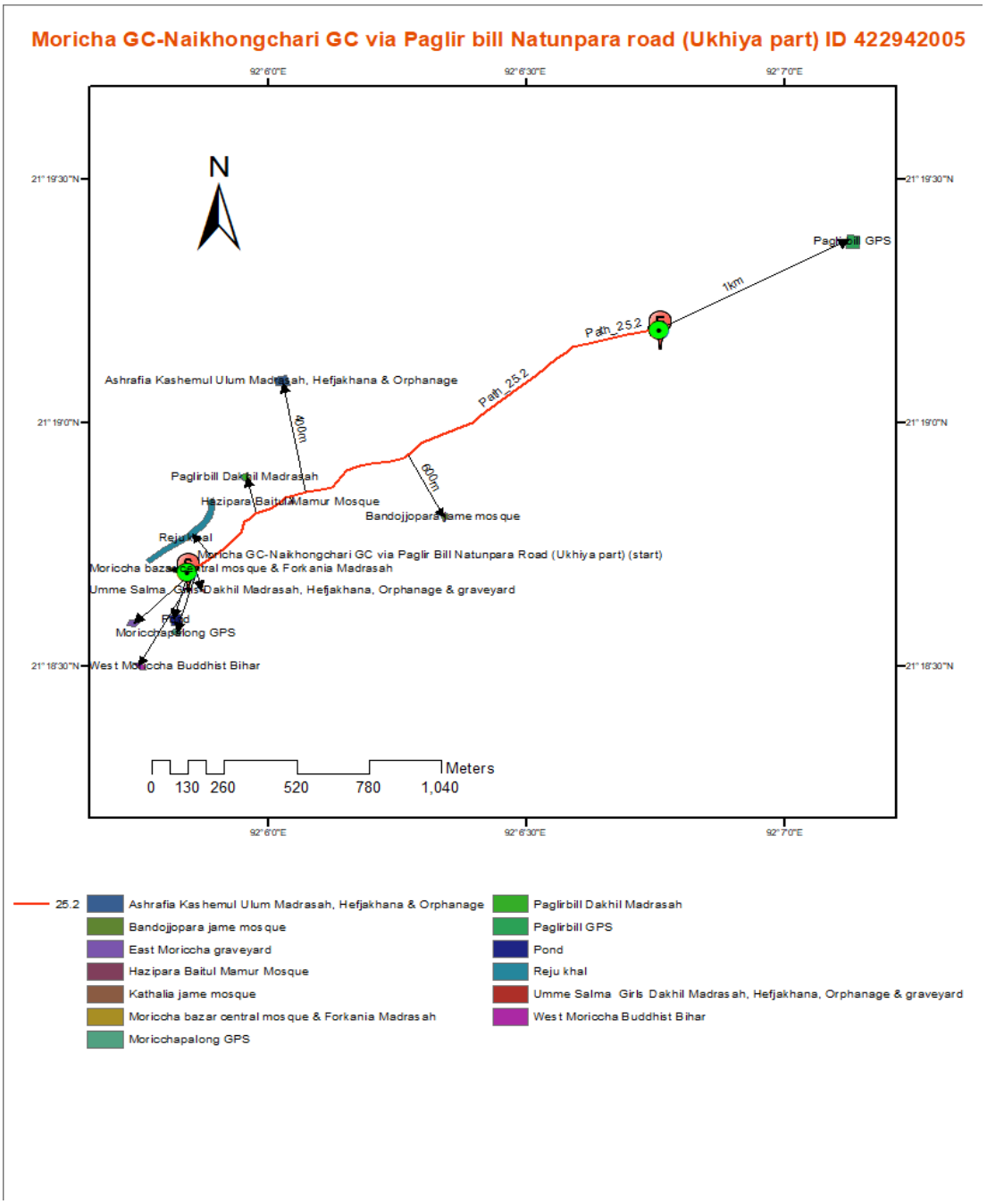
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Ashrafia Kashemul Ulum Madrasah, Hefjakhana & Orphanage (400m), Paglirbill Dakhil Madrasah (150m) and Reju khal (100m), at south side Kathalia jame mosque (20m), Umme Salma Girls Dakhil Madrasah, Hefjakhana, Orphanage & graveyard (120m), Hazipara Baitul Mamur Mosque (10m), Bandojjopara jame mosque (600m), at east side Paglirbill GPS (1 Km) and west side Moriccha bazar central mosque & Forkania Madrasah(150m), East Moriccha graveyard (400m), Moricchapalong GPS (300m), West Moriccha Buddhist Bihar (800m) and pond (200m). There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area, except matured vegetation on the sides of the road which are homestead gardens and forest. Several mosques, madrasa and local settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis

of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet and deep tube well depth is 400 feet. In the sub-project area, deep groundwater is fresh and potable and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation: Patches of vegetation containing large and matured trees across the road side and some social forest on hill of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Existing HBB roads called Kathalia connecting road, Halukia connecting road and Bandojjoghona connecting road are concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands for Bahar's private land at Kathalia, Abul Foyes's private land at Halukia. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Existing HBB road called Kathalia connecting road, Halukia connecting road and Bandojjoghona connecting road are available for the access road.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which is mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Low. Joyarir chorra and some local earthen drainage systems is the existing drainage channel around the sub-project location. The impacts are negative but short term within a small distance.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will

be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Joyarir chorra and some local earthen drainage systems constitute the existing drainage channel around the sub-project location but no such effect can be anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.

However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC & RCC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-3

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Hijolia Horinmra Rd ID 422944005

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **24,872,131.53 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Rajapalong

Name of Community/Local Area: Middle Rajapalong, Khal kun para, Horinmara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety structures are **03 nos. Cross Drain** (dimension: 0.750mX 0.750m) at Ch. 1609m, Ch. 2130m, Ch. 2230m and **01 nos. Box Culverts** (dimension: 2.0mX1.5m) at Ch:1839, **207.0m L-Drain** at different chainage, **25.0m Retaining wall** (H=3.0m) and **436.0m Palisading work**. Road safety works are also included in the project activity.

Estimated footprint / land area for this sub-project is 14,113 sq. meters

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

Proposed road is situated within the catchment area of Middle Rajapalong, Khal kun para, Horinmara stretching 2566 meters. This road starts from Hijulia-Cox's Bazar-Teknaf Highway Point and ends in Horinmara, Gunarpara in Ward 03. The road was already developed with BC but the road condition is damaged. Being one of the local communities of Ukhiya upazila these locations are very familiar to any other part of rural Bangladesh having mosques, village households, agriculture fields to grow crops and vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as rice production, betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and forests. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

The proposed component of the sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water loggings have been observed in the road area. But, some local trees like betel nut tree, rain tree, mango tree, bamboo bushes etc., or

additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer Households(30m), Households (20) to the north. Households(100m) to the south. Modhorajapalong GPS (250m), Households(100m), Households (30m) and khal (passing east to west at 750m chainaghe) to the east. Abul kashem nurzahan high school(200m), modho rajapalong central jame mosque (210m), Pond adjacent to Mosque(250m), Rajapalong Nurani Madrassa(500m), Rajapalong KG school(500m), Modho rajapalong Graveyard(500m), households(50m), Fishery Project (1km), pond (30m) and chora (passing east to west at 110m chainage). Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Mostly human settlements are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 5-6 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

This intervention will include the following items;

- **03 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 1609m, Ch. 2130m, Ch. 2230m**
- **01 nos. Box Culverts (dimension: 2.0mX1.5m) at Ch:1839**
- **207.0m L-Drain at different chainage**
- **25.0m Retaining wall (H=3.0m)**
- **436.0m Palisading work.Road safety works**
- **Road safety** work and **Environmental Mitigation and Enhancement** works are also included (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422944005
District	Cox's Bazar
Upazila	Ukhia
Union	Rajapalong
WARD	02,01and 03
Proposed Chainage	2566m
Road Type	Village Road-A
Proposed Intervention Type	Strengthening & Widening by BC
Distance from Upazila HQ	3 km
Road Starting Point Coordinates and name	Latitude: 21.26337^0 N Longitude: 92.11481^0 E Starts from Hijulia-Cox's Bazar-Teknaf Highway Point
Road Ending Point Coordinates and name	Latitude: 21.24569^0 N Longitude: 92.11348^0 E Ends in Horinmara, Gunarpara in Ward 03

Land ownership

Government Land

Expected construction period: 1 Year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Households (30m), Households (20) to the north. Households (100m) to the south. Modhorajapalong GPS (250m), Households (100m), Households (30m) and khal (passing east to west at 750m chainaghe) to the east. Abul kashem nurzahan high school(200m), modho rajapalong central jame mosque (210m), Pond adjacent to Mosque(250m), Rajapalong Nurani Madrassa(500m), Rajapalong KG school(500m), Modho rajapalong Graveyard(500m), households(50m), Fishery Project (1km), pond (30m) and chora (passing east to west at 110m chainage). Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close

to subproject location (checked with local IUCN representative).

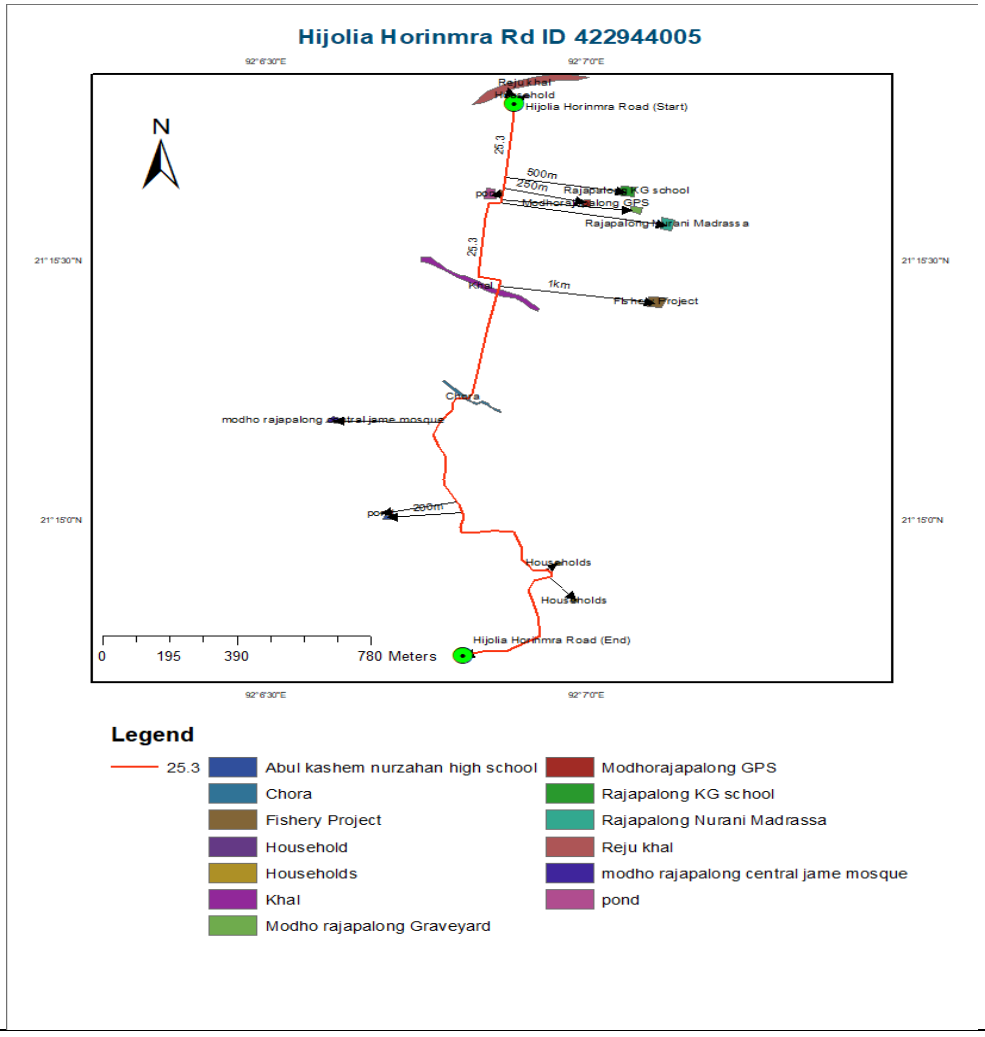
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Households (30m), Households (20) to the north. Households (100m) to the south. Modhorajapalong GPS (250m), Households (100m), Households (30m) and khal (passing east to west at 750m chainaghe) to the east. Abul kashem nurzahan high school(200m), modho rajapalong central jame mosque (210m), Pond adjacent to Mosque(250m), Rajapalong Nurani Madrassa(500m), Rajapalong KG school(500m), Modho rajapalong Graveyard(500m), households(50m), Fishery Project (1km), pond (30m) and chora (passing east to west at 110m chainage). There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018). However, Elephant movement is present on South-West of Horinmara every year, which is located 2km away (south-west) from the proposed road.

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 500. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains

medium concentration of iron. Deep groundwater table (drinkable) varies from 4600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): An access point called Horinmara road / Cox's Bazar-Teknaf road is available. It is possible to carry construction materials on these roads to the construction site with limited traffic flow to avoid congestion.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): Yes. Horinmara road / Cox's Bazar-Teknaf road is available as connecting road.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, dust from bricks during construction of project components will be

produce. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction works which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Low. A Khal (passing east to west at 750m chainage), A chora (passing east to west at 1100m chainage) and Reju khal (100m) located adjacent to the subproject area. The impacts are very small scale and site specifis and managed through mitigation measure.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and

site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) A Khal (passing east to west at 750m chainage), A chora (passing east to west at 1100m chainage) and Reju khal (100m) located adjacent to the subproject area, but no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the

associated risks. There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated. However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC & RCC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-4

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Goalmara-Chaikbaita Bazar-Diglia Rd ID 422944024

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **13,689,970.67 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Ratnapalong

Name of Community/Local Area: Goilmara, North, South, West and East Chakboitha, koroboinna

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety structures are **03 nos. Cross Drain** (dimension: 0.750mX 0.750m) at Ch. 119m, Ch. 710m, Ch. 728m and **81.0m Retaining wall** (H=5.0m) and **51.0m Palisading work**. **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works are also included in the project activity.

Estimated footprint / land area for this sub-project is 4,125 sq. meters

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

Proposed road is situated within the catchment area of Goilmara, North, South, West and East Chakboitha, koroboinna stretching 750 meters. This road starts from Ukhiya Dak-Banglo Forest Road and ends in West Chakboita. The road was already developed with BC but the road condition is damaged. Being one of the local communities of Ukhiya upazila these locations are very familiar to any other part of rural Bangladesh having mosques, village households, agriculture fields to grow crops and vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as rice production, betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and forests. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

The proposed component of the sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water loggings have been observed in the road area. But, some local trees like betel nut tree, rain tree, mango tree, bamboo bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer are Noyapara Mosque(500m), Amtoli GPS (1km), Uttor Goyal mara Mosque (1km), Bhalukia Mondir(1km), Fish Hachery (500m), West Dekulia Jame Mosque (500m) and khal (225m) to the north. Households (50m) to the south. Chairman Mosque(500m), Chokboita high School (150m), Chokboita GPS (100m), Chokboita Graveyard(150m), Degulia Madrassa (200m), Chakboita Hefzokhana(150m) to the east. Kumuria GPS(1km), Goyalmara Central Jame Mosque(100m), West Goyalmara jame mosque(500m), Local Graveyard(500m), Pond(80m), Goyalmara Madrassa(50m) to the west. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people. Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Mostly human settlements are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 6-7 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

This intervention will include the following items;

- **03 nos. Cross Drain** (dimension: 0.750mX 0.750m) at Ch. 119m, Ch. 710m, Ch. 728m
- **81.0m Retaining wall** (H=5.0m)
- **51.0m Palisading work.**
- **Road safety** work and **Environmental Mitigation and Enhancement** works are also included (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422944024
District	Cox's Bazar
Upazila	Ukhia
Union	Ratnapalong
WARD	05 and 06
Proposed Chainage	2566m
Road Type	Village Road-A
Proposed Intervention Type	Strengthening & Widening by BC
Distance from Upazila HQ	3 km
Road Starting Point Coordinates and name	Latitude 21.26759^0 N, Longitude 92.14441^0 E Starts from Ukhiya Dak-Banglo Forest Road
Road Ending Point Coordinates and name	Latitude 21.26863^0 N Longitude 92.15021^0 E Ends in West Chokboitha

Land ownership

Government Land

Expected construction period: 1 Year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Noyapara Mosque(500m), Amtoli GPS (1km), Uttor Goyal mara Mosque (1km), Bhalukia Mondir(1km), Fish Hachery (500m), West Dekulia Jame Mosque (500m) and khal (225m) to the north. Households (50m) to the south. Chairman Mosque(500m), Chokboita high School (150m), Chokboita GPS (100m), Chokboita Graveyard(150m), Degulia Madrassa (200m), Chakboita Hefzokhana(150m) to the east. Kumuria GPS(1km), Goyalmara Central Jame Mosque(100m), West Goyalmara jame mosque(500m), Local Graveyard(500m), Pond(80m), Goyalmara Madrassa(50m) to the west. Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

Section B: Environmental Screening

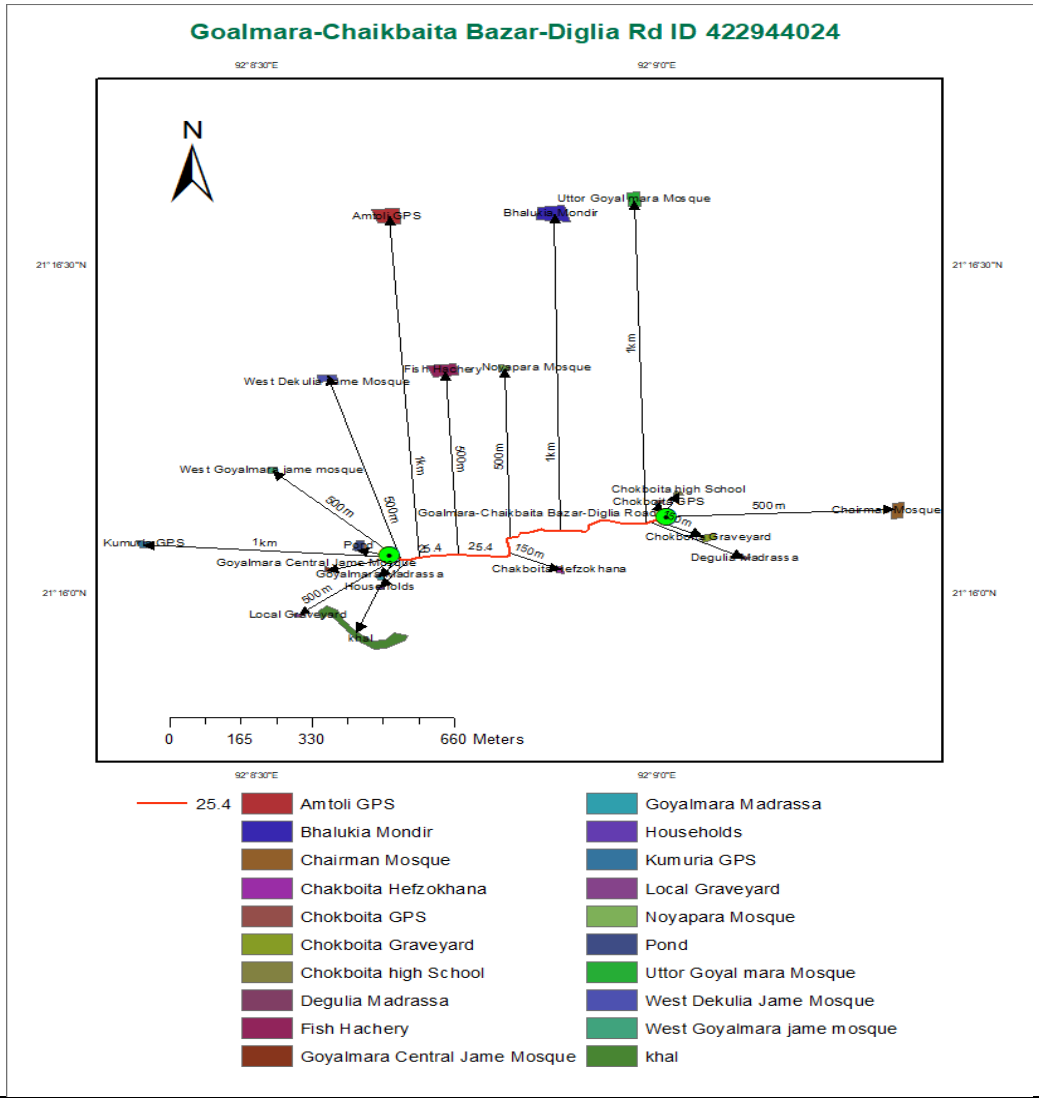
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Noyapara Mosque(500m), Amtoli GPS (1km), Uttor Goyal mara Mosque (1km), Bhalukia Mondir(1km), Fish Hachery (500m), West Dekulia Jame Mosque (500m) and khal (225m) to the north. Households (50m) to the south. Chairman Mosque(500m), Chokboita high School (150m), Chokboita GPS (100m), Chokboita Graveyard(150m), Degulia Madrassa (200m), Chakboita Hefzokhana(150m) to the east. Kumuria GPS(1km), Goyalmara Central Jame Mosque(100m), West Goyalmara jame mosque(500m), Local Graveyard(500m), Pond(80m), Goyalmara Madrassa(50m) to the west. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 80 feet to 100 feet and deep tube well depth is 450 feet. In the sub-project area, deep

groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): An access point called Ukhiya Dak-Banglo Forest road is available. It is possible to carry construction materials on these roads to the construction site with limited traffic flow to avoid congestion.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): Yes. Ukhiya Dak-Banglo Forest road is available as connecting road. Head load from unloading point to project location manually by the assigned contractor.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, dust from bricks during construction of project

components will be produce. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):
Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):
Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction.

Quantity: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:
No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)
The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)
No pre-existing waterbody or drainage is present

Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)
Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:
Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open

drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.

However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC & RCC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-5

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Ukhya-Hatimora Rd ID 422944058

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **26,181,383.36 Tk**.

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Rajapalong

Name of Community/Local Area: Patabari, Shikdarbill, Dargahbill, Taipalong & West Dargahbill

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water Construction of **04 nos. Cross Drain** (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 485.0m, Ch. 680.0m, Ch. 785.0m & Ch. 862.0m of chainage and **02 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at Ch. 408.0m & Ch. 1287.0m of chainage, **586.0m L-drain** at different chainage, **217.0m U-drain** at different chainage, construction of **524.0m Palisading work (Brick)** at different Chainage, **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.

Estimated footprint / land area for this sub-project is 10,010 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Ukhya-Hatimora Rd belongs to Patabari, Shikdarbill, Dargahbill, Taipalong & West Dargahbill villages at Rajapalong union, Ward-5 & 8 under Ukhiya Upazila. This road has started from Ukhiya-Teknaf highway on Dakbanglow market stretching 1820 meters from West side to East side, along with settlements, boundary wall, shops, trees, electric pole, mosques, ditches, connecting roads, bushes, homestead gardens etc.

Overall Comments

The proposed component of the sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water loggings have been observed in the road area. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary.

Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.
Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Patabari, Shikdarbill, Dargahbill, Taipalong & West Dargahbill villages at Rajapalong union, Ward-5 & 8 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Zilla Porishad Dakbanglow (10m), Bangamata Mohila College (700m), Ghilatoli mosque (10m), Ghilatoli Chorra (5m), Taipalong Baitur Rashid mosque (10m), Taipalong mosque & Madrasah (150m), Shishu Fokir mosque (400m), Hamedia Daruchunnah Dakhil Madrasah (100m), at south side West Dargahbill mosque, Hefjakhana, Orphanage & graveyard (10m), Taipalong graveyard (20m), Shailerdeba Buddhist Cremation (300m), at east side East Dargahbill GPS (500m), Haru Munshi bazar mosque (400m), Dokanmora mosque & hefjakhana (600m) and west side Ricemill (5m), East Shikdarbill mosque (200m), Shikdarbill Baitus Sharaf mosque (600m), Shikdarbill Brac School (300m). Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Some human settlements and homestead garden are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 4-5 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC). According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1820m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **04 nos. Cross Drain** (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 485.0m, Ch. 680.0m, Ch. 785.0m & Ch. 862.0m of chainage
- **02 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at Ch. 408.0m & Ch. 1287.0m of chainage
- **217.0m U-drain** at different chainage
- **586.0m L-drain** at different chainage
- **524.0m Palisading work (Brick)** at different Chainage
- **Earth** works
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422944058
District	Cox's Bazar
Upazila	Ukhiya
Union	Rajapalong
WARD	5 & 8
Total Chainage	1820m
Proposed Chainage	1820m
Road Type	Village Road
Proposed Intervention Type	Strengthening & Widening by BC
Road Starting Point Coordinates	Latitude: $21^0$14'40" N Longitude: $92^0$08'21" E
Road Ending Point Coordinates	Latitude: $21^0$15'02" N Longitude: $92^0$09'13" E

Land ownership

Land is owned by the Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio cultural assets): Please also explain any analysis on alternative

location was conducted:

Some existing interventions within the sub-project location at north side Zilla Porishad Dakbanglow (10m), Bangamata Mohila College (700m), Ghilatoli mosque (10m), Ghilatoli Chorra (5m), Taipalong Baitur Rashid mosque (10m), Taipalong mosque & Madrasah (150m), Shishu Fokir mosque (400m), Hamedia Daruchunnah Dakhil Madrasah (100m), at south side West Dargahbill mosque, Hefjakhana, Orphanage & graveyard (10m), Taipalong graveyard (20m), Shailerdeba Buddhist Cremation (300m), at east side East Dargahbill GPS (500m), Haru Munshi bazar mosque (400m), Dokanmora mosque & hefjakhana (600m) and west side Ricemill (5m), East Shikdarbill mosque (200m), Shikdarbill Baitus Sharaf mosque (600m), Shikdarbill Brac School (300m).

Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

Section B: Environmental Screening

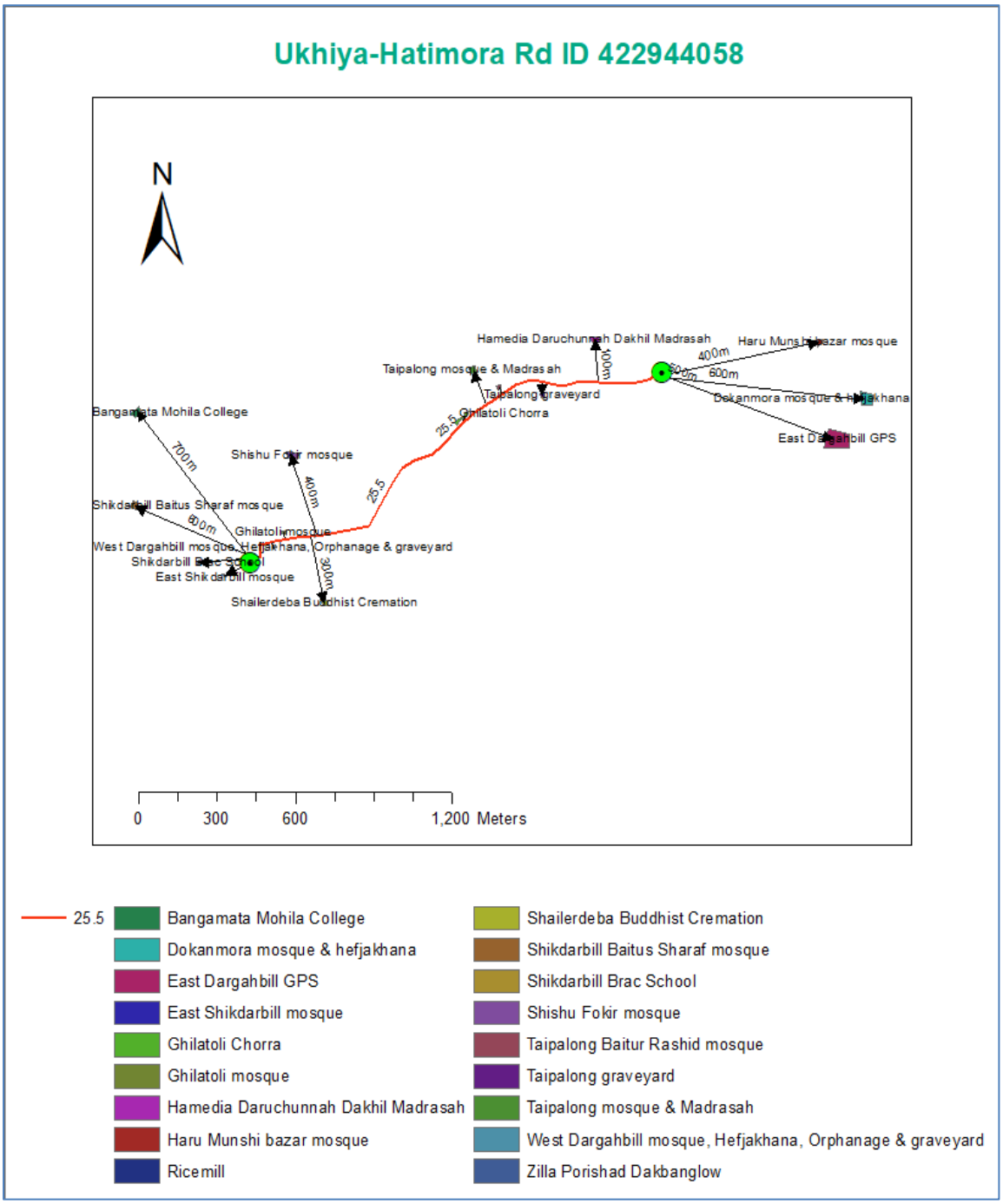
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Zilla Porishad Dakbanglow (10m), Bangamata Mohila College (700m), Ghilatoli mosque (10m), Ghilatoli Chorra (5m), Taipalong Baitur Rashid mosque (10m), Taipalong mosque & Madrasah (150m), Shishu Fokir mosque (400m), Hamedia Daruchunnah Dakhil Madrasah (100m), at south side West Dargahbill mosque, Hefjakhana, Orphanage & graveyard (10m), Taipalong graveyard (20m), Shailerdeba Buddhist Cremation (300m), at east side East Dargahbill GPS (500m), Haru Munshi bazar mosque (400m), Dokanmora mosque & hefjakhana (600m) and west side Ricemill (5m), East Shikdarbill mosque (200m), Shikdarbill Baitus Sharaf mosque (600m), Shikdarbill Brac School (300m).

Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas (within 30m buffer zone) are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of

elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject area)

(3) Other issues:

No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet and deep tube well depth is 500 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to

681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Some existing HBB roads called Patabari connecting road, Dargahbill connecting road, Patabari Delpara connecting road, Shikdarbill connecting road, Ghilatoli connecting road, Lambaghona connecting road and BC roads called Ukhiya-Teknaf highway, T&T connecting road are available for access. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Some existing HBB roads called Patabari connecting road, Dargahbill connecting road, Patabari Delpara connecting road, Shikdarbill connecting road, Ghilatoli connecting road, Lambaghona connecting road and BC roads called Ukhiya-Teknaf highway, T&T connecting road are available for access.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However this will need placement on open fields and should be consulted with local committee. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, dust from bricks during construction of project components will be produce. Also sludge will be produced from labor camp latrines and kitchen waste mostly

composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which is mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity** It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Low. Ghilatoli Chorra located at 5m north from the subproject area. The impacts are negative but very small scale, site specific within a relatively small area and adjustable by mitigation measure.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this interventions, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise but no air pollution.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Low. Ghilatoli Chorra located 5m north from the subproject area therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around project sites, and no known areas of

ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated. However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC & RCC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-6

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road ID 422943002

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **48,675,075.80 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Palongkhali

Name of Community/Local Area: East Palongkhali, Poschim parerbill, Bottoli bazar, East Bottoli, Uttarpara, Paglamarket & Anjumanpara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water **11 nos. Cross Drain** (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 869.0m, Ch. 1714.0m, Ch. 1761.0m, Ch. 1174.0m Link Rd L/S, Ch. 1322.0m Link Rd R/S, Ch. 1453.0m Link Rd R/S, Ch. 1975.0m, Ch. 2367.0m, Ch. 2420.0m, Ch. 2667.0m & Ch. 2335.0m of chainage and **04 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at Ch. 2607.0m, Ch. 2728.0m, Ch. 2787.0m & Ch. 3038.0m of chainage, **509.0m L-drain** at different chainage, construction of **538.0m Brick Toe wall** (0.60m, 1.0m, 1.5m & 2.0m height) at different chainage, construction of **856.0m Palisading work (Brick)** at different Chainage, Construction of **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.

Estimated footprint / land area for this sub-project is 19,910 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Palongkhali Bazar to Palongkhali UP office via Anjumanpara Road belongs to East Palongkhali, Poschim parerbill, Bottoli bazar, East Bottoli, Uttarpara, Paglamarket & Anjumanpara villages at Palongkhali union, Ward-7, 8 & 9 under Ukhiya Upazila. This sub-project is on flat land area. This road has started at Ukhiya-Teknaf highway on Palongkhali bazar stretching 3630 meters from West side to North side along with existing protective works, connecting roads, culverts, BGB camp, markets, paddy lands, settlements, trees, bushes, homestead gardens, boundary fences, ditches, electric pole etc.

Overall Comments

The proposed sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of

the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging has been observed in the road area. But, some local trees like betel nut, bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.
It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within East Palongkhali, Poschim parerbill, Bottoli bazar, East Bottoli, Uttarpara, Paglamarket & Anjumanpara villages at Palongkhali union, Ward-7, 8 & 9 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Anjumanpara Ebtedayee Madrasah (10m), Miar barir graveyard (7m), Shah A. Latif mosque (50m), Farirbill GPS (5m) and Palongkhali high school (150m), at south side Miar pukur (8m), Chakmar kul mosque & Madrasah (500m), Palonkhali khal (300m), Bottoli Bazar mosque & Hefjakhana (12m), at east side Palongkhali central mosque & graveyars (300m), Palongkhali GPS (400m), Palongkhali Girls Madrasah (350m), Poschim parerbill mosque & graveyard (10m), Palongkhali M.Q Dakhil & Fazil Madrasah (15m), Poschim parerbill GPS (10m), Bottoli GPS (5m), Anjumanpara mosque (3m) and at west side Palongkhali bazar (10m), Tazman Hospita (20m), Omar Faruk mosque (20m), Mao. A. Mabud mosque & madrasah (800m), Rabeta Hospital (700m), Aanjumapara BGB camp (5m). Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Some human settlements and agricultural land are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 6-7 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC). According to the design this sub-project will be improved with Bituminous Carpeting (BC) from Ch. 00m to Ch. 3630m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **11 nos. Cross Drain** (dimension: 0.750mX 0.750m; Roadway: 7.30m) at Ch. 869.0m, Ch. 1714.0m, Ch. 1761.0m, Ch. 1174.0m Link Rd L/S, Ch. 1322.0m Link Rd R/S, Ch. 1453.0m Link Rd R/S, Ch. 1975.0m, Ch. 2367.0m, Ch. 2420.0m, Ch. 2667.0m & Ch. 2335.0m of chainage
- **04 nos. RCC Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at Ch. 2607.0m, Ch. 2728.0m, Ch. 2787.0m & Ch. 3038.0m of chainage
- **509.0m L-drain** at different chainage
- **538.0m Brick Toe wall** (0.60m, 1.0m, 1.5m & 2.0m height) at different chainage
- **856.0m Palisading work (Brick)** at different Chainage
- **Earth** works
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422943002
District	Cox's Bazar
Upazila	Ukhiya
Union	Palongkhali
WARD	7, 8 & 9
Total Chainage	3630m
Proposed Chainage	3630m
Road Type	Village Road
Proposed Intervention Type	Strengthening & Widening by BC & RCC work
Road Starting Point Coordinates	Latitude: $21^0$08'38.8" N Longitude: $92^0$09'31.6" E
Road Ending Point Coordinates	Latitude: $21^0$08'59.7" N Longitude: $92^0$10'28.4" E

Land ownership
Land is owned by Government.

Expected construction period: 1 year

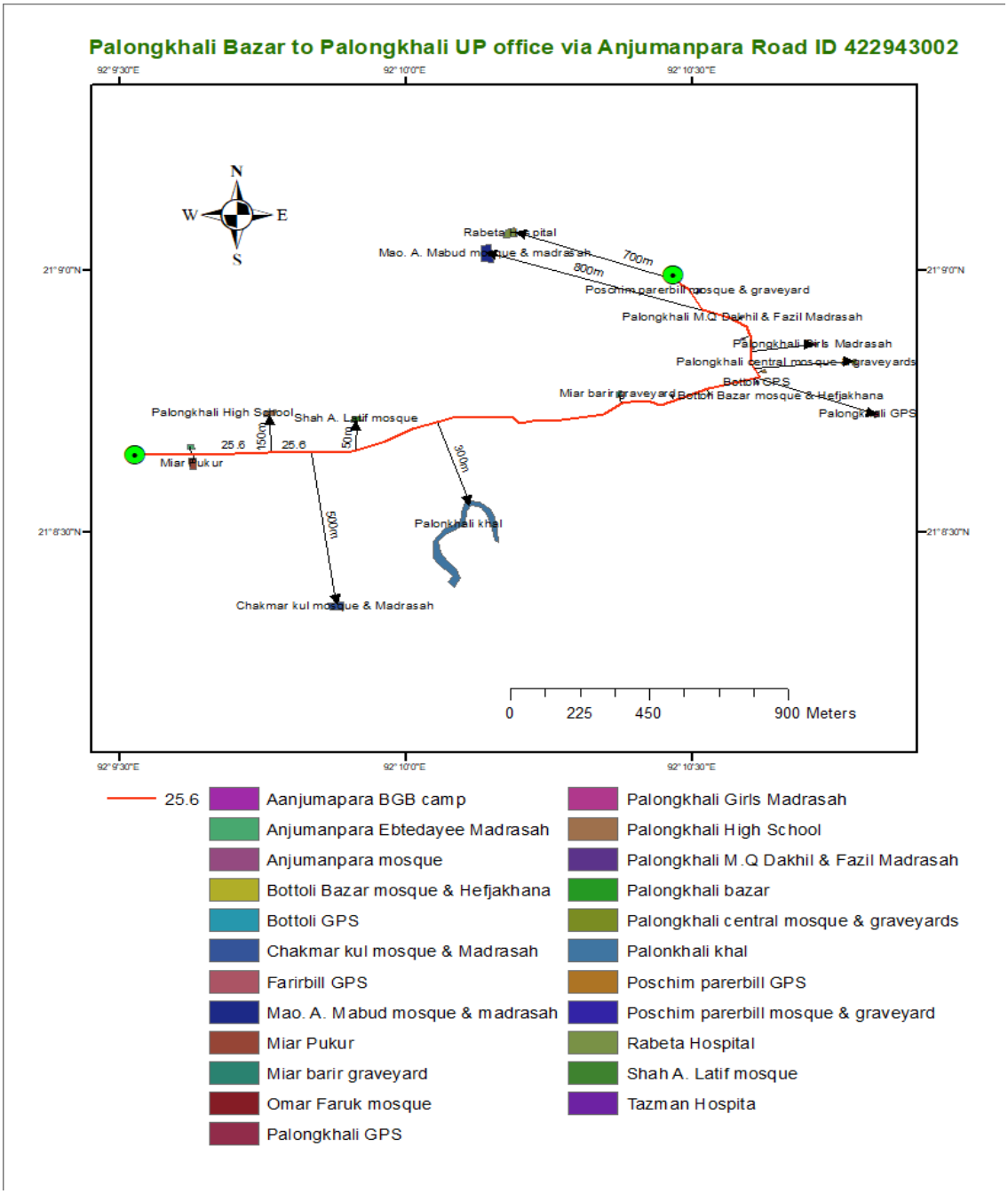
Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio cultural assets): Please also explain any analysis on alternative location was conducted:
At north side Anjumanpara Ebtedayee Madrasah (10m), Miar barir graveyard (7m), Shah A. Latif mosque (50m), Farirbill GPS (5m) and Palongkhali high school (150m), at south side Miar pukur (8m), Chakmar kul mosque & Madrasah (500m), Palonkhali khal (300m), Bottoli Bazar mosque & Hefjakhana (12m), at east side Palongkhali central mosque & graveyars (300m), Palongkhali GPS (400m), Palongkhali Girls Madrasah (350m), Poschim parerbill mosque & graveyard (10m), Palongkhali M.Q Dakhil & Fazil Madrasah (15m), Poschim parerbill GPS (10m), Bottoli GPS (5m), Anjumanpara mosque (3m) and at west side Palongkhali bazar (10m), Tazman Hospita (20m), Omar Faruk mosque (20m), Mao. A. Mabud mosque & madrasah (800m), Rabeta Hospital (700m), Aanjumapara BGB camp (5m).

Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):
Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:
Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Anjumanpara Ebtedayee Madrasah (10m), Miar barir graveyard (7m), Shah A. Latif mosque (50m), Farirbill GPS (5m) and Palongkhali high school (150m), at south side Miar pukur (8m), Chakmar kul mosque & Madrasah (500m), Palonkhali khal (300m), Bottoli Bazar mosque & Hefjakhana (12m), at east side Palongkhali central mosque & graveyars (300m), Palongkhali GPS (400m), Palongkhali Girls Madrasah (350m), Poschim parerbill mosque & graveyard (10m), Palongkhali M.Q Dakhil & Fazil Madrasah (15m), Poschim parerbill GPS (10m), Bottoli GPS (5m), Anjumanpara mosque (3m) and at west side Palongkhali bazar (10m), Tazman Hospita (20m), Omar Faruk mosque (20m), Mao. A. Mabud mosque & madrasah (800m), Rabeta Hospital (700m), Aanjumapara BGB camp (5m). Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.



A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown above.

Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of

elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet and deep tube well depth is 550 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Existing HBB roads called East Palongkhali-Nalbunia connecting road, Pochim parerbill connecting road, Nalbunia-Pagla market connecting road, Anjumanpara connecting road, Uttarpara connecting road, Purbo parerbill connecting road are available for access. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. One possible private land for using labor camp installation will be Anjumanpara Abdul Latif Waffa Estate. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Existing HBB roads called East Palongkhali-Nalbunia connecting road, Pochim parerbill connecting road, Nalbunia-Pagla market connecting road, Anjumanpara connecting road, Uttarpara connecting road, Purbo parerbill connecting road are available for access.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However this will need placement on open fields and should be consulted with local committee. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, bitumen, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the

kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 25kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction works which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Low. Palongkhali khal (300m), Naf river, local chorra etc. are the existing drainage channel on the sub-project location. No disturbance will be anticipated due to construction activities.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this interventions, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be

managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise but no air pollution.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Palongkhali khal (300m), Naf river, local chorra etc. are the existing drainage channel in the sub-project area but at sufficient distances from the road length. Therefore, no such effect can be anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated. However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-7

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Sonarpara GC-Seabeach Marinedrive ID422944087

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **10,912,058.34 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Jaliapalong

Name of Community/Local Area: Sonarpara & Delpara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water **01 no. Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at 254.0m of chainage and 01 nos. **Box Culvert** (dimension: 3.00mX2.50m; Roadway: 5.50m) at Ch. 652.0m of chainage, construction of **47.0m Brick Toe wall** (height=1.5m) **and 50.0m Palisading work (Brick)** at different Chainage, Construction of **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works.

Estimated footprint / land area for this sub-project is 4,301 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: This proposed Sonarpara GC-Seabeach Marinedrive belongs to Sonarpara & Delpara villages at Jaliapalong union, Ward-3 & 4 under Ukhiya Upazila. This road has started from Courtbazar-Shaplapur road on Sonarpara Jagirer Tek stretching 782 meters from East side to west side, along with boundary fences, betelnut garden, shops, culverts, settlements, trees, mosques, household connecting road, agriculture fields, electric pole, bushes etc.

Overall Comments

The proposed component of the sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water loggings have been observed in the road area. But, some local trees like betel nut tree, bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Sonarpara & Delpara villages at Jaliapalong union, Ward-3 & 4 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side North Sonarpara mosque (500m), South-West Sonarpara mosque & Hefjakhana (5m), at south side North Delpara mosque (200m), Delpara GPS (1km), Jagrertek hill (150m), at east side Sonarpara bazar (500m), Sonarpara bazar mosque & graveyard (550m), Jaliapalong UP (900m), Sonarpara GPS/High School/ Dakhil madrasah (600m), East Sonarpara mosque (400m), Jaliapalong land office (560m), West Sonarpara mosque (150m) and west side Bay of Bengal (150m), Sonarpara community center (10m). Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Some human settlements and agricultural land are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 14-15 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of broken Bituminous Carpeting (BC) options According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 782.0m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **01 no. Box Culvert** (dimension: 2.00mX1.50m; Roadway: 5.50m) at 254.0m of chainage and 01 nos. **Box Culvert** (dimension: 3.00mX2.50m; Roadway: 5.50m) at Ch. 652.0m of chainage
- **47.0m Brick Toe wall** (height=1.5m) at different Chainage
- **50.0m Palisading work (Brick)** at different Chainage
- **Earth** works
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422944087
District	Cox's Bazar
Upazila	Ukhiya
Union	Jaliapalong
WARD	3 & 4
Total Chainage	782m
Proposed Chainage	782m
Road Type	Village Road
Proposed Intervention Type	Strengthening & Widening by BC
Road Starting Point Coordinates	Latitude: $21^0$16'48.9" N Longitude: $92^0$03'21.0" E
Road Ending Point Coordinates	Latitude: $21^0$16'40.4" N Longitude: $92^0$02'56.5" E

Land ownership

Land is owned by the Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

At north side North Sonarpara mosque (500m), South-West Sonarpara mosque & Hefjakhana (5m),

at south side North Delpara mosque (200m), Delpara GPS (1km), Jagrertek hill (150m), at east side Sonarpara bazar (500m), Sonarpara bazar mosque & graveyard (550m), Jaliapalong UP (900m), Sonarpara GPS/High School/ Dakhil madrasah (600m), East Sonarpara mosque (400m), Jaliapalong land office (560m), West Sonarpara mosque (150m) and west side Bay of Bengal (150m), Sonarpara community center (10m). Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

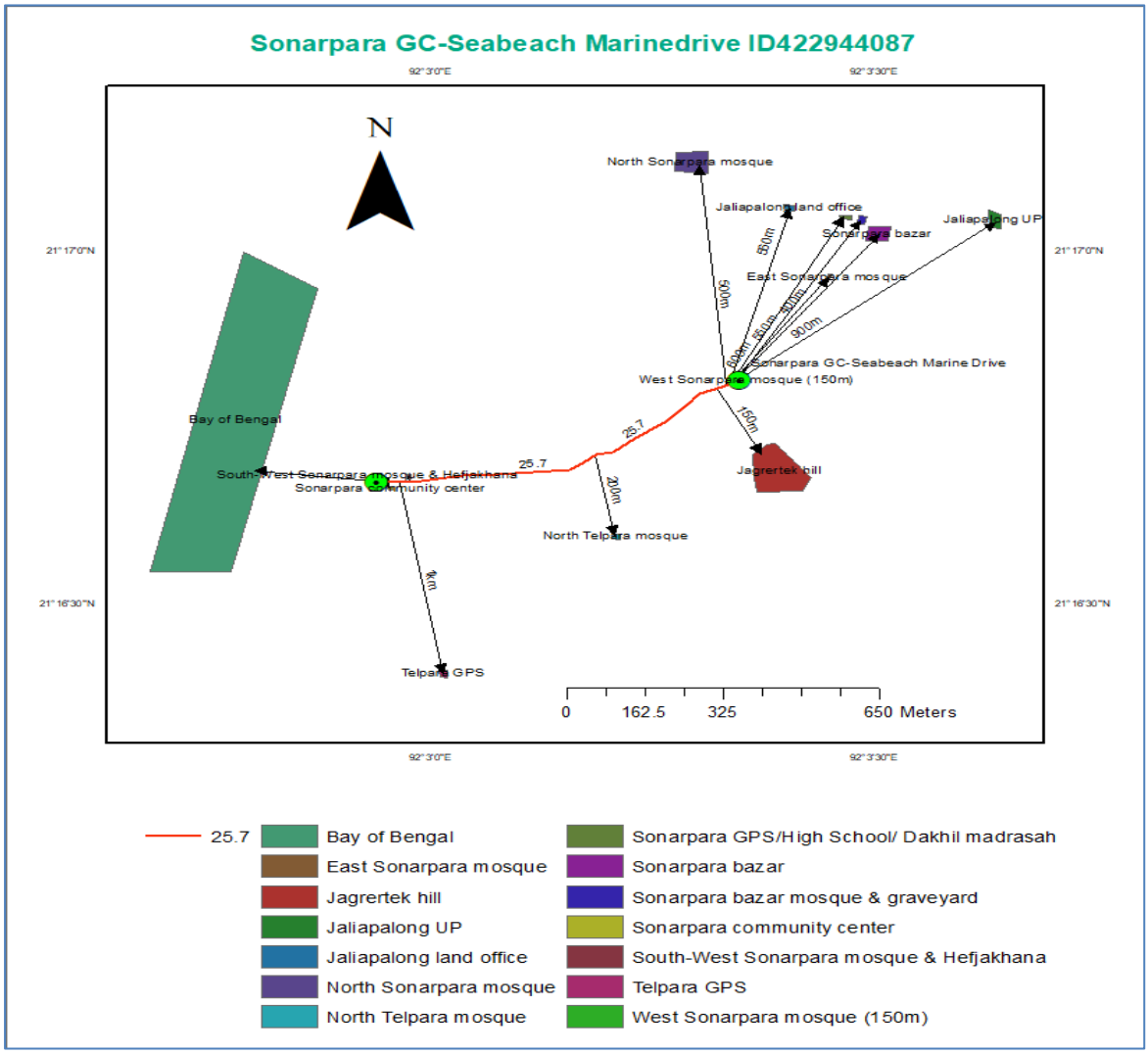
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side North Sonarpara mosque (500m), South-West Sonarpara mosque & Hefjakhana (5m), at south side North Delpara mosque (200m), Delpara GPS (1km), Jagrertek hill (150m), at east side Sonarpara bazar (500m), Sonarpara bazar mosque & graveyard (550m), Jaliapalong UP (900m), Sonarpara GPS/High School/ Dakhil madrasah (600m), East Sonarpara mosque (400m), Jaliapalong land office (560m), West Sonarpara mosque (150m) and west side Bay of Bengal (150m), Sonarpara community center (10m). There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet and deep tube well depth is 600 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing large and matured trees across the road side and some social forest on hill of the proposed subproject area are located within 200m radial distance.

Summary of water balance analysis (For water supply scheme only):

N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Courtbazar-Shamlapur connecting road and Marine drive are the available for access. It is possible to carry the construction materials on this road to the construction site with limited traffic flow since this road has small corridor to pass large vehicles.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands of former UP chairman S.M Sayed Alom and UP member Abu Taher at South-West Sonarpara and Aziullah at Delpara. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vii) Bitumen etc. are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. Courtbazar-Shamlapur connecting road and Marine drive are the available access road.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, dust from bricks during construction of project components will be produce. Also sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which is mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction

of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Bay of Bengal located at 150m north but it is at safe distance. No such effect can be anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated. However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC & RCC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-8

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Hnilla Baharchara Road ID 422903001

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **36,422,696.37 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Teknaf **Union**: Hnilla

Name of Community/Local Area: Shikdarpara, Hokiapara, East Pankhali, West Pankhali, Villagerpara & Moricchaghona

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water construction of **01 no. Cross Drain** (dimension: 0.975mX 0.975m; Roadway: 5.50m) at Ch. 299.0m of chainage, **03 nos. Box Culvert** (dimension: 1 vent-1.50mX1.50m; Roadway: 5.50m) at Ch. 516.0m, Ch. 1288.0m & Ch. 1392.0m of chainage and 01 no. **Box Culvert** (dimension: 2 vent-4.50mX4.50m; Roadway: 5.50m) at Ch. 1006.0m of chainage, **707.0m RCC U-drain** (dimension: 0.60mX0.60m) at different chainage, construction of **385.0m L-drain** and **104.0m Palisading work (Brick)** at different Chainage will be constructed as well as for **Earth** works, **Road safety** work and **Environmental Mitigation and Enhancement works** has been included in the estimation.

Estimated footprint / land area for this sub-project is 15,147 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Hnilla Baharchara Road belongs to Shikdarpara, Hokiapara, East Pankhali, West Pankhali, Villagerpara & Moricchaghona villages at Hnilla union, Ward-1, 4 & 5 under Teknaf Upazila. This road has started from Ukhiya-Teknaf highway on Hnilla bazar stretching 2754 meters from East side to West side on Hnilla dala hill, along with ancillary connecting road, boundary fencing, open spaces, hilly lands, market's shop, settlements, trees, mosques, household connecting road, agriculture fields, electric pole, homestead garden, graveyards etc.

Overall Comments

The proposed component of the sub-project (Road Strengthening & Widening) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important

environmental features. No drainage congestion/water loggings have been observed in the road area. But, some local trees like betel nut tree, bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Shikdarpara, Hokiapara, East Pankhali, West Pankhali, Villagerpara & Moricchaghona villages at Hnilla union, Ward-1, 4 & 5 under Teknaf Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Hnilla Darusunnah Madrasah (15m), Hnilla Madrasah (20m), East Pankhali graveyard (10m), Shaplagodha khal (5m), West Pankhali Jumma mosque (10m), Eidgah ground (10m), Labonchorra khal (crosses), Hnillar dala hill (100m), Social forest (100m), Hnilla girls high school (500m), Moricchaghona GPS & Madrasah (600m), Ali Akborpara GPS (500m), Moricchachona hill (300m), Hondakata hill (200m), at south side LGED godown (10m), Old UP office (7m), pond (8m), Shikdarpara graveyard (10m), Majherpara graveyard (15m), Azizia nurani Madrasah & hafejkhana (25m), Pankhali GPS (60m), Islampur Madrasah (40m), Hnilla Banabit (30m), Villagerpara mosque & madrasah (25m), Bottoli chorra (8m), Lechuaprang mosque & madrasah (1km), Nafmerit Multimedia

School (10m), at east side Arakan road (5m), Hnilla high school (500m), Hnilla model GPS (550m), Hnilla land office (525m), Hnilla Postoffice (510m), BGB camp (600m), Treatment center (530m), Buddhist mondir (505m), Hnilla bazar mosque (490m), Alfalah Academy (400m) and west side Hnilla dala hill (50m), Gargan garden (100m), Jahazkhola GPS (500m), Jahazkhola post office (650m), land office (655m). Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Some human settlements and agricultural land are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 1-2 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of damaged BC. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 161.0m to Ch. 2915.0m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **01 no. Cross Drain** (dimension: 0.975mX 0.975m; Roadway: 5.50m) at Ch. 299.0m of chainage, **03 nos. Box Culvert** (dimension: 1 vent-1.50mX1.50m; Roadway: 5.50m) at Ch. 516.0m, Ch. 1288.0m & Ch. 1392.0m of chainage and 01 no. **Box Culvert** (dimension: 2 vent-4.50mX4.50m; Roadway: 5.50m) at Ch. 1006.0m of chainage,
- **707.0m RCC U-drain** (dimension: 0.60mX0.60m) at different chainage
- **385.0m L-drain** and **104.0m Palisading work (Brick)** at different Chainage
- **Earth** works
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422903001
District	Cox's Bazar
Upazila	Teknaf
Union	Hnilla
WARD	1, 4 & 5
Total Chainage	2915m
Proposed Chainage	2754m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)

Road Starting Point Coordinates	Latitude: 21^{0}00'49.3" N Longitude: 92^{0}14'46.2" E
Road Ending Point Coordinates	Latitude: 21^{0}01'12.2" N Longitude: 92^{0}13'17.7" E

Land ownership
Land is owned by Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Some existing interventions within the sub-project location at north side Hnilla Darusunnah Madrasah (15m), Hnilla Madrasah (20m), East Pankhali graveyard (10m), Shaplagodha khal (5m), West Pankhali Jumma mosque (10m), Eidgah ground (10m), Labonchorra khal (crosses), Hnillar dala hill (100m), Social forest (100m), Hnilla girls high school (500m), Moricchaghona GPS & Madrasah (600m), Ali Akborpara GPS (500m), Moricchachona hill (300m), Hondakata hill (200m), at south side LGED godown (10m), Old UP office (7m), pond (8m), Shikdarpara graveyard (10m), Majherpara graveyard (15m), Azizia nurani Madrasah & hafejkhana (25m), Pankhali GPS (60m), Islampur Madrasah (40m), Hnilla Banabit (30m), Villagerpara mosque & madrasah (25m), Bottoli chorra (8m), Lechuaprang mosque & madrasah (1km), Nafmerit Multimedia School (10m), at east side Arakan road (5m), Hnilla high school (500m), Hnilla model GPS (550m), Hnilla land office (525m), Hnilla Postoffice (510m), BGB camp (600m), Treatment center (530m), Buddhist mondir (505m), Hnilla bazar mosque (490m), Alfalah Academy (400m) and west side Hnilla dala hill (50m), Gargan garden (100m), Jahazkhola GPS (500m), Jahazkhola post office (650m), land office (655m).

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Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

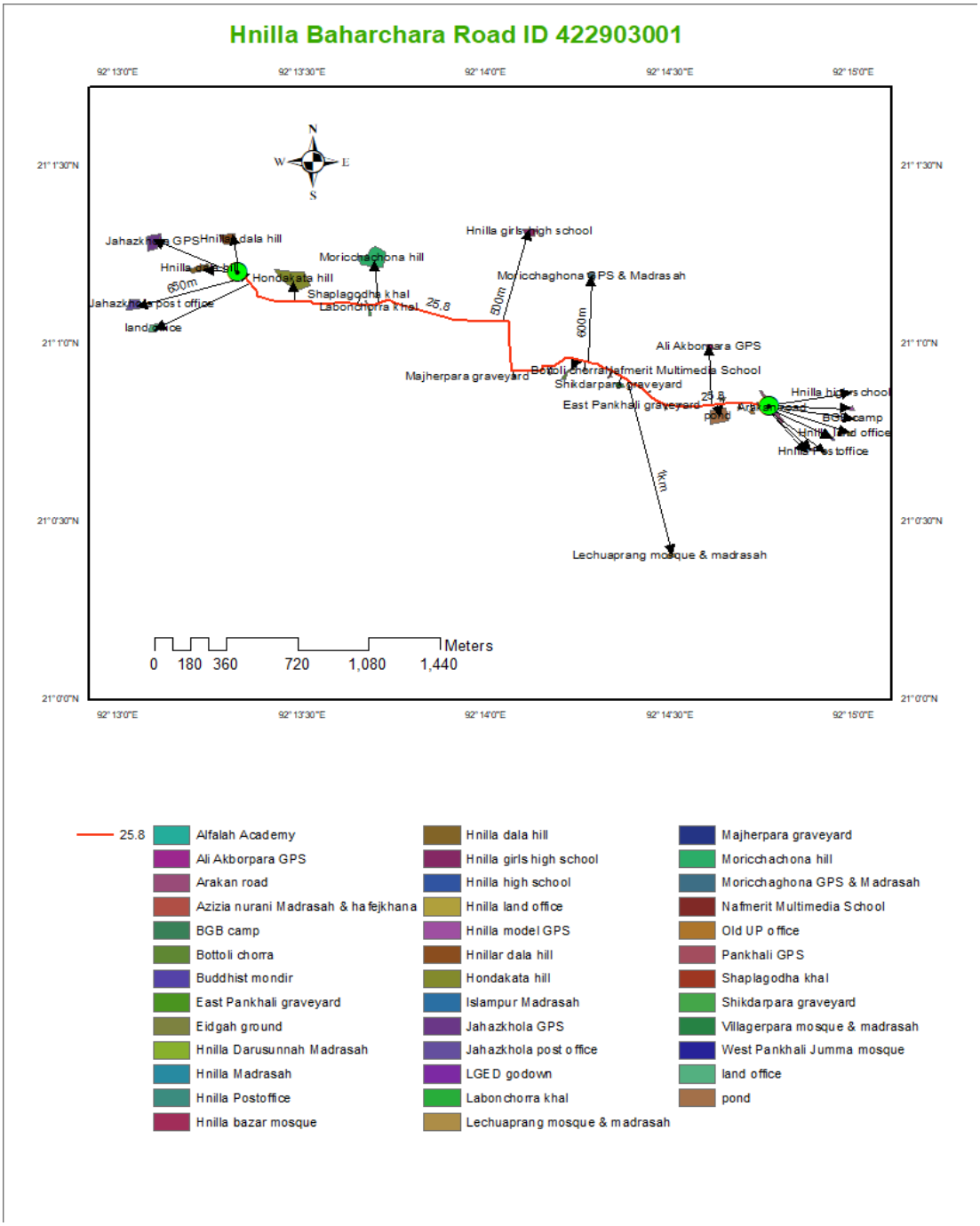
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):
Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Hnilla Darusunnah Madrasah (15m), Hnilla Madrasah (20m), East Pankhali graveyard (10m), Shaplagodha khal (5m), West Pankhali Jumma mosque (10m), Eidgah ground (10m), Labonchorra khal (crosses), Hnillar dala hill (100m), Social forest (100m), Hnilla girls high school (500m), Moricchaghona GPS & Madrasah (600m), Ali Akborpara GPS (500m), Moricchachona hill (300m), Hondakata hill (200m), at south side LGED godown (10m), Old UP office (7m), pond (8m), Shikdarpara graveyard (10m), Majherpara graveyard (15m), Azizia nurani

Madrasah & hafejkhana (25m), Pankhali GPS (60m), Islampur Madrasah (40m), Hnilla Banabit (30m), Villagerpara mosque & madrasah (25m), Bottoli chorra (8m), Lechuaprang mosque &



madrasah (1km), Nafmerit Multimedia School (10m), at east side Arakan road (5m), Hnilla high school (500m), Hnilla model GPS (550m), Hnilla land office (525m), Hnilla Postoffice (510m), BGB camp (600m), Treatment center (530m), Buddhist mondir (505m), Hnilla bazar mosque (490m), Alfalah Academy (400m) and west side Hnilla dala hill (50m), Gargan garden (100m), Jahazkhola GPS (500m), Jahazkhola post office (650m), land office (655m). There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.

Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet and deep tube well depth is 400 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: Various wildlife's are found in the sub-project area as Deer, fox, wild pig, wild hen, wild dog, snakes, birds, leopards etc.
State of forestation: Patches of vegetation containing large and matured trees across the road side and some social forest on hill of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Existing roads named Lechuaprang connecting road, Songkhola connecting road, Villagerpara connecting road, Moricchaghona connecting road, LGED connecting road and Hoakiapara connecting road are concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands for Hossain Member and Jalaluddin's private land at West Pankhali. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No):

Yes. Existing roads named Lechuaprang connecting road, Songkhola connecting road, Villagerpara connecting road, Moricchaghona connecting road, LGED connecting road and Hoakiapara connecting road are available for the access road.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 30 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water

bodies (wetlands, marshes): (High/Medium/Low with description) Low. Bottoli chorra located at 8m south. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise but no air pollution.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-

project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies were found in the close vicinity of the project site; therefore, no such effect can be anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated. However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W25-9

Sub-Project Description Form:

Name of Sub-Project: (Strengthening and widening of 9 roads under Cox's Bazar Districts. EMCRP/W25).

Name of the component: Hnilla UP Office to Natmura Pacca Road ID 422903007

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 208,616,918.20 Tk.

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): **9,064,466.03 Tk.**

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in the areas.

District: Cox's Bazar **Sub-District**: Teknaf **Union**: Hnilla

Name of Community/Local Area: North, South, east and west Nila, North Jaliapara,

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety structures are **01 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 410m and **98m of Surface Drain** from Ch:272 to Ch: 370 and **162m of Palisading work**. **Earth** works, **Road safety** works and **Environmental Mitigation and Enhancement** works are also included in the project activity.

Estimated footprint / land area for this sub-project is 4,565 sq. meters

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

Proposed road is situated within the catchment area of North, South, east and west Nila, North Jaliapara stretching 830 meters. This road starts from South-East corner of Nila High School and ends in Cox's Bazar-Teknaf Highway. The road was already developed with BC but the road condition is damaged. Being one of the local communities of Teknaf upazila these locations are very familiar to any other part of rural Bangladesh having mosques, village households, agriculture fields to grow crops and vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as rice production, betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and forests. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

The proposed component of the sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water loggings have been observed in the road area. But, some local trees like betel nut tree, rain tree, mango tree, bamboo bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover,

mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scopes of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, wires, gravels, bitumen etc. Negligible amount of plastic will be generated in equipment/stack yards as residual wastes. Moreover, liquid waste will include chemicals of bitumen leftovers, motor oils, used oil, degreasing solvents etc. Human wastes and kitchen wastes will be generated from labor camps as well. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer. Nila GPS (1km), Gulforaz Jame Mosque(1km), Nila Bazar (500m) to the north. Natmorarpara jame Mosque(580m), Nila Barmis GPS/ Cyclone Center(1km), Budhist Mandir(1km) to the south. Naf River (800m), households(100m), Jaliapara Mondir(500m), north Jaliapara Mondir(500m) to the east. Union Land Office (10m), South Fuler Deil Jame Mosque (20m near starting south), Nila High School(10m), Eid Gah (20m), Natmorar para (400m) to the west. Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists.

Mostly human settlements are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 5-6 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

This intervention will include the following items;

- **01 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 410m
- **98m of Surface Drain** from Ch:272 to Ch: 370
- **162m of Palisading work**
- **Road safety** work and **Environmental Mitigation and Enhancement** works are also included (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422903007
District	Cox's Bazar
Upazila	Teknaf
Union	Nila
WARD	03 and 05
Proposed Chainage	830m
Road Type	Village Road-A
Proposed Intervention Type	BC
Distance from Upazila HQ	16 km
Road Starting Point Coordinates and name	Latitude:21.01202^0 N Longitude:92.25215^{0}E Starts from South-East corner of Fuler Dail High School
Road Ending Point Coordinates and name	21.00503^0 N 92.25304^0 E Ends in Cox's Bazar- Teknaf Highway

Land ownership

Government Land

Expected construction period: 1 Year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Nila GPS (1km), Gulforaz Jame Mosque(1km), Nila Bazar (500m) to the north. Natmorarpara jame Mosque(580m), Nila Barmis GPS/ Cyclone Center(1km), Budhist Mandir(1km) to the south. Naf River (800m), households(100m), Jaliapara Mondir(500m), north Jaliapara Mondir(500m) to the east. Union Land Office (10m), South Fuler Deil Jame Mosque (20m near starting south), Nila High School(10m), Eid Gah (20m), Natmorar para (400m) to the west. Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

Section B: Environmental Screening

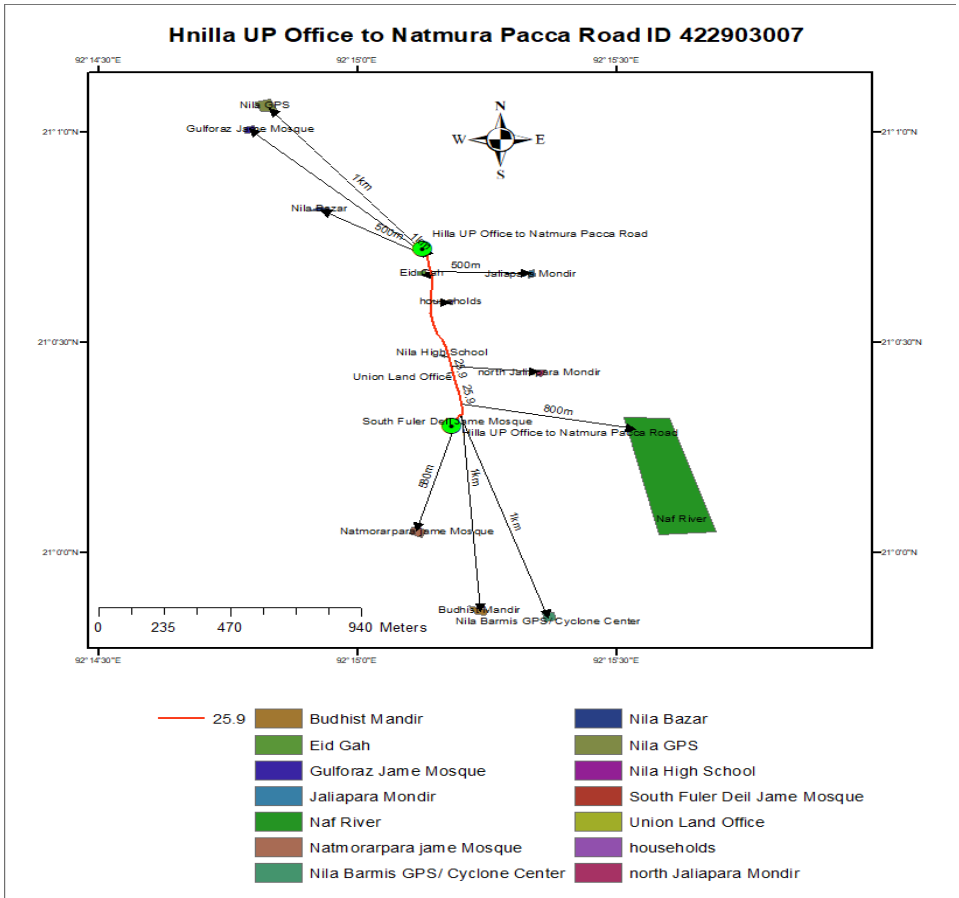
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Nila GPS (1km), Gulforaz Jame Mosque(1km), Nila Bazar (500m) to the north. Natmorarpara jame Mosque(580m), Nila Barmis GPS/ Cyclone Center(1km), Budhist Mandir(1km) to the south. Naf River (800m), households(100m), Jaliapara Mondir(500m), north Jaliapara Mondir(500m) to the east. Union Land Office (10m), South Fuler Deil Jame Mosque (20m near starting south), Nila High School(10m), Eid Gah (20m), Natmorar para (400m) to the west. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Ascertaining distinctively the baseline air and noise quality level in respect to any sites in Ukhiya and Teknaf upazilas under Cox's Bazar district is nearly impossible because of the huge burden of physical developmental works including roads, bridges, culverts, building structures, markets, jetties, etc. being carried out simultaneously across the areas. Therefore, the apparent baseline of the pre-development period can only be anticipated and results of visual observation are worth to be presented here.

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface also causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on roads adjacent to sub-project throughout the day and night that generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 500 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees are present in local and homestead gardens across the road side of the proposed subproject area which are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): An access point called Cox's Bazar-Teknaf highway road is available. It is possible to carry construction materials on these roads to the construction site with limited traffic flow to avoid congestion.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce. Electricity is available in the area.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction.
Identification of access road for transportation (Yes/No): Yes. Cox's Bazar-Teknaf highway road is available as connecting road
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local communities. Material storage area must be well fenced and materials will be covered with tarpaulins.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, dust from bricks during construction of project components will be produce. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 120 kg per day and part of it (mostly construction wastes) can be reused in sites for different purposes.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to assess exact quantities of raw materials to be used, which is also beyond the scope of this report at this preliminary stage. However, the quantity of raw materials will be calculated in detail and provided in the BoQ of Civil Works.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to having natural channels. Moreover, no possibilities of stagnation of water in the long run as well. Local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre-existing waterbody or drainage is present
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Because under this intervention, there is very little scope of damage to terrestrial or aquatic ecosystems or endangered species.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Slope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, since both sides of the road is more or less similar elevation. The concentrated outflow will be managed since the sub-project has included drains.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise but no air pollution.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils:(High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system:(High/Medium/Low with description) Not Applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks. There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated. However, vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed

breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust on the muddy road, especially during the dry season and if the vehicles are maintained in good conditions

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Section D: Environmental Screening Summary of the Work Package-25

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
1: Sub-Project Interventions	**Air quality**	Under the subproject intervention the overall score is **low**.	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • Requiring trucks delivering aggregates or bricks and cement to have tarpaulin cover and Limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Covering of trucks; • Records of visual air quality inspection.	Visual monitoring of air quality and if requires, air quality test (CO, $PM_{2.5,10}$) once in construction period in winter season.
	Soil impacts	Under the sub-project intervention the overall score is **low.**	• Precautions might be taken when rainstorms are likely, when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. • The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers	Construction Contractor monitored by Consultant and PIU	• No visible degradation to nearby drainages, • *khals* or water bodies due to soil erosion. • Rain storms in construction phase.	Monitoring as weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is **low**.	• All precautions to store chemicals/oil/fuel properly so that no chance of spill. • Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. • Monitor water quality according to the environmental management plan.	Construction Contractor and monitored by Consultant and PIU	• Areas for stockpiles, storage of fuels and lubricants and waste materials; • Records of water quality inspection; Water Quality Test • (National Drinking Water Quality Standard Parameters)if requires; • No visible degradation to nearby drainages, *khals* or water bodies due to construction	Water quality test (mainly GW) twice during the construction period in six months interval.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
					activities. • Records should be kept and logged.	
2: Pre-construction Phase	**Sanitation, water supply**	Under the subproject intervention the overall score is **low**.	• Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer. • Provide means for disposing of wastewater from toilets, baths and food preparation areas either through a septic tank and soak away, or holding tank with removal by vacuum truck. • Records for any type of training or awareness building sessions must be kept at site.	Construction Contractor and monitored by Consultant and PIU	• Site-specific H&S Plan; • Records of supply of uncontaminated water; • Record of Health & Safety orientation trainings; • Condition of sanitation facilities for workers	Visual inspection by PIU and supervision consultants on monthly basis
	Transportation	Under the subproject intervention the overall score is **low.**	• Contractor should verify vehicles for the suitability of carrying, loading and unloading of materials	Construction Contractor and monitored by Consultant and PIU	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.
	Storage of construction materials	Under the subproject	• Train concerned person and team assigned for the construction work to ensure items are stored properly	Construction Contractor and monitored by	• List of materials and sources of materials	During implementation phase, as

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
		intervention the overall score is **low**.	and away from steep slopes.	Consultant and PIU		necessary with the discussion with PIU, Consultant
3: Construction Phase	**Wastes**	Under the sub-project intervention the overall score is **low.**	• Prepare and implement on-site waste water runoff and labor camp waste management plan approved by PIU and consultants. • Wastes must be placed in the designated bins which must be regularly emptied. These shall remain within demarcated areas and shall be designed to prevent wastes from being blown out by wind. • All waste must be removed from the site and transported to a disposal site.	Construction Contractor and monitored by Consultant and PIU	• Complaints from community; • Regular inspection of waste management activity; • Waste disposal record.	Weekly as work progresses
	Cut and fill Activities (Cutting of hill slope and earth removal from borrow areas caused for soil erosion and landslides)	Under the sub-project intervention, the overall score is low.	• During construction cut and fill will be balanced as far as is possible. Designs shall ensure that as far as possible all cut and fill activities are balanced • Proper care will be taken during cutting and filling so that slope or toe of the road embankment remain within the right of way and does not disturb the crop.	Contractor, environmental specialist of D&SC	• Location of road alignment and slope.	Daily as work progresses

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of materials	Protected and safety storage to be needed for construction materials storage. Not interrupt natural land contours, disturbance in natural drainage patterns and logging of water and the overall score is **low.**	With the assistance respective E-I-C to identify the storage site and other requirements, which will be approved by PIU and consultants. However, following sets of requirements shall be taken into consideration: • Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. • Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. • Construction materials must not interrupt land contours, natural drainage pattern, and create water logging or depression. • Cement, sand, reinforced bars, stone chips, aggregates etc. must be covered with tarpaulins, and	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials; • Storage areas for materials and equipment.	Monthly basis during implementation phase, as necessary with the discussion with PIU, Consultant

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. • Chemicals and hazardous materials including oil, grease, bitumen, etc. shall be kept in a Cement concrete bunded area or on wooden stage covered with polythene/tarpaulin.			
	Removal of Vegetation (May cause soil erosion and their deposition on nearby crop field, affecting soil quality and productivity)	Under the sub-project intervention, the overall score is **low.**	• If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. • Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, environmental specialist of D&SC	• Complaints from community;	Daily
	Noise pollution	Under the subproject intervention the overall score is **low.**	• Consultation with affected people; not to operate noisy equipment during working period; • No noisy work after 5.00 pm. • Sound suppression for equipment; • Ear protection for workers. • Conduct noise quality monitoring as per EMP.	Construction Contractor and monitored by Consultant and PIU	• Number of complaints from stakeholders; • Use of silencers in noise-producing equipment and sound barriers; • Noise Level following decibel	Inspection by PIU and supervision consultants on monthly basis

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
					meter (dB), if necessary.	
	Air pollution	Under the subproject intervention the overall score is **low.**	• Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; no smoke emitting equipment; and limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor and monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Records of air quality inspection.	Visual observation and monitoring of air quality during construction period.
	Road Safety and Accidents	Under the subproject intervention the overall score is **low.**	• Erection of suitable signage at construction sites • Direct observation and discussion with local people • Restrict the transport of oversize loads. • Operate construction vehicles to non-peak periods (night) to minimize the traffic disruption. • Enforce on-site and access road speed limits. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&SC. • Local residents should be kept informed about planned Works	Construction Contractor, environmental specialist of D&Sc.	• Complaints from communities, pedestrians	Day basis during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
4. Post Construction	**Road Safety**	Under the issue the overall score is **low**.	• Install traffic signs for speed limit, speed breaker where needed, Mile post and create adequate ***traffic*** detours, and sufficient ***signage*** & ***warning*** signs, Post speed limits and suitable bending on the road. • Imposing barriers at several strategic places on the road to limit the movement of overloaded or heavy vehicles. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&SC.	Construction Contractor, environmental specialist of D&Sc	• Road signage and safety instruments at suitable locations and chainage	Immediately after the construction work is over.
	Tree re plantation	Under the issue the overall score is **low**.	• Replantation of trees during monsoon period • Maintain of trees properly • Check survival of trees and replant against the dead trees	Construction Contractor, environmental specialist of D&SC	• Number of complaints from stakeholders; • Records of trees number and tree plantation inspection.	Immediately after the construction work is over.
5. Operational Phase	**Maintenance of road and assets** (Road accidents may increase	Under the issue the overall score is **low**.	• No advertisement/boardings shall be allowed within the Right of Way limits of the project road. • Regular maintenance and cleaning of assets such as sign boards, road	LGED	• Number of complaints from stakeholders;	During Operation under LGED's regular maintenance program in each

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	due to higher number of vehicles using the roads at increased speeds)		safety sign etc. shall be undertaken. • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders.			3 years.

* Overall Impact Score: High = Likely to cause long-term E&S impacts; Medium = Likely to cause temporary impacts; Low = Likely to cause little, short-term impacts

**Post-construction phase denotes the time period contractor use to clear and clean up the sites after the construction work is ended, perform tree plantation, grass turfing, and minor rectification till the official handing over the site to LGED, or owner of the site.

Recommendation for further environmental and social assessment and/or site specific environmental and social management plan: Yes

**If yes, please specify what assessments/plans would be required.* Mention some recommendation on E&S assessment …. ESMP

If site specific environmental and social management plan (ESMP) is followed the impacts can be mitigated and monitored. ESMP is attached.

Appendix-2: Environmental and Social Management Plan (ESMP)

ESMP for Access and evacuation Roads; *(LGED/EMCRP-W25):* Strengthening and widening of 9 roads under Cox's Bazar Districts.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed within these sub-project activities. So, there are no any mitigation measures according to this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	• Under these subprojects, there is no scope of negative impact of adjacent livelihoods	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • Consultation meeting with host communities about the project objectives and scope of works	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection & implementing interventions: Human-elephant conflict	• Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Tubewell location within the construction site is not near to any kinds of latrine and soaks well which could be contaminated by those. • After completing the development the site shall be restored as before. • This site is in the local community, so continuous need based discussion with the local community to avoid any conflicts will be taking place. • Sub project intervention must avoid natural disturbance to existing slop and natural drainage. • The contractor must ensure sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities mostly will finish at day time within 05 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kinds of construction works.	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Dust	• Acceptable range of emission of CO, particulate matter [SPM (**Suspended particulate matter)**, PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices. • Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes. • Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staffs. • Records of every training must be kept at site. • All kinds of Child labour are completely prohibited in every site. • Every construction materials storage site will be well fenced by Tin and safety caution tape.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar. • Local traffic police department should be contacted, if	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken. • If ground water is withdrawn, adequate approvals from the appropriate department need to be collected before setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction works start	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Informed Local community will be trained on traffic management and awareness.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labor Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labour camps	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Residual waste from the temporary accommodation facilities, and from equipment maintenance/vehicles on-site • Wastes after completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.	PIU & Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety risking events such as	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared and communicated prior to the commencement of work for all types of work	PIU & Contractor	Environmental Consultant as well as Social Development and

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health hazardous events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	activities on site. • Preparation of proper walkways and clearly designation as a walkway has to be ensured; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. • Proper Signpost at any slippery areas will be ensured in construction site. • Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. • This sub project will have Proper communicative emergency response plan (ERP) with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site		Gender Specialists of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		(safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Solid organic wastes should be stored in bins and/ or skips and emptied regularly at a designated waste disposal area away from the camp site. If no designated site is available within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.	PIU	Environmental Consultant of PIU, PSC. Union Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance and restoration after the construction). The impacts are similar to those listed in construction stage: • Pollution from waste materials • Health & Safety risks to workers and local community.	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization are anticipated to be similar to those identified for the construction phase. • Contractor must prepare a waste management plan including relevant directives from "Waste Management Plan Principles" given in next section.	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox's Bazar
Operation &Maintenance	Noise disturbances to fauna	• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	UE (under the guidance of Xen, Cox's Bazar)	UNO, PSC

Waste Management Plan:

The Contractor shall develop a waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food and organic waste etc.) prior to commencing of construction and submit to LGED for approval. The plans must include following principles or series of actions, which will be carried out/followed by the contractor and supervised by the Field level Environmental Specialist and Social Development Specialist.

- The quantity of waste materials shall be minimized by 3R (Reduce, Recycle and Reuse) approach, and wastes shall be segregated accordingly, wherever practical; and stored in designated places/facilities in the site.
- Construction site shall be maintained in a cleaner, tidy and safe condition and appropriate facilities shall be provided and maintained as temporary storage of all wastes before transportation and final disposal.
- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area and subsequently sold to authorized recyclers.
- The scrap material generated from related construction activities will be collected and stored separately in the stack yard and sold to local recyclers.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- Organic wastes produced in the camp site during the construction period shall be collected and transported in vehicles covered with tarps or nets to prevent spilling waste along the route to the designated disposal site;
- Burning of any type of wastes in the construction site shall be prohibited completely.

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Appendix-3: Cost of Environmental Mitigation and Enhancement Works in BOQ for each sub-project under work package EMCRP/W25

In consideration to the above-mentioned environmental impacts and their mitigation measures for all sub-projects, individual BOQ for each sub-project has been prepared. Following tables will illustrate such items of enhancement and impact mitigation works, as well as considering the emerged situation of COVID-19 following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites.

Cost of Environmental Enhancement Works for W25-1 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1185.0m	@ 2.56 BDT	3,033.60
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	60 nos.	@ Tk. 1000	60,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**218,679.32**

Cost of H&S Measures under COVID 19 Situations for W25-1

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 24 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.1).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	65		81	50.00	146	7,300.00	To be placed in a case/holder on the basin, for washing hands for max. 29 people a day and showering of 24 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	13 nos. for each site		N/A	400.00	13	5,200.00	For labors who work in close contact, 13 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	24 nos. for each labor camp		35.00	432	15,120.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	9	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**98,395.00**	

Cost of Environmental Enhancement Works for W25-2 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1900.0m	@ 2.56 BDT	4,864.00
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	76 nos.	@ Tk. 1000	76,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**236,509.72**

Cost of H&S Measures under COVID 19 Situations for W25-2

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 38 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.2).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at Site Office	Working Site	Labor Camp	Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
	Bin							
4.	Bar Soaps (150 gm each)	103		128	50.00	231	11,550.00	To be placed in a case/holder on the basin, for washing hands for max. 43 people a day and showering of 38 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	22 nos. for each site		N/A	400.00	22	8,800.00	For labors who work in close contact, 22 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	38 nos. for each labor camp		35.00	684	23,940.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	3 Can	250.00	4.5	1,125.00	
10.	Detergent Cleaner	N/A	2 kg in each camp/month		400.00	18	7,200.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**118,915.00**	

Cost of Environmental Enhancement Works for W25-3 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	2566.0m	@ 2.56 BDT	6,568.96
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**262,214.68**

Cost of H&S Measures under COVID 19 Situations for W25-3

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 52 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.3).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	140		175	50.00	315	15,750.00	To be placed in a case/holder on the basin, for washing hands for max. 57 people a day and showering of 52 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	30 nos. for each site		N/A	400.00	30	12,000.00	For labors who work in close contact, 30 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	52 nos. for each labor camp		35.00	936	32,760.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	3.5 Can	N/A	5 Can	250.00	8.5	2,125.00	
10.	Detergent Cleaner	N/A	2.5 kg in each camp/month		400.00	22.5	9,000.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**137,935.00**	

Cost of Environmental Enhancement Works for W25-4 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	750.0m	@ 2.56 BDT	1,920.00
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	30 nos.	@ Tk. 1000	30,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**187,565.72**

Cost of H&S Measures under COVID 19 Situations for W25-4

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 10 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.4).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/	Remarks/ Justification
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	40		50	50.00	90	4500.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office
6	Face Shield/ Protective Safety Goggles	09 nos. for each site		N/A	400.00	09	3,600.00	For labors who work in close contact, 12 in each site
7	One-time Mask (Disposable) for Contractors' Staffs	03 nos. each day in each site		N/A	12.00	810	9,720.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	15 nos. of labor in this site		35.00	270	9,450.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							**81,845.00**	

Cost of Environmental Enhancement Works for W25-5 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1820.0m	@ 2.56 BDT	4,659.20
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	72 nos.	@ Tk. 1000	72,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**232,304.92**

Cost of H&S Measures under COVID 19 Situations for W25-5

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 36 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.5).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	97		122	50.00	219	10,950.00	To be placed in a case/holder on the basin, for washing hands for max. 41 people a day and showering of 36 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	24 nos. for each site		N/A	400.00	24	9,600.00	For labors who work in close contact, 24 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	36 nos. for each labor camp		35.00	648	22,680.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	4 Can	250.00	5.5	1,375.00	
10.	Detergent Cleaner	N/A	1.750 kg in each camp/month		400.00	15.75	6,300.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**117,205.00**	

Cost of Environmental Enhancement Works for W25-6 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	3630.0m	@ 2.56 BDT	9,292.80
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	150 nos.	@ Tk. 1000	150,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**314,938.52**

Cost of H&S Measures under COVID 19 Situations for W25-6

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 74 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.6).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	200		250	50.00	450	22,500.00	To be placed in a case/holder on the basin, for washing hands for max. 79 people a day and showering of 74 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	40 nos. for each site		N/A	400.00	40	16,000.00	For labors who work in close contact, 40 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	74 nos. for each labor camp		35.00	1332	46,620.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	2 Can	N/A	4 Can	250.00	6	1,500.00	
10.	Detergent Cleaner	N/A	4 kg in each camp/month		400.00	36	14,400.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**167,320.00**	

Cost of Environmental Enhancement Works for W25-7 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	782.0m	@ 2.56 BDT	2,001.92
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	40 nos.	@ Tk. 1000	40,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**197,647.64**

Cost of H&S Measures under COVID 19 Situations for W25-7

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 16 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.7).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	43		54	50.00	97	4,850.00	To be placed in a case/holder on the basin, for washing hands for max. 19 people a day and showering of 16 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	10 nos. for each site		N/A	400.00	10	4,000.00	For labors who work in close contact, 10 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	3 nos. each day in each site		N/A	12.00	810	9,720.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	16 nos. for each labor camp		35.00	288	10,080.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	1.5 Can	250.00	3	750.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	9	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**83,100.00**	

Cost of Environmental Enhancement Works for W25-8 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	2754.0m	@ 2.56 BDT	7,050.24
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	110 nos.	@ Tk. 1000	110,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**272,695.96**

Cost of H&S Measures under COVID 19 Situations for W25-8

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 55 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-25.8).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	149		187	50.00	336	16,800.00	To be placed in a case/holder on the basin, for washing hands for max. 60 people a day and showering of 55 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	30nos. for each site		N/A	400.00	30	12,000.00	For labors who work in close contact, 30 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	55 nos. for each labor camp		35.00	990	34,650.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	5 Can	250.00	6.5	1,625.00	
10.	Detergent Cleaner	N/A	2.5 kg in each camp/month		400.00	22.5	9,000.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**140,375.00**	

Cost of Environmental Enhancement Works for W25-9 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	830.0m	@ 2.56 BDT	2,124.80
2.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
3.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
4.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
5.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
6.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
7.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	40 nos.	@ Tk. 1000	40,000
8.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
9.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different 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 reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
11.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**197,770.52**

Cost of H&S Measures under COVID 19 Situations for W25-9

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 18 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-20.5).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	

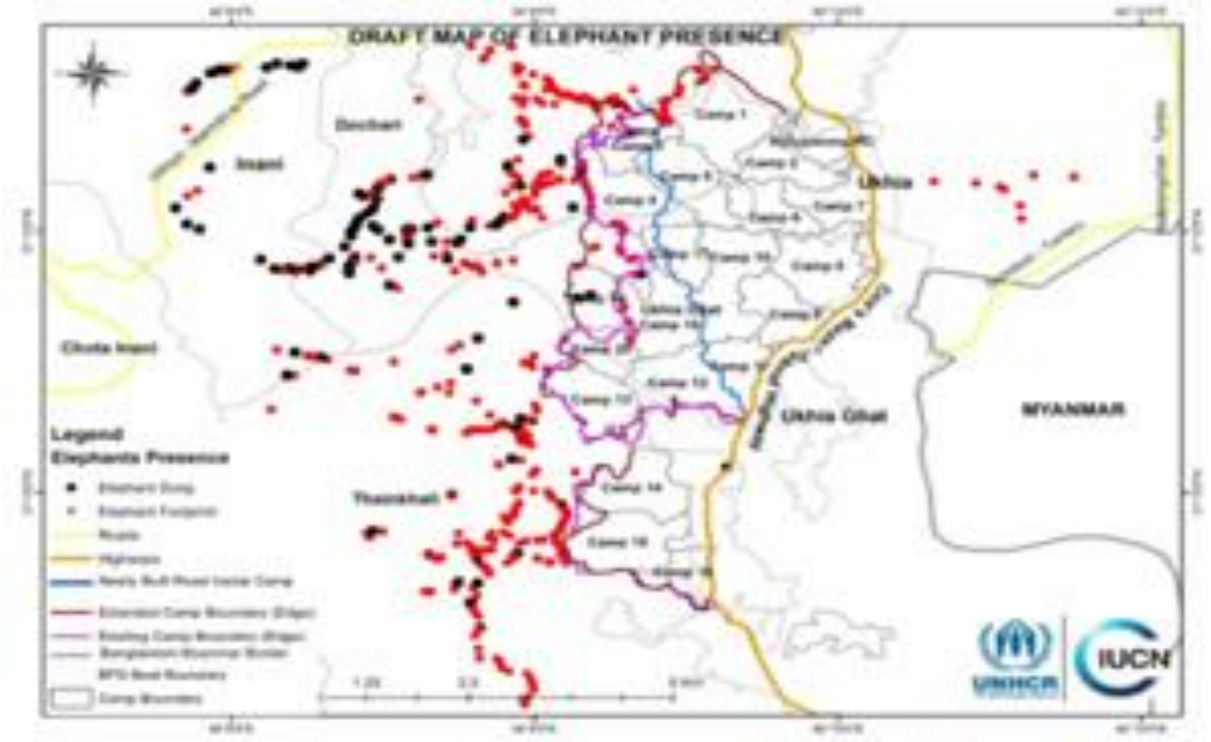
Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
4.	Bar Soaps (150 gm each)	49		61	50.00	110	5,500.00	To be placed in a case/holder on the basin, for washing hands for max. 21 people a day and showering of 18 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety Goggles	10 nos. for each site		N/A	400.00	10	4,000.00	For labors who work in close contact, 10 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	3 nos. each day in each site		N/A	12.00	810	9,720.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	18 nos. for each labor camp		35.00	324	11,340.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	9	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**85,135.00**	

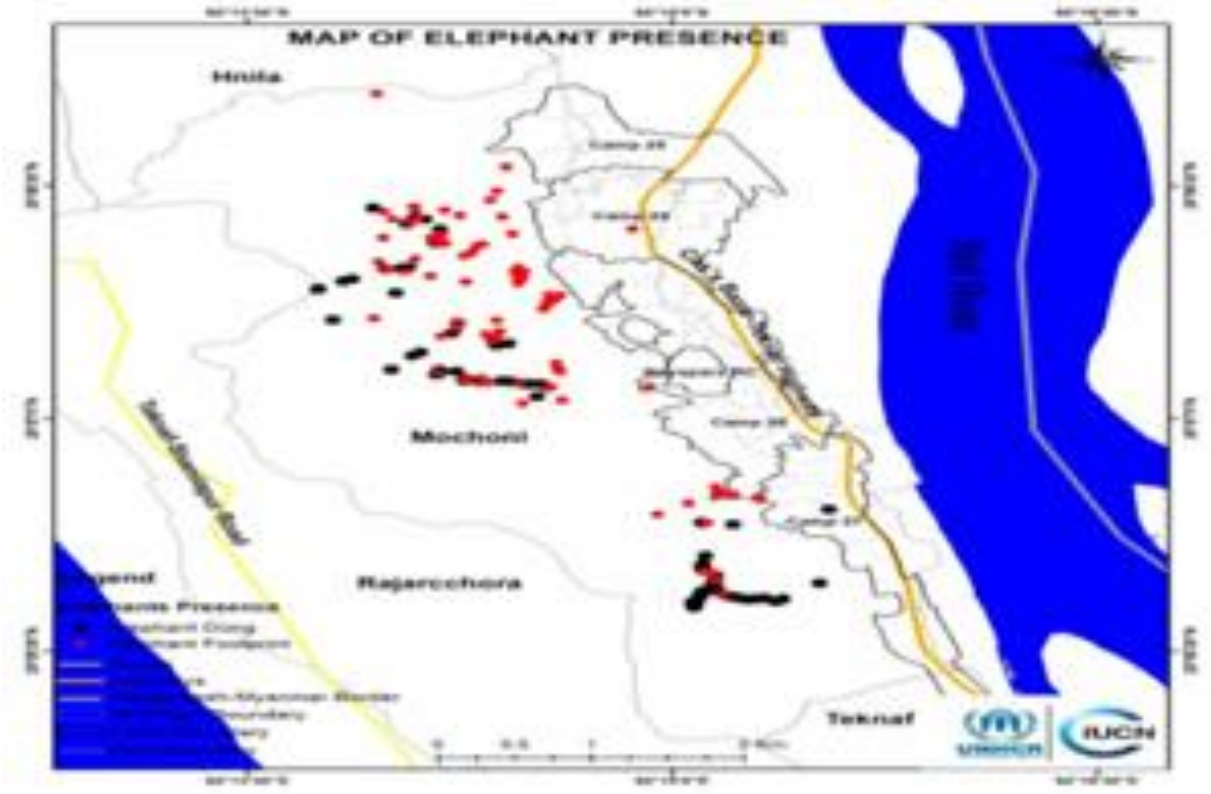
Social Safeguard Personnel for Environmental and Social Management for Work Package-25

Another item is to be added in the whole BOQ in order to take supervision and leadership to organize Environmental Management under Environmental Enhancement Works. This item is added as described below;

Sl.	Description	Road Package No.	Quantity	Unit	Unit Rate	Total Amount (BDT)
1.	Environmental Management Costs of the Environmental & Social Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & Transport (Net payment excluding Tax & VAT). And as per direction of the E.I.C ***(One Safeguard Personnel for R1, R2, R4 & R5)***	R1 R2 R4 R5	12	Months	@ Tk. 35,000	420,000
2.	Environmental Management Costs of the Environmental & Social Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & Transport (Net payment excluding Tax & VAT). And as per direction of the E.I.C ***(One Safeguard Personnel for R3 & R8)***	R3 R8	12	Months	@Tk. 35,000	420,000
3.	Environmental Management Costs of the Environmental & Social Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & Transport (Net payment excluding Tax & VAT). And as per direction of the E.I.C ***(One Safeguard Personnel for R6, R7 & R9)***	R6 R7 R9	12	Months	@ Tk. 35,000	420,000
	Total					**1,260,000**

Appendix-4: Elephant Migration Routes Map





Elephant presence map (latest information published on 24 May 2018)

Appendix-5: Location Map of each Sub-project

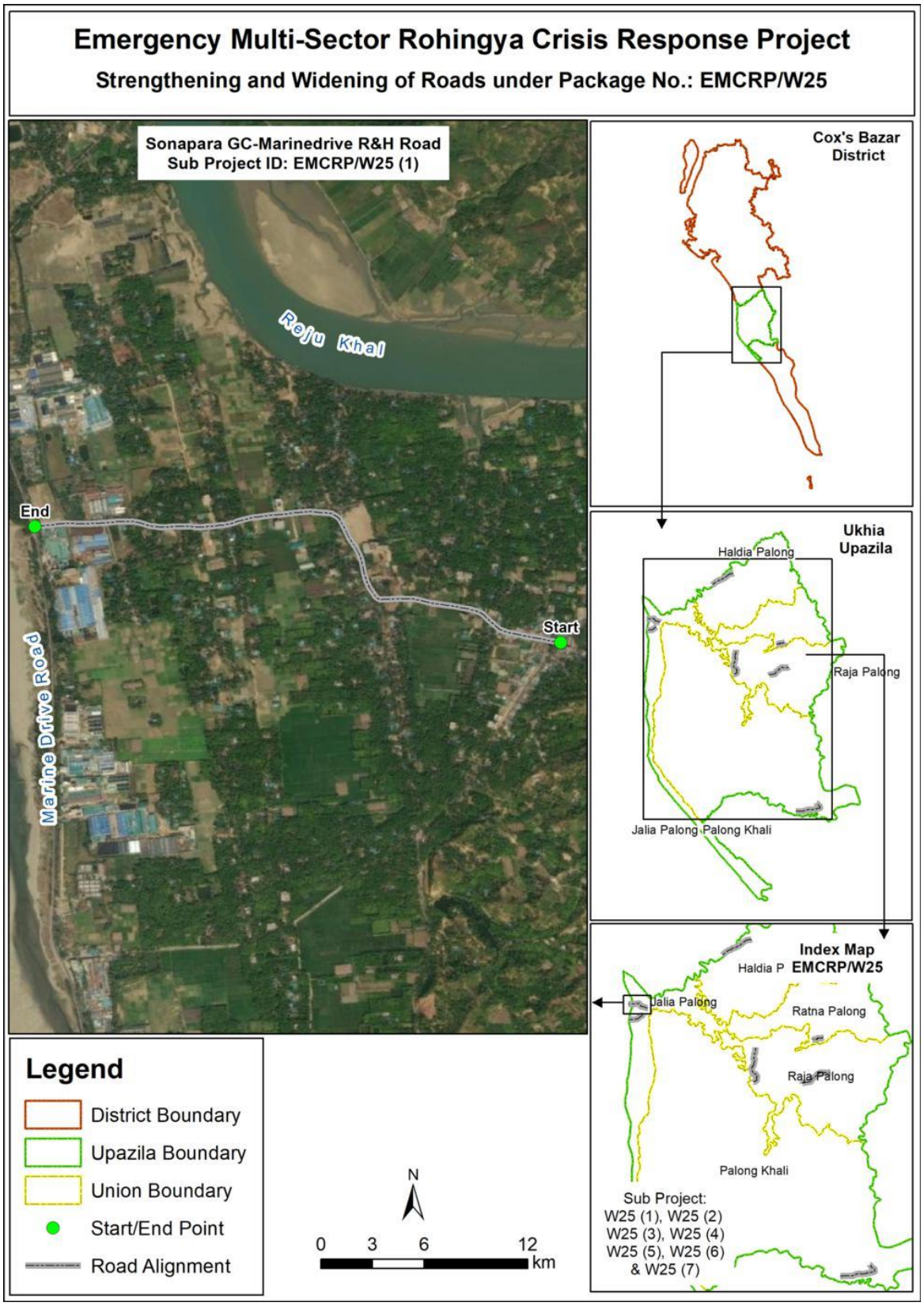


Figure: Location Map of W25-1

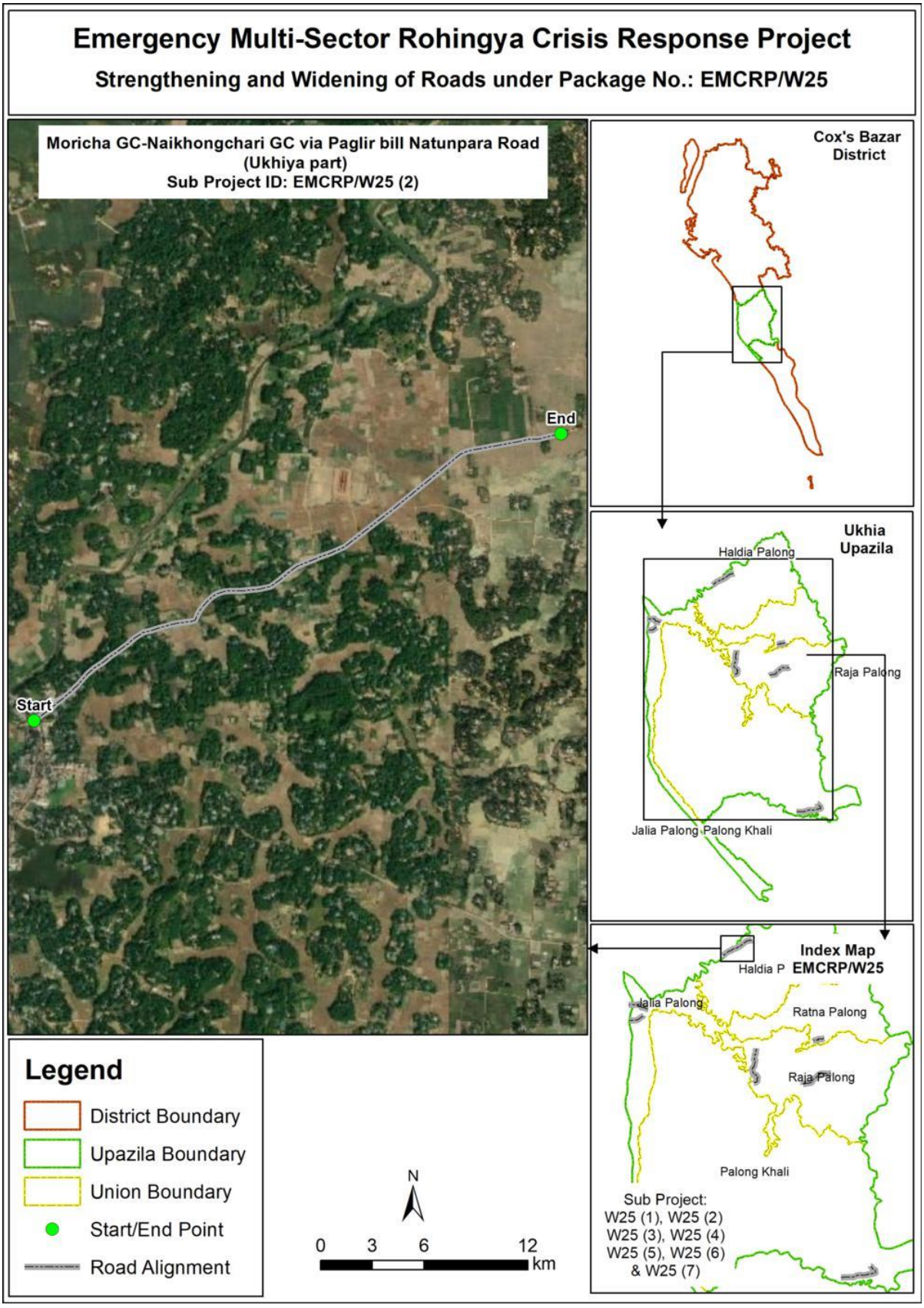


Figure: Location Map of W25-2

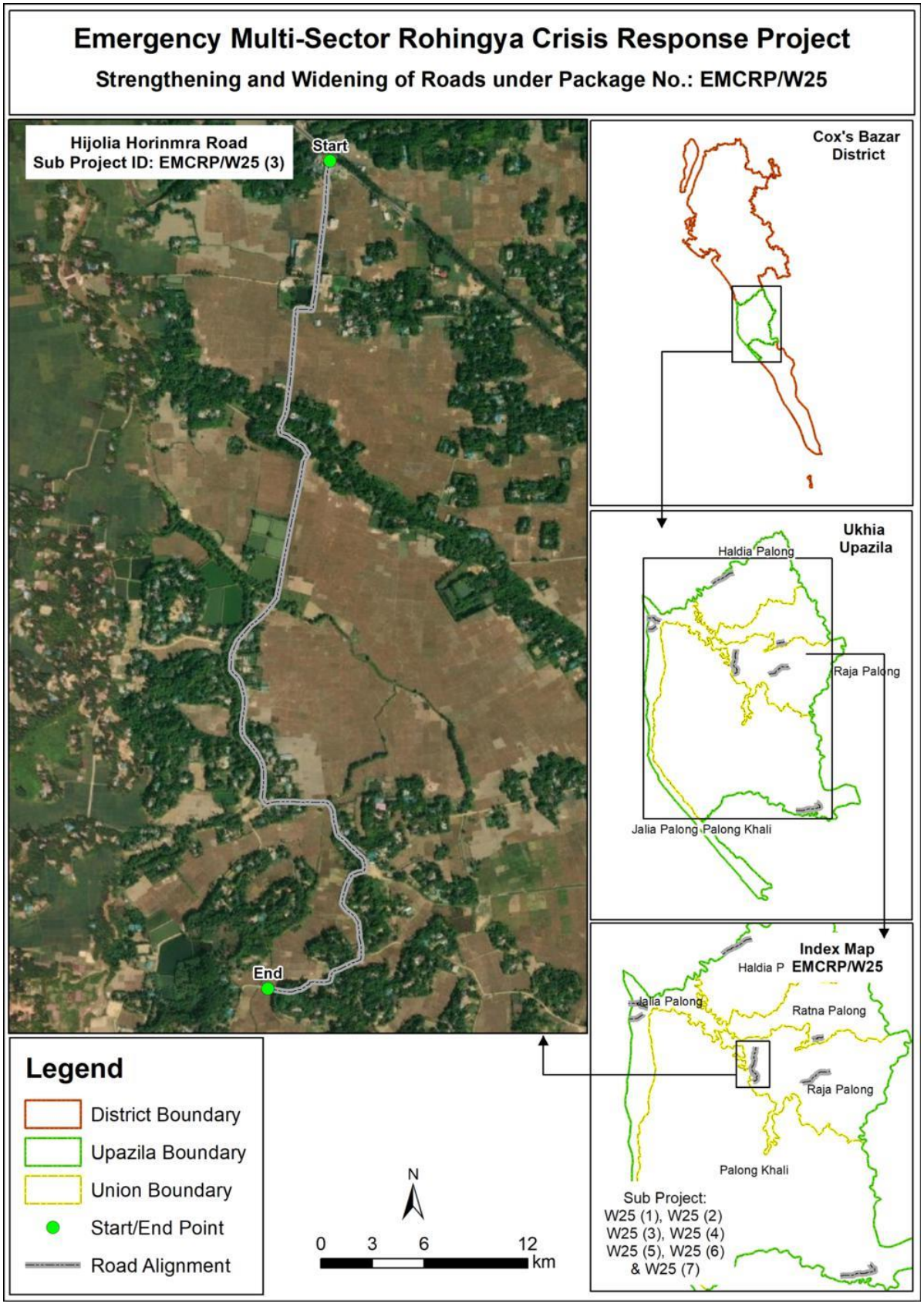


Figure: Location Map of W25-3

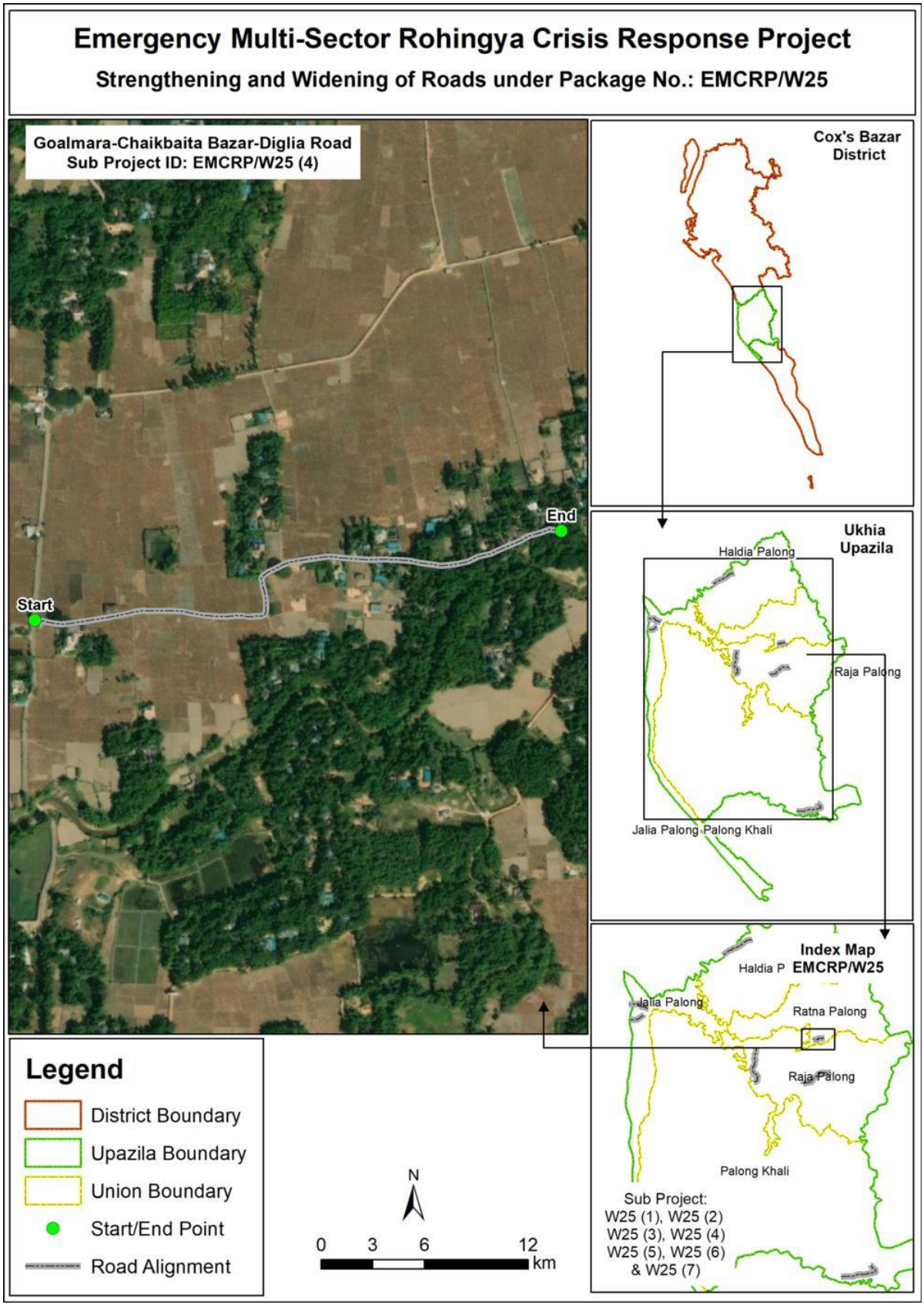


Figure: Location Map of W25-4

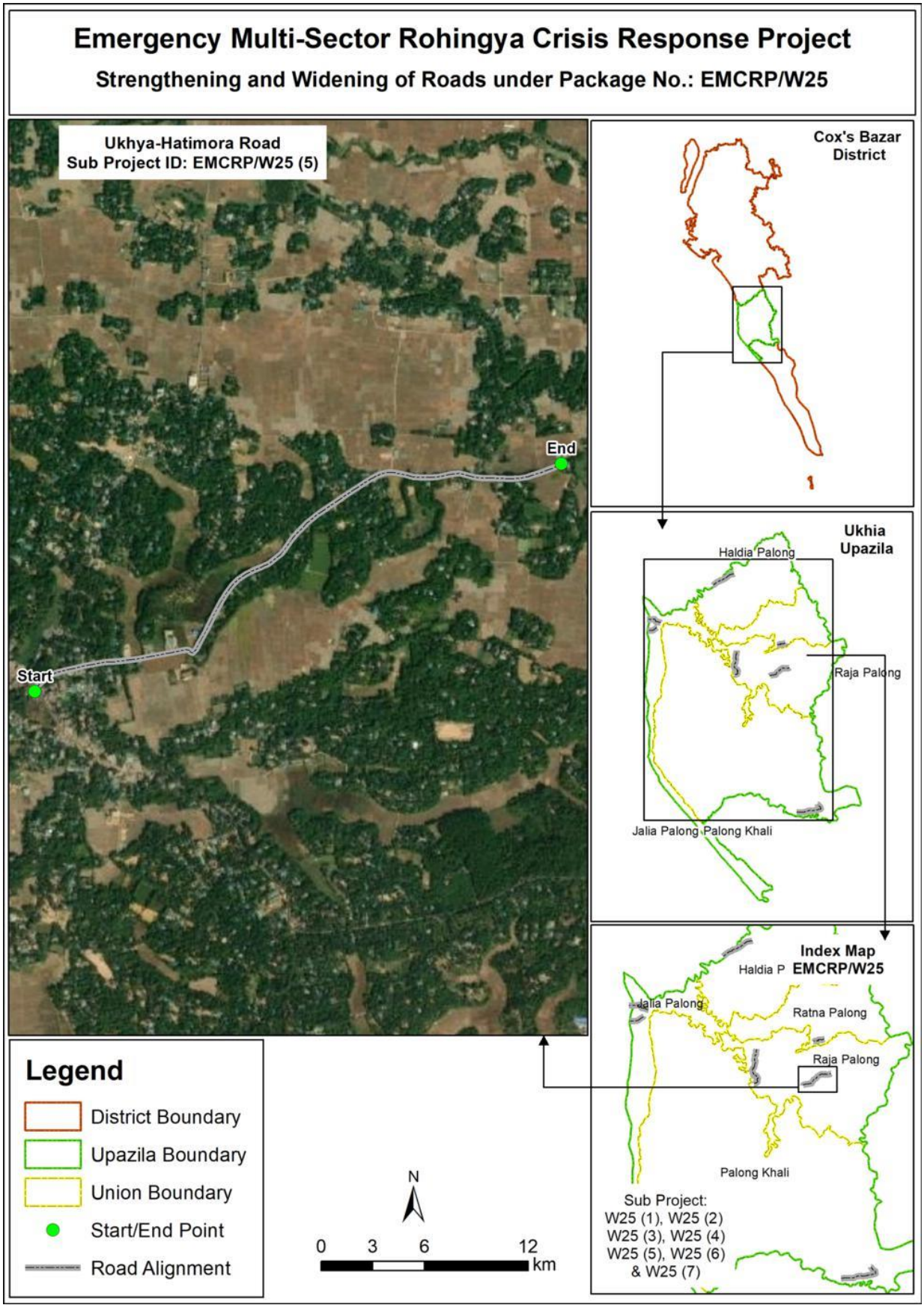


Figure: Location Map of W25-5

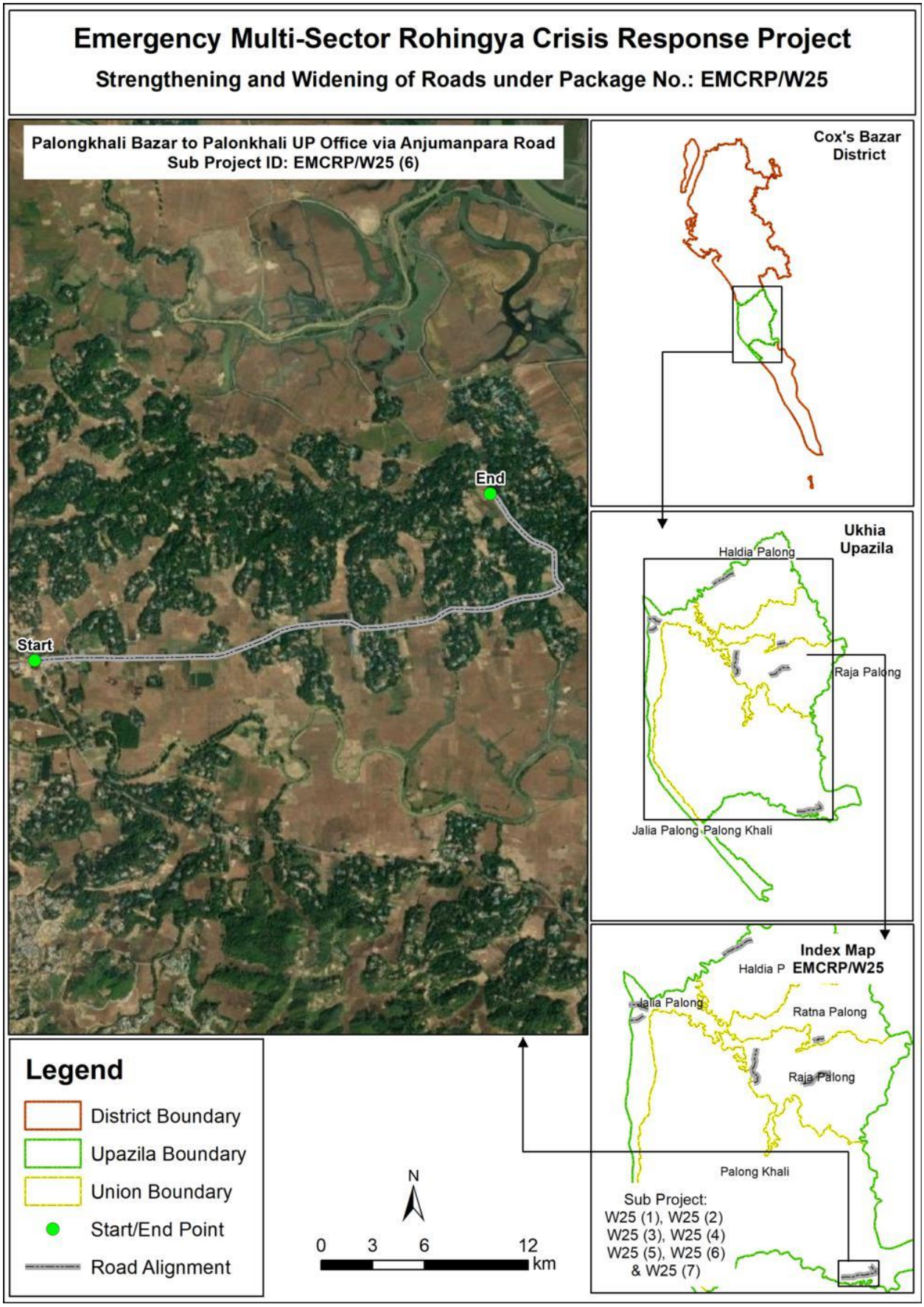


Figure: Location Map of W25-6

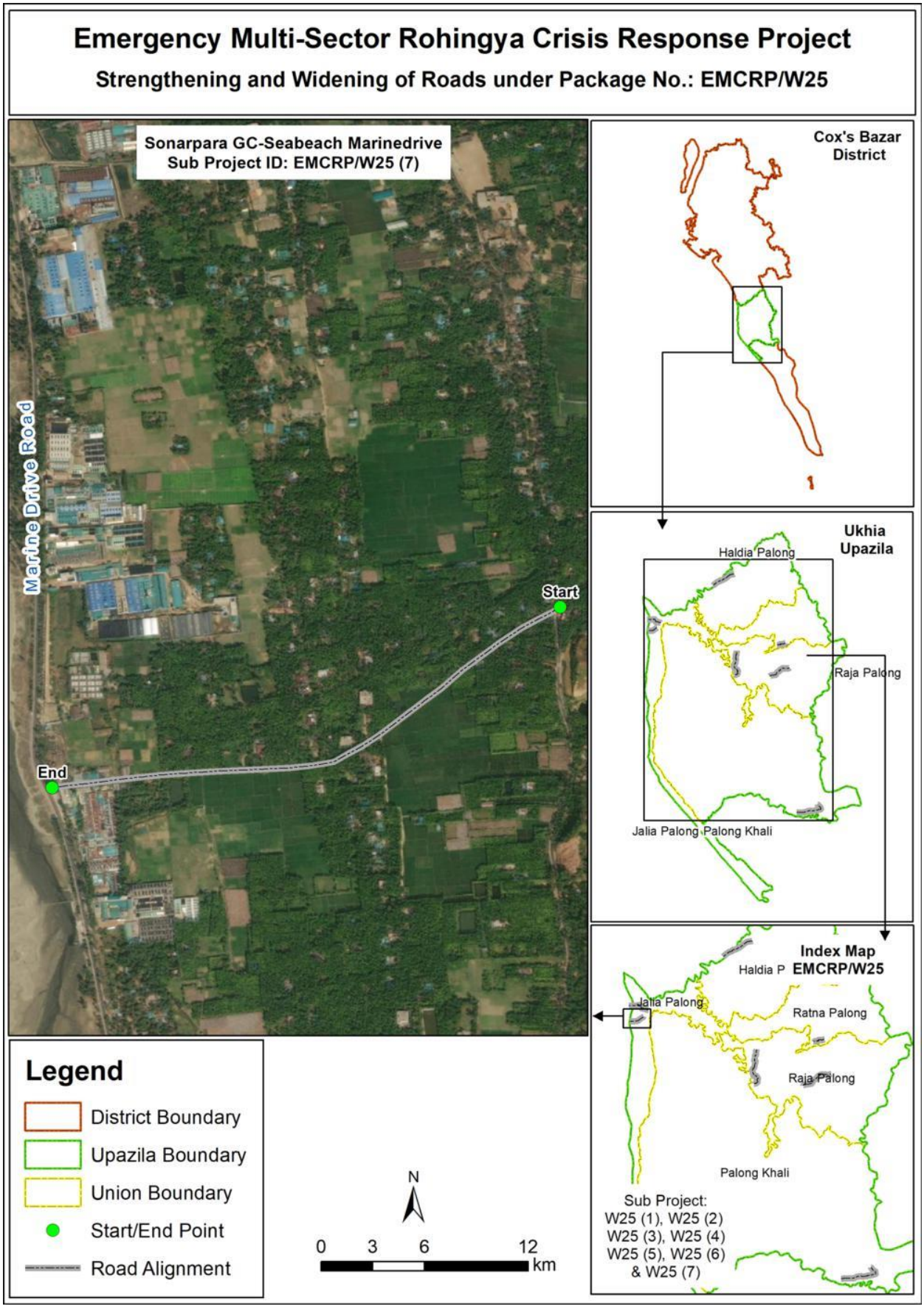


Figure: Location Map of W25-7

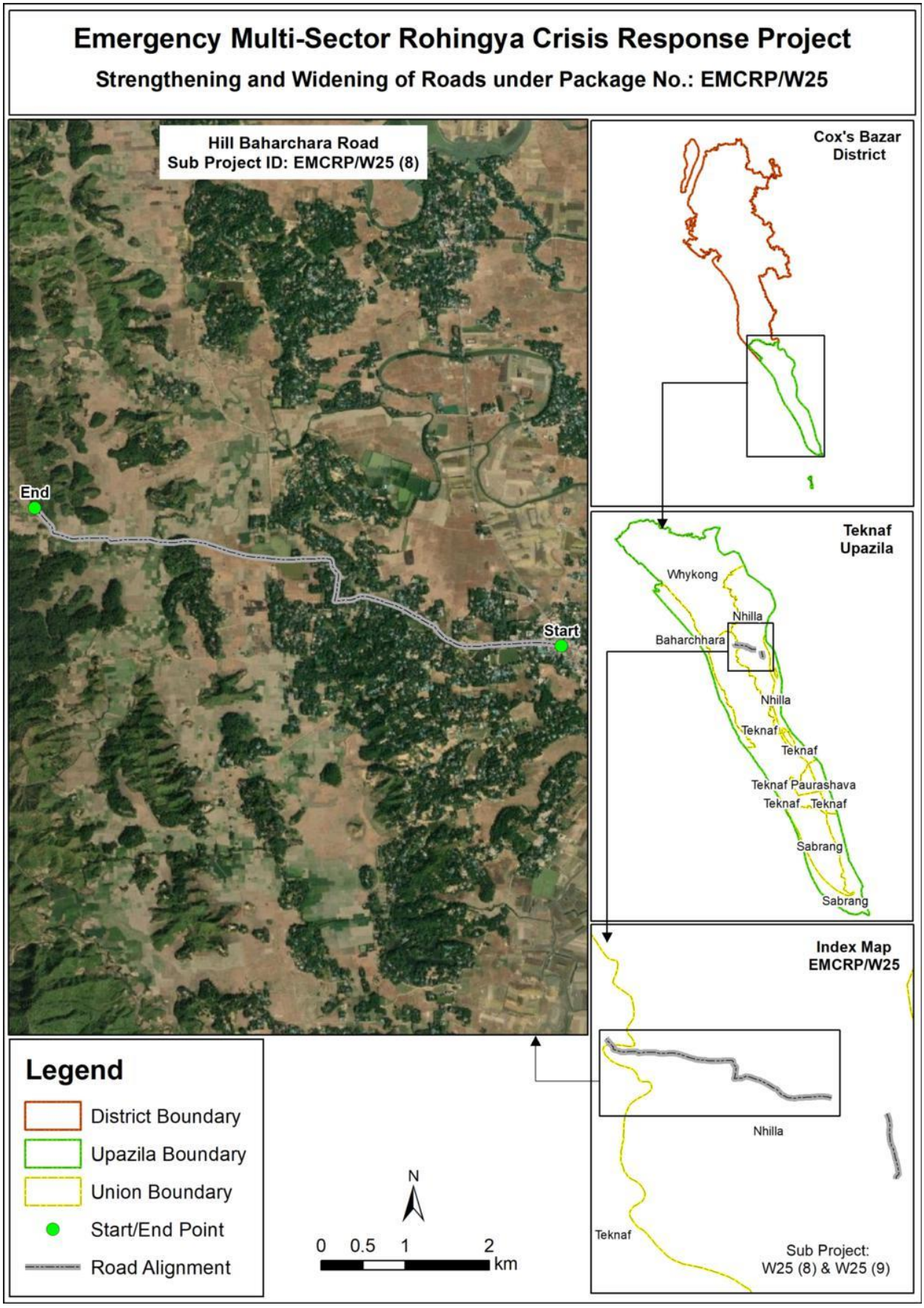


Figure: Location Map of W25-8

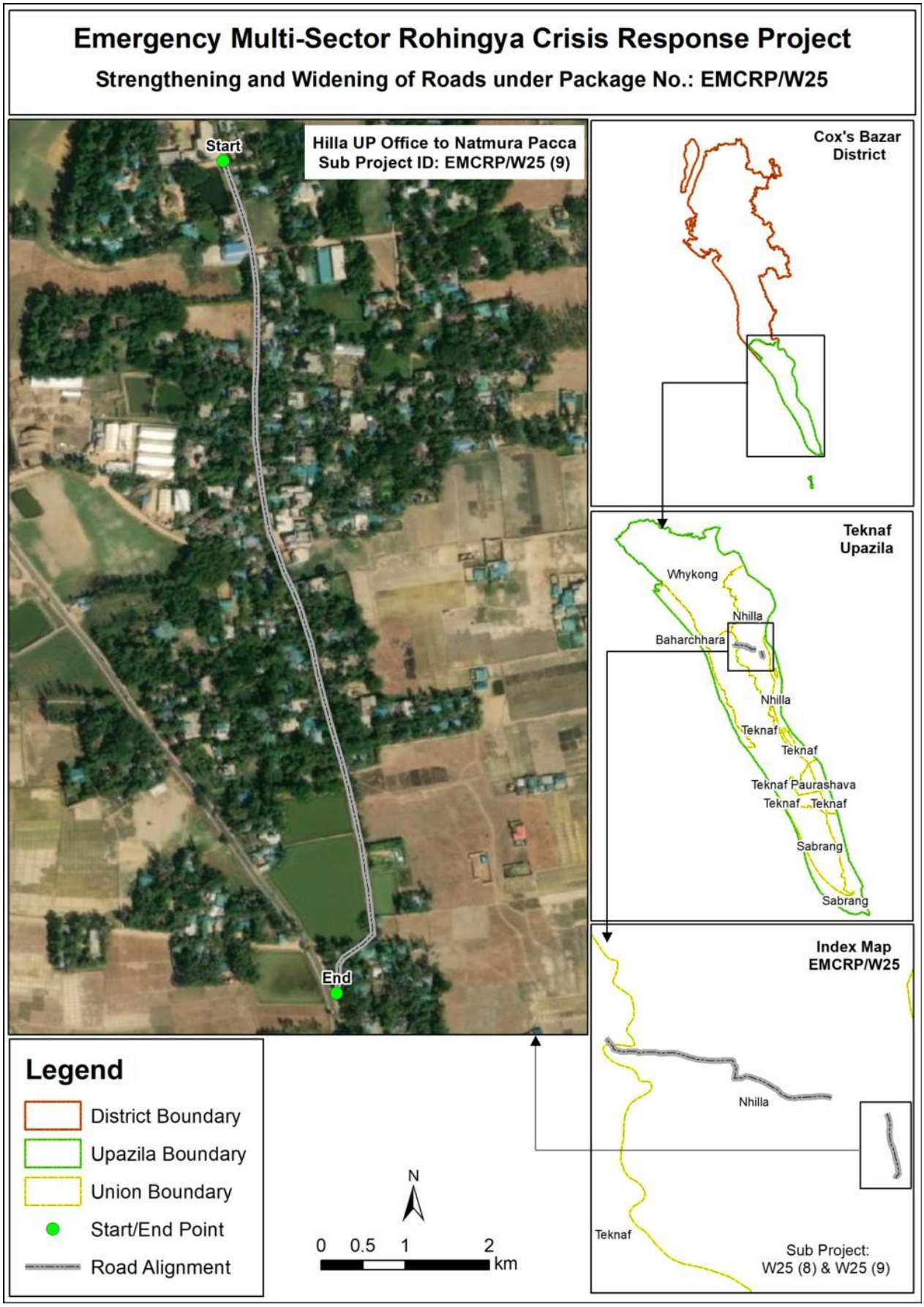
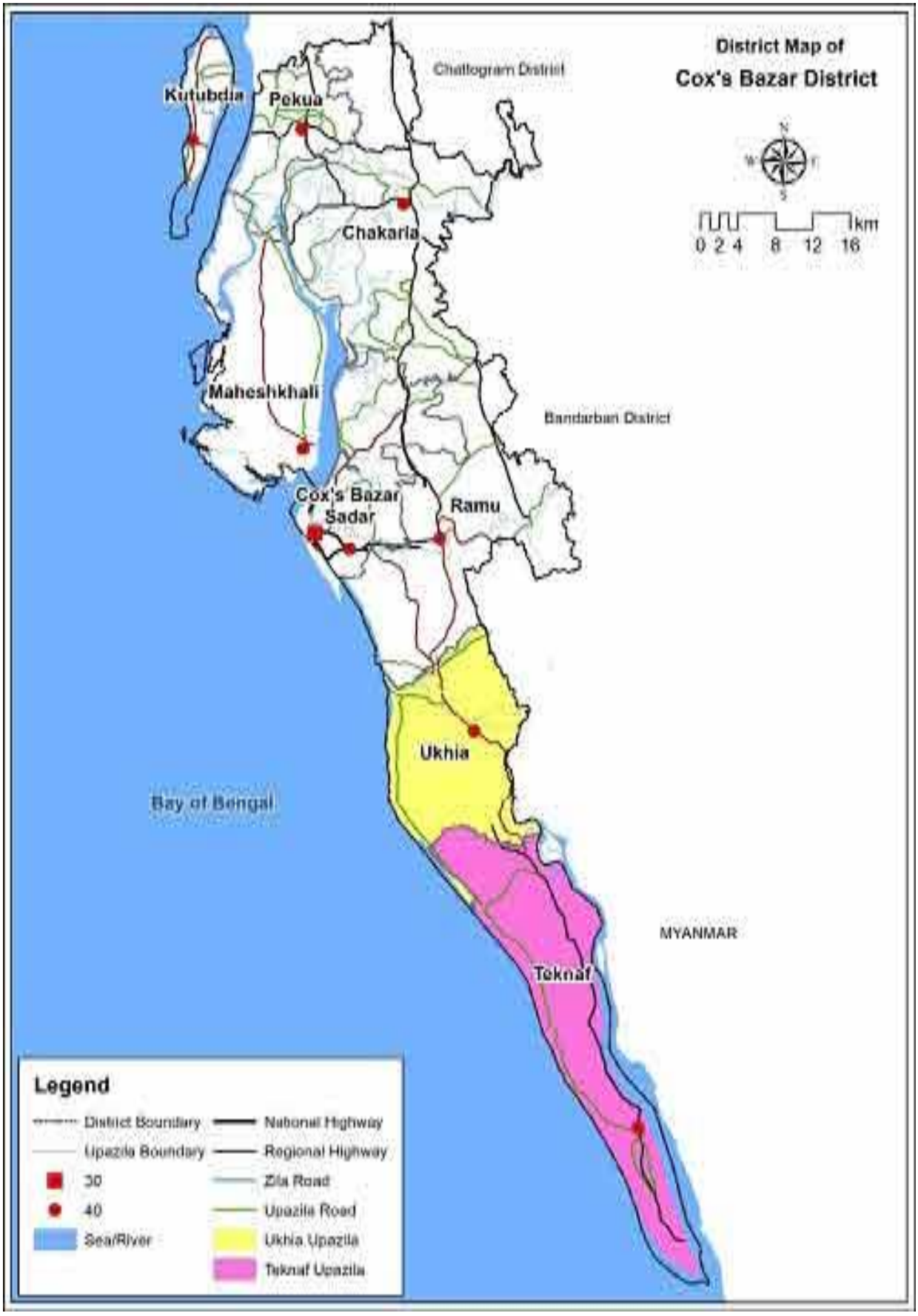
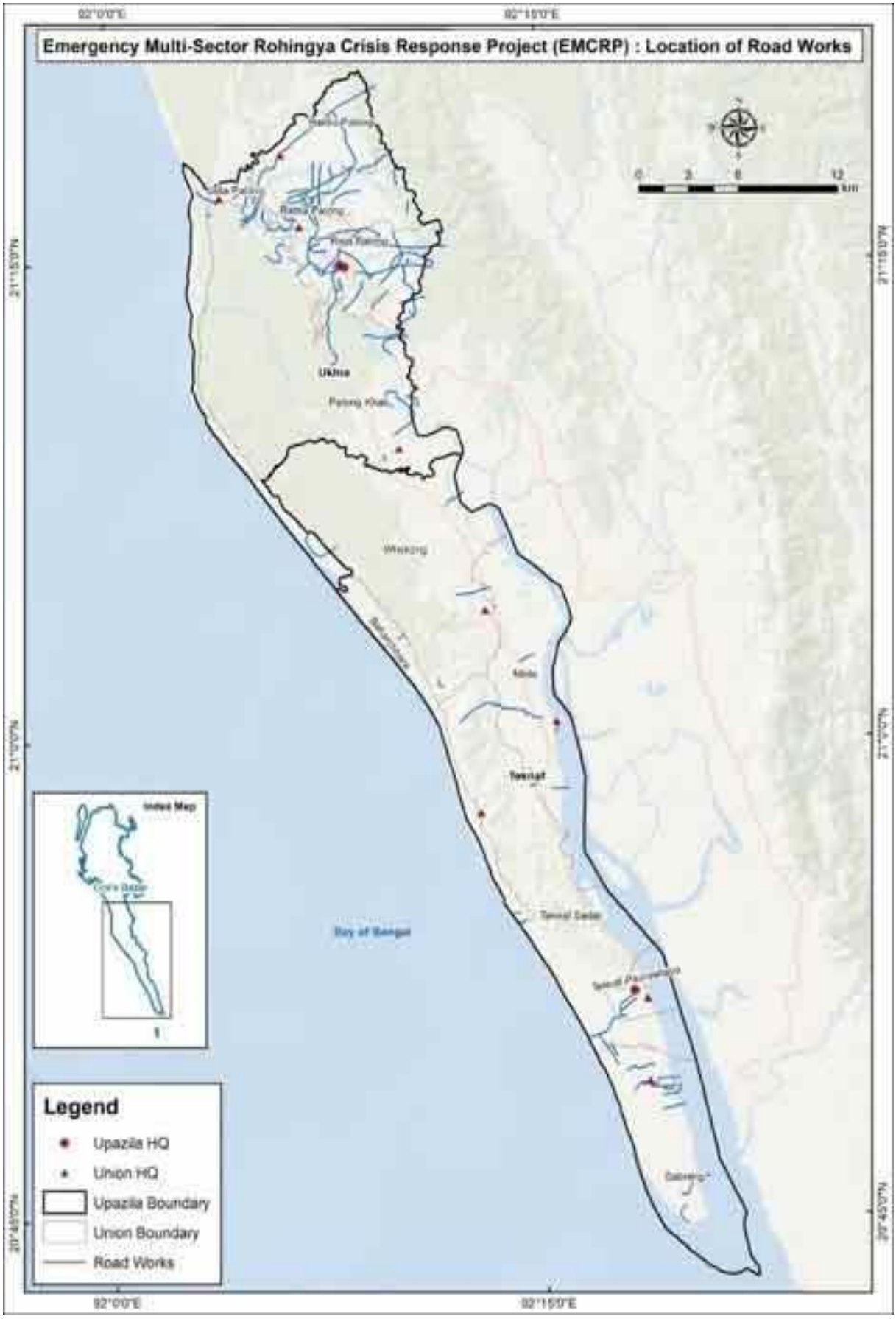


Figure: Location Map of W25-9



District map showing Ukhiya and Teknaf Upazila



Upazila map locating proposed roads