Government of the People's Republic of Bangladesh
Ministry of Local Government, Rural Development & Co-operatives
Local Government Division
Local Government Engineering Department (LGED)

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Improvement of Community Infrastructure, Growth Center, others roads & Connecting Roads at Rangpur District




Environmental & Social Assessment and Management Report of Community Roads

Package Name: LGED/RIVER/RANG/21-22/GCCR-16

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ABBREVIATIONS

BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BMD	Bangladesh Meteorological Department
BOQ	Bill of Quantity
DPHE	Department of Public Health Engineering
EA	Environmental & Social
ECR	Environmental Conservation Rules, 1997
E.I.C	Engineer in Charge
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
E&S	Environmental and Social
ESCoP	Environmental and Social Codes of Practices
ESCP	Environmental Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESSR	Environmental and Social Screening Report
ESSs	Environmental and Social Standards
FAO	Food and Agriculture Organization
GoB	Government of Bangladesh
GPS	Government Primary School
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IEFs	Important Environmental Features
KM	Kilometer
KMPH	Kilometer Per Hour
LGED	Local Government Engineering Department
LMP	Labour Management Procedures
LS	Lump Sum
MDSP	Multipurpose Disaster Shelter Project
MoEFCC	Ministry of Environment, Forest and Climate Change
MM	Millimeter
MoLGRDC	Ministry of Local Government, Rural Development and Cooperatives
NPDM	National Plan for Disaster Management
PD	Project Director
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
RIVER	Resilient Infrastructure for Adaptation and Vulnerability Reduction
RPF	Resettlement Policy Framework
SEP	Stakeholders Engagement Plan
SMC	School Management Committee
UNDP	United Nations Development Programme
WB	World Bank

Executive Summary

The Environmental & Social Assessment and Management Report (ESAMR) of Community Roads for Rangpur District has been prepared for the sub-project titled "Improvement of Community Infrastructure, Growth Center, others roads & Connecting Roads & Landing Stage at Rangpur District under the RIVER Project." The initiative is jointly financed by the World Bank and the Government of Bangladesh, and aims to strengthen climate-resilient infrastructure and enhance accessibility to essential community facilities in vulnerable flood-prone regions. The RIVER Project focuses on improving rural infrastructure and disaster preparedness in flood-affected districts of Bangladesh by developing safe evacuation routes, strengthening community connectivity, and ensuring reliable access to flood shelters during emergency situations.

Under this sub-project, five (5) community infrastructures connecting roads in Rangpur District will be improved to provide safe and sustainable access to nearby flood shelters and essential social infrastructure. The roads are located in four upazilas- Pirgacha (1 roads with total length of 1.660 km), Kaunia (2 roads with total length of 1.400 km), Gangachara 1 roads with 1.790 km), and Taraganj (1 road with active length of 1.420 km) Upazila-which are characterized by rural settlements, agricultural landscapes, and periodic exposure to seasonal flooding.

These community roads play a crucial role in connecting local villages with educational institutions, health facilities, local markets, and most importantly flood shelters that serve as safe havens during natural disasters. Improving these roads will enhance mobility and ensure that communities can reach flood shelters quickly and safely during emergency events.

The Environmental and Social Assessment has been conducted by D&SC to evaluate potential environmental and social impacts associated with the proposed road improvement activities and to develop suitable mitigation and management strategies in compliance with national environmental regulations and the environmental and social standards of the World Bank. The assessment process included environmental and social screening, field reconnaissance surveys, stakeholder consultations, and the review of relevant secondary data and policy documents. The assessment team visited the proposed road alignments and surrounding areas to identify sensitive environmental and social features that may be affected during construction and operation phases.

Overall, the activities under this works package involve rehabilitation and improvement of community roads through bituminous surfacing, localized structural works (including bridges/culverts), slope protection, utility relocation, and roadside plantation. More specifically, the interventions as well as the overall physical features around the roads are given below:

(i) The road from **Itakumari Bazar to RK Road via Bagbari G.P.S (185734031)** will receive bituminous carpeting along the entire stretch from Chainage **0+000 to 1+660,** where the existing pavement is currently earthen and in a damage condition. The road alignment traverses homestead areas, agricultural land, and at least seven ponds located on both sides, as well as a mosque and a local bazar. In addition to the general road improvement works, road safety measures —including the installation of appropriate signage — will be implemented near the bazar at Chainage **1+500** to enhance the safety of road users.

(ii) **The Gulshan More Bazar–Brammochari Bazar Road (ID: 185424028)** traverses a mixed socio-environmental landscape comprising agricultural land, residential areas, and a madrasa, as well as several natural features such as a pond, a ditch, a canal, and multiple bamboo groves located along the road corridor. The proposed bituminous carpeting will be implemented over the section from chainage **0+000 to 1+000.** An electric pole located within the corridor at chainage **0+600** has been identified and will be duly considered in the design and implementation planning. Furthermore, road safety measures will be incorporated to safeguard sensitive receptors. Specifically, appropriate signage and a speed breaker will be installed near the madrasa at chainage **0+800** to enhance the safety of road users and the surrounding community.

(iii) Bituminous carpeting is proposed for the entire section of the **Haji Natu Miah–Golshan More Road (ID: 185425079)** from chainage **0+600 to 0+925 & Link Road 75,** where the existing earthen pavement is in a deteriorated condition. This segment of the road passes through cropland, including corn fields and other agricultural lands, as well as a ditch and areas adjacent to residential settlements. The corridor also includes bamboo bushes and is surrounded by fruit-bearing trees such as mango, coconut, and jackfruit **(Ch.0+300 and 0+600).**

(iv) Bituminous carpeting is proposed for the entire length of the road from **chainage 0+000 to 1+790** along the **Almar Bazar Pucca Road near Hasan Abdullah Hafizia Madrasha More–Gawsoya Bazar via Mohisasur Road (ID: 185275172).** The road corridor passes through a variety of physical and social features on both sides, including residential settlements, mosques, graveyards, extensive agricultural lands, and a drinking water project. As part of road safety measures, signage will be installed at identified sensitive locations. Specifically, road signs will be placed near graveyards at chainages **(0+400 and 0+700),** and near mosques at chainages (**0+300 and 1+400)** to enhance road user safety and awareness.

(v) The proposed bituminous carpeting will be implemented along the road section from **chainage 0+000 to 1+420** on the **NHW near Fazal Filling Station–Katchna Road via the Cold Store (ID: 185925073).** The road alignment traverses a heterogeneous socio-environmental setting, including residential areas, agricultural land, a filling station, a brick field, and a farm. To enhance road user safety, appropriate traffic management measures—such as the installation of standard signage—will be introduced in the vicinity of the filling station at chainage **0+300.** Additionally, two electric poles are located within the project corridor at chainages **0+800 and 0+1100,** respectively, and will be considered in the design and implementation planning.

The assessment study also reveals that the proposed road improvement works will largely be carried out within the existing Right of Way (ROW), thereby minimizing the need for land acquisition and significantly reducing potential resettlement issues. The existing roads are mainly earthen or partially paved rural roads that require improvement to ensure year-round accessibility, improved drainage, and enhanced structural stability. The project will involve activities such as road widening where necessary and contingent upon the available land within

ROW, strengthening of road surfaces, improvement of drainage systems, and installation of small culverts or cross-drainage structures where required. However, the scope of works, including specific safety and environmental measures along with potential impacts that may arise from the proposed interventions, are tabulated hereunder:

Despite the substantial socio-economic benefits the project will bring, certain construction-phase activities, such as earthworks, excavation, and material handling, are likely to cause localized soil disturbance, potential erosion, and impacts on roadside vegetation. The removal of trees and clearing of vegetation may temporarily affect the ecological balance and visual landscape, while also contributing to minor habitat disruption. In addition, construction near water bodies poses a risk of water contamination due to sediment runoff, improper waste disposal, or accidental spillage of construction materials. Air and noise pollution are anticipated due to vehicular movement, operation of construction machinery, and material transport, which may affect nearby residents, educational institutions, and health facilities. These activities may also cause temporary disruption to traffic flow and pedestrian movement, limiting access to homes, schools, and community services. In areas with dense human settlements or educational institutions, there is an increased risk of accidents, as well as occupational health and safety (OHS) concerns for workers and the public. Furthermore, the presence of a mobile workforce introduces potential risks related to Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH), which require careful management. Additional impacts include temporary social inconvenience, restricted access to local infrastructure, and safety hazards associated with open excavations, movement of heavy vehicles, and ongoing construction operations. The dismantling and relocation of electric poles may also temporarily interrupt utility services if not properly coordinated. All these impacts are very localized and mostly avoidable and do not pose any significant threat or harm to local inhabitants or biodiversity, if general good engineering and OHS practices are adopted. Therefore, the overall risk for this sub-project can be categorized as ‘Moderate’. No ethnic groups are found living within the catchment area and there is no risk of involuntary resettlement or loss of common property resources.

To address these potential impacts, a comprehensive Environmental and Social Management Plan (ESMP) has been developed as part of this report in **Annexure-1**. The ESMP outlines specific mitigation and management measures that must be implemented during project construction and operation phases. Key environmental mitigation measures include regular water spraying to control dust, proper maintenance of construction equipment to minimize noise and emissions, safe disposal and management of construction wastes, and restoration of disturbed areas following construction activities. Where roadside trees need to be removed, compensatory plantation programs will be undertaken to restore local vegetation and maintain ecological balance. Traffic management options, including signage, barricading, and designated detours, will be enforced to ensure safe movement of vehicles and pedestrians. In addition, drainage systems will be carefully designed and maintained to prevent waterlogging and ensure the natural flow of stormwater. Construction activities near water bodies and agricultural lands will be conducted with special precautions to prevent contamination and protect local livelihoods dependent on farming and fisheries. Contractors will also be required to ensure proper occupational health and safety

measures for workers, including the use of personal protective equipment (PPE), training on workplace safety, and emergency preparedness.

Stakeholder consultation was an integral component of the assessment process. Local community members, school authorities, religious leaders, local government representatives, and other relevant stakeholders were consulted during field visits to gather their views, concerns, and recommendations regarding the proposed road improvements. The majority of stakeholders expressed strong support for the project, highlighting that improved community roads will reduce travel time, facilitate access to markets and services, and significantly enhance evacuation and mobility during flood emergencies. Community members also emphasized the importance of proper drainage, road safety measures, and protection of roadside vegetation. Public consultation attendance sheets are in **Annexure 2.**

The project is expected to generate significant positive impacts in the long term. Improved community roads will strengthen connectivity between rural communities and flood shelters, thereby enhancing disaster resilience and emergency preparedness. Better road infrastructure will also support local economic development by facilitating the transportation of agricultural products, improving access to educational and health services, and enhancing overall rural mobility. In addition, the project will contribute to improved safety and accessibility for women, children, elderly people, and persons with disabilities who rely on these roads for daily activities.

The implementation of the ESMP, along with continuous monitoring and stakeholder engagement, will ensure that environmental and social risks are minimized while maximizing the long-term benefits of the project for local communities. The report therefore provides a comprehensive framework to guide environmentally responsible and socially inclusive implementation of community road improvement works under the RIVER Project.

1.0 INTRODUCTION

1.1 Sub-Project Background

Bangladesh is widely recognized as one of the most disaster-prone countries in the world due to its geographic location, low-lying topography, and extensive river systems. Seasonal floods, riverbank erosion, and intense rainfall events frequently disrupt rural livelihoods and damage infrastructure, particularly in northern districts located near major transboundary rivers. In this context, improving resilient rural infrastructure and ensuring reliable access to emergency facilities such as flood shelters have become critical priorities for disaster risk reduction and sustainable development in the country.

To address these challenges, the Government of Bangladesh, with financial and technical assistance from the World Bank, has undertaken the RIVER Project, which aims to strengthen disaster resilience and improve rural infrastructure in flood-vulnerable regions. The project focuses on the construction and improvement of multipurpose flood shelters as well as the development of community infrastructure connecting roads to ensure safe and efficient access to these shelters during flood emergencies. These infrastructures not only function as evacuation centers during disasters but also serve as community facilities such as schools or community centers during normal periods.

The project area covers four upazilas of Rangpur District, namely Taraganj Upazila, Pirgachha Upazila, Kaunia and Gangachara Upazila. These upazilas are predominantly rural and depend heavily on agriculture and local trade for livelihoods. However, many villages within these areas experience difficulties in accessing reliable transportation infrastructure, especially during the monsoon season when roads often become submerged, damaged, or impassable due to floodwaters. As a result, communities frequently face challenges in reaching schools, healthcare centers, markets, and emergency shelters during extreme weather events.

The proposed sub-project therefore focuses on improving the condition and resilience of existing community roads that connect villages to nearby flood shelters. These roads generally exist in the form of earthen or partially paved rural roads, which often deteriorate due to seasonal flooding, poor drainage, and heavy usage. Through the planned improvement works, these roads will be upgraded to more durable and climate-resilient standards to ensure year-round accessibility and safe evacuation routes during disasters.

The improvement of community infrastructure connecting roads will play a significant role in strengthening disaster preparedness and response capacity in the project area. By ensuring reliable access to flood shelters, the sub-project will enable communities to evacuate more quickly and safely during flood events. At the same time, improved road connectivity will facilitate daily socio-economic activities such as transportation of agricultural goods, access to markets, educational institutions, healthcare services, and other public facilities.

In addition to enhancing disaster resilience, the development of these community roads is expected to contribute to broader rural development objectives. Improved road infrastructure will

support local economic growth, improve mobility for residents, and increase accessibility for women, children, elderly persons, and individuals with disabilities who rely on these routes for daily travel.

Considering that infrastructure development activities may create certain environmental and social impacts during construction and operation phases, this Environmental & Social Assessment and Management Report (ESAMR) has been prepared to assess potential risks and identify appropriate mitigation measures. The assessment ensures that the proposed road improvement works are implemented in an environmentally sustainable and socially responsible manner, in compliance with national environmental regulations and the environmental and social standards of the World Bank.

The findings and recommendations presented in this report will guide project authorities, contractors, and relevant stakeholders in implementing the sub-project while minimizing environmental disturbances, protecting local communities, and maximizing the long-term benefits of improved community infrastructure in Rangpur District.

1.2 Objective of the Sub-Project

The primary objective of the sub-project is to enhance the resilience, accessibility, and functionality of rural road networks that provide critical connectivity to nearby flood shelters and essential community facilities. The sub-project aims to ensure safe, reliable, and all-weather access for local communities, particularly during flood and emergency events, thereby supporting timely evacuation and reducing vulnerability to disasters. By upgrading existing road surfaces, improving drainage systems, and strengthening road structures within the existing Right of Way (ROW), the project seeks to minimize environmental and social disruptions while maximizing socio-economic benefits.

Key objectives also include facilitating the movement of people, goods, and agricultural produce, improving access to education, healthcare, and markets, and supporting the overall disaster preparedness and resilience of communities in flood-prone areas of **Rangpur District**. Ultimately, the sub-project contributes to both short-term safety and long-term sustainable development of rural infrastructure, ensuring that flood shelters remain accessible and that the livelihoods of local residents are protected and enhanced.

1.3 Scope of the Project

The scope of the project shall include the construction of multipurpose flood shelters and construction of related access roads, flood embankments, drainage channels (both natural and manmade). The proposed infrastructure shall be climate resilient, including cross-drainage culverts and rural bridges necessary for assured rural accessibility. Raising of selected community land above the high flood level and small-scale community infrastructure to protect land and property shall also be included.

1.4 Objectives of the Report

The main objective of this Environmental & Social Assessment and Management Report (ESAMR) is to provide a comprehensive evaluation of the potential environmental and social impacts associated with the improvement of community infrastructure connecting roads at Rangpur District under the RIVER Project and to propose appropriate mitigation and management measures. The report aims to ensure that the sub-project is planned and implemented in an environmentally sustainable and socially inclusive manner, minimizing adverse impacts on local communities, sensitive receptors, and natural resources while enhancing positive outcomes.

Specific objectives include identifying environmental features and social conditions along the road corridors, assessing risks related to construction and operational activities, recommending measures to mitigate potential impacts such as dust, noise, drainage disruption, tree removal, and traffic hazards, and providing guidelines for occupational health and safety, stakeholder engagement, and grievance redress mechanisms. Additionally, the report seeks to support compliance with national environmental and social regulations as well as the environmental and social standards of the World Bank, thereby facilitating responsible implementation of the sub-project while improving community connectivity to nearby flood shelters and essential facilities.

2.0 SUB-PROJECT LOCATION AND DESCRIPTION

This section provides a detailed description of the sub-project location, its physical and socio-economic context, and the nature of the proposed improvement works for the community infrastructure connecting roads in Rangpur District under the RIVER Project.

2.1 Sub-Project Location

The sub-project covers selected community roads located in Rangpur District, which is in the northern part of Bangladesh and is prone to seasonal flooding due to its low-lying topography and proximity to major rivers. The sub-project specifically targets three upazilas:

1. **Taraganj Upazila** - A predominantly rural area with dispersed settlements, agricultural lands, and small marketplaces. The community roads in this upazila provide critical access to flood shelters and facilitate movement within flood-prone villages.
2. **Pirgachha Upazila** - Characterized by flat agricultural terrain, this upazila experiences seasonal inundation. The connecting roads targeted under this sub-project are essential for linking villages with local markets, schools, health facilities, and nearby flood shelters.
3. **Kaunia Upazila** - The sub-project roads in this upazila pass through several small settlements and agricultural areas, often adjacent to flood shelters constructed under the RIVER Project. The roads are critical for emergency evacuation during flood events.
4. **Gangachara Upazila** - The sub-project roads in this upazila pass through several small settlements and agricultural areas, often adjacent to flood shelters constructed under the RIVER Project. This area also faces seasonal inundation. The roads targeted here link local

communities with flood shelters, health facilities, and administrative centers, enhancing both daily accessibility and emergency response capacity.

The selected roads for improvement are strategically located near flood shelters to ensure safe and timely access during floods and other natural disasters. Most of the road's traverse agricultural lands, rural settlements, and areas with community facilities such as schools, mosques, and local markets. Map illustrating Community Roads of Rangpur District is attached in **Figure 2.1.**

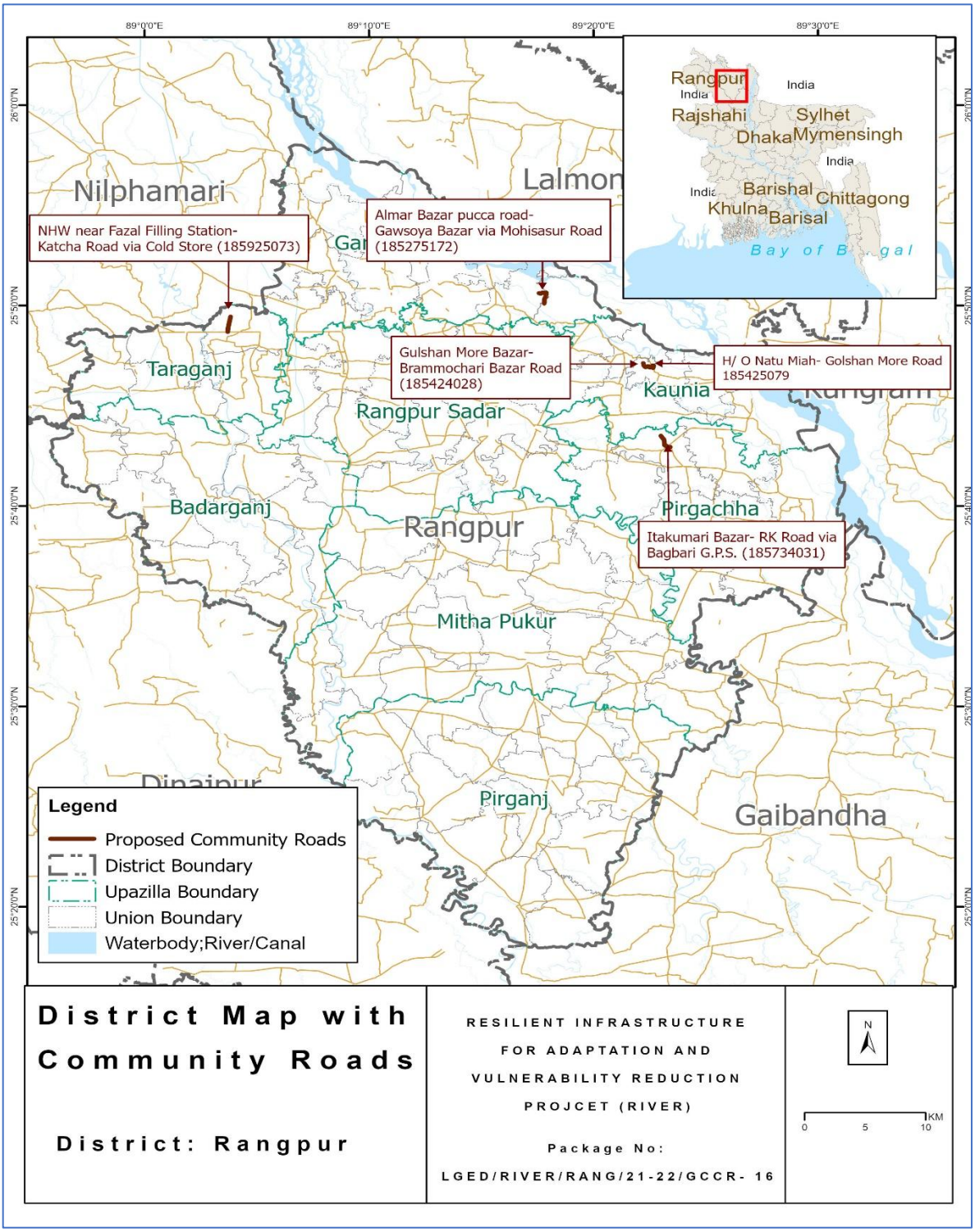


Figure 1.2.1: Map illustrating Community Roads of Rangpur District

2.2 Physical Features and Environment

The terrain across the project area is predominantly flat and low-lying, with several small rivers, canals, and drainage channels passing through the upazilas. During monsoon season, these areas are prone to waterlogging and localized flooding. The existing road infrastructure mainly consists of earthen or semi-paved roads with limited drainage facilities, making them vulnerable to damage and disruption during heavy rainfall. Roadside vegetation, including trees and shrubs, is present along many stretches, contributing to local ecology and providing shade to communities.

2.3 Socio-Economic Context

The project area is predominantly rural, with communities largely dependent on agriculture, fisheries, and small-scale trade for their livelihoods. Key social features along the proposed road corridors include:

- Local settlements and homesteads
- Agricultural fields and small marketplaces
- Educational institutions such as primary and secondary schools
- Religious institutions including mosques and madrassas
- Public infrastructure such as community centers and flood shelters

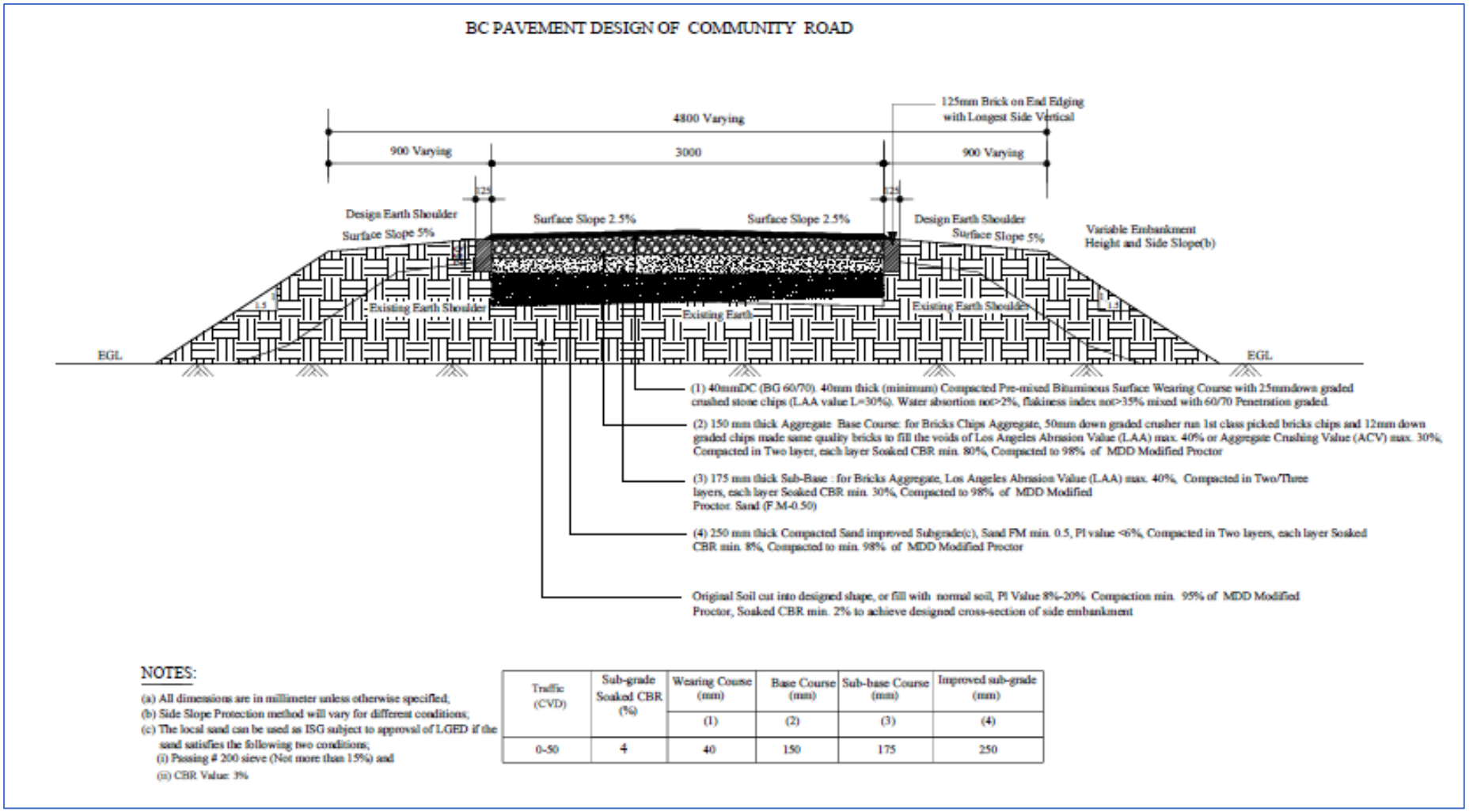
These roads are vital for socio-economic development, enabling residents to access essential services, markets, and emergency evacuation routes during floods. The proximity of flood shelters to these roads underscores their importance for disaster preparedness and response.

2.4 Sub-Project Description

The sub-project involves the improvement of existing community roads to enhance their structural stability, surface quality, and drainage capacity. Key components of the road improvement works include:

- Road Surface Improvement - Upgrading existing earthen or semi-paved roads with compacted soil, gravel, or pavement to ensure year-round usability.
- Road Widening and Shoulder Stabilization - Where necessary, the roads will be widened within the existing Right of Way (ROW) to facilitate safer two-way movement of vehicles and pedestrians.
- Drainage Enhancement - Construction or repair of side drains, culverts, and cross-drainage structures to prevent waterlogging and maintain road longevity.
- Slope Protection and Embankment Strengthening - Stabilization of embankments and road shoulders to reduce erosion and maintain structural integrity during floods.
- Traffic Safety Measures - Installation of signage, demarcation, and other traffic management interventions near schools, markets, and flood shelters to ensure safety during construction and operation.

The sub-project is designed to minimize environmental and social impacts by utilizing existing ROWs and avoiding unnecessary land acquisition. Construction activities will be planned to limit disruption to local communities and ensure continuous access to flood shelters.



NOTES:

(a) All dimensions are in millimeter unless otherwise specified;
(b) Side Slope Protection method will vary for different conditions;
(c) The local sand can be used as ISG subject to approval of LGED if the sand satisfies the following two conditions;
(i) Passing # 200 sieve (Not more than 15%) and
(ii) CBR Value: 3%

Traffic (CVD)	Sub-grade Soaked CBR (%)	Wearing Course (mm)	Base Course (mm)	Sub-base Course (mm)	Improved sub-grade (mm)
		(1)	(2)	(3)	(4)
0-50	4	40	150	175	250

Figure 2.2: Typical Pavement Design of Community Roads

2.5 Elementary information of Community Road in Rangpur District

The community road package components in Rangpur District, located in the central region of Rangpur Division, have been identified under the RIVER Project to improve rural connectivity and facilitate access to nearby flood shelters and community facilities. The proposed community roads fall within the project influence area of several flood shelter construction sites located in different upazilas such as Taraganj Upazila, Pirgachha Upazila, Kaunia Upazila and Gangachara Upazila. Each road component has been identified with specific GPS coordinates to define its alignment and location within the respective union parishads such as Itakumari, Annadanagar, Chhaola, Tambulpur, Bhendabari, Bara Dargah, Hariarkuti unions etc. These community roads are strategically selected to connect surrounding rural settlements, growth centres and different service facilities with the nearest proposed flood shelter sites, ensuring safe evacuation and improved access during flood events. The project influence area generally includes roadside settlements, agricultural fields, local markets, and educational institutions situated along the alignment. The development and rehabilitation of these roads will significantly enhance disaster resilience, mobility, and socio-economic activities of the local population while ensuring better connectivity to emergency shelters and essential services. Acknowledging this matter, such details are accounted for as given below in **Table 2.1**.

Table 2.1: Basic Featured Information of community road components

Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
1.	Pirgachha	Itakumari	Itakumari Bazar-RK road Via Bagbari G.P.S (185734031)	**Starting Point** *25.715797 N* *89.390373 E* ***Ending Point*** *25.725075 N* *89.383344 E*	1.66	Itakumari Kali Mondir, Itakumari bot tola bazar, Srikanto mor, Nurosingho Jame mosque, Nurosingho Langara Bazar	Bagbari GPS GPS	2.275 km From Proposed Flood Shelter
2.	Kaunia		Gulshan More Bazar-Brammochari Bazar Road. (185424028)	**Starting Point** *25.781869 N* *89.375379 E*	1.00	Shahidbagh	Bangram GPS	4.5 km From Proposed Flood Shelter

Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
		Shahidbagh		***Ending Point*** *25.785457 N* *89.370252 E*				
3.			H/O Natu Miah-Golshan More Road. (185425079)	**Starting Point** *25.781518 N* *89.377425 E* ***Ending Point*** *25.78364 N* *89.37708 E*	0.4			4.0 km From Proposed Flood Shelter
4.	Gangachara	Gajaghanta, Marania	Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road. (185275172)	**Starting Point** *25.835086 N* *89.296708 E* ***Ending Point*** *25.843594 N* *89.292674 E*	1.79	Gajaghanta, Mahissar	Char Chhalapak GPS	1.50 km From Proposed Flood Shelter
5.	Taraganj	Ekarchali	NHW near Fazal Filling Station-Katchna Road via Cold store (185925073)	**Starting Point** *25.811551 N* *89.061668 E* ***Ending Point*** *25.824361 N* *89.063909 E*	1.42	Katchna	Katchna GPS	1.70 km From Proposed Flood Shelter

[*Sources of data: Field survey, March 2026]

2.6 Environmental / Social Category of the Subproject

The overall anticipated adverse impacts of the subproject are minimal, localized, and site-specific in nature, and mostly avoidable or mitigable and do not pose any significant threat or harm to local inhabitants or biodiversity, if general good engineering and OHS practices are adopted. Moreover, the roads will be constructed within the existing ROW and no rehabilitation or acquisition of land is required or provisioned. Further, no ethnic groups are found living within the catchment area and there is no risk of involuntary resettlement or loss of common property resources. Therefore, considering all the anticipated impacts, existing social and environmental settings and scope of work, the overall risk for this sub-project can be categorized as 'Moderate'.

2.7 Baseline Conditions of the Community Road

The baseline assessment of the community roads under the sub-project in Rangpur District provides a detailed understanding of the existing physical and social conditions, which serves as the foundation for planning road improvements while minimizing environmental and social impacts. The targeted roads pass through the upazilas of Taraganj, Kaunia, Pirgachha, and Pirganj.

Existing Pavement Condition and Chainage: Most of the existing roads are paved or semi-paved and exhibit varying levels of deterioration due to seasonal flooding, heavy monsoon rainfall, and limited maintenance. Potholes, rutting, and erosion along shoulders are commonly observed, particularly in low-lying sections and areas adjacent to drainage channels. Road surfaces along chainages near settlements and marketplaces are particularly affected by frequent pedestrian and vehicular use.

Existing Structures on the Road: The roads traverse areas with various existing structures, including small culverts, side drains, footbridges, local marketplaces, schools, mosques, and roadside residences. In some sections, informal drainage channels and agricultural access points intersect the road alignment. Tree cover and roadside vegetation are present along several stretches, contributing to local ecology.

Proposed Road Interventions: The sub-project proposes to upgrade the existing roads within the available Right of Way (ROW) to improve structural stability, all-weather accessibility, and flood resilience. Interventions include earthwork for raising low-lying sections, paving with compacted gravel or bituminous surfaces, slope stabilization, shoulder reinforcement, and improvement of roadside drainage to prevent waterlogging.

Proposed Structures: The project includes the construction of new small culverts, cross-drainage structures, and side drains at strategic locations to ensure uninterrupted water flow and prevent road flooding.

Safeguard Features: To ensure environmental and social sustainability, safeguard measures will be incorporated during construction and operation. Signage, speed control measures, and pedestrian pathways will be provided to enhance safety.

Overall, the baseline conditions highlight the need for targeted interventions to enhance road safety, connectivity, and resilience, while the proposed structural improvements and safeguard features are designed to address environmental and social risks, improve access to flood shelters, and support the sustainable development of the rural road network in Rangpur District. Road wise Baseline Conditions of the community Roads status are in **Table 2.2.**

Table 2.2 Status of Baseline Conditions of the Community Road

Sl. No.	Road Name	Road ID	Total Road Length (km)	Existing Pavement Condition with Chainage	Existing Structures on the road	Proposed Road Interventions	Safeguard Features
1.	Itakumari Bazar-RK road Via Bagbari G.P.S (Village-A)	185734031	1.66	Unpaved- 0+000 to 1+660	U Drain (4.9m × 1.3m)- 543m	BC- 0+00 to 1+660 U Drain (7m × 1m) - 290m, (7m × 1m) - 543m, (7m × 1m) - 863m, (7m × 1m) - 1511m Palisading 0+004 to 0+130 (R), 0+190 to 0+225 (R), 0+454 to 0+540 (L), 0+633 to 0+656 (L), 0+675 to 0+688, 0+692 to 0+706, 0+705 to 0+731, 0+721 to 0+750, 0+881 to 0+905, 1+010 to 1+038, 1+079 to 1+102, 1+129 to 1+141, 1+141 to 1+175, 1+450 to 1+459	Not available in site
2	Gulshan More Bazar-Brammochari Bazar Road. (Village-A)	185424028	1.00	Unpaved- 0+00 to 1+000	Culvert (1m × 1m) - 611m	BC-0+00 to 1+000 Palisading (Left Side) (17m × 1m) - 0+010 to 0+027, (10m × 1m) - 0+250 to 0+260, (10m × 1m) - 0+370 to 0+380, (11m × 1m) - 0+600 to 0+611, (19m × 1m) - 0+750 to 0+769 U Drain (0.600m × 0.600m) - 0+438m, (0.600m × 0.600m) - 0+733m, (0.600m × 0.600m) - 0+788m Culvert (2.0 × 2.0) - 0+611m	Not available in site
3.	H/O Natu Miah-Golshan More Road.	185425079	0.4	Unpaved- 0+600 to 0+925 & link 75m	U Drain (5m × 1m) - 665m	BC- 0+600 to 0+925 & link 75m	Not available in site

Sl. No.	Road Name	Road ID	Total Road Length (km)	Existing Pavement Condition with Chainage	Existing Structures on the road	Proposed Road Interventions	Safeguard Features
	(Village-B)					U Drain (0.600m × 0.600m) - 0+020, (0.600m × 0.600m) - 0+048	
4.	Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road (Village-B)	185275172	1.79	Unpaved- 0+00 to 1+790	Culvert (3.7m × 1.3m × 0.9m) - 0+579m, (5m × 1.4m × 1.2m) - 1+682m Bridge (2.0 × 2.0) - 1+010m Slope Protection (16m) - 1+764m	BC-0+000 to 1+790 Culvert - 579m Palisading (Left Side) (19m)- 0+300 to 0+319, (Left Side) (18m)- 0+340 to 0+358, (Right Side) (17m)- 0+523 to 0+540, (Right Side) (11m)- 0+706 to 0+717, (Right Side) (12m)- 0+998 to 1+010, (Both Side) 29m)- 1+190 to 1+219, (Right Side) (16m)- 1+64 to 1+780	Not available in site
5.	NHW near Fazal Filling Station-Katchna Road via Cold store (Village-B)	185925073	1.42	Unpaved- 0+00 to 1+420	Culvert (4.3m × 2.4m × 1.3m) - 0+011m, (6m × 4.3m × 3m) - 0+680m, (6.3m × 1.7m × 1.3m) - 0+888m HBB Road (30m)- 668m to 698m	BC- 0+00 to 1+420 Palisading (Left Side) (28m)- 1+243 to 1+271	Not available in site

3.0 Environmental and Social Survey and Screening

3.1 Survey and Screening Methodology

An Environmental and Social Survey and Screening have been carried out within the Project Influence Area (PIA), defined as a 0.5 km buffer on both sides from the centerline of the proposed road alignment. The purpose of the survey was to identify baseline environmental and socio-economic conditions, as well as potential sensitive receptors that may be affected by project activities. The methodology generally involves a combination of desk review, field reconnaissance, and stakeholder consultation. Initially, relevant secondary information was reviewed to understand the baseline settings. This was followed by systematic field surveys along the road alignment within the 0.5 km PIA, where environmental features (water bodies, vegetation, wetlands, and flora and fauna, etc.) and social features (settlements, educational institutions, mosques/temples, markets, health facilities, agricultural lands, and cultural properties) were identified and impacts from the implementation works were assessed. Structured observations, photographic documentation, and transect walks were used during the field investigation. In addition, consultations with local communities, local government representatives, and relevant stakeholders were conducted to gather information on livelihood activities, land use, community resources, and potential concerns regarding the proposed interventions. The collected information was then analyzed through a screening process to assess the likelihood and significance of environmental and social impacts during construction and operation phases. The outcome of the survey and screening helps determine the level of environmental and social assessment required and supports the preparation of appropriate mitigation measures and management plans to ensure environmentally sustainable and socially responsible road development in the area.

3.2 Important features/establishments around the PIA

The project influence area of the proposed community road sub-projects includes a variety of environmental, social, economic, and cultural features located along or near the existing road alignments. These features have been identified during field reconnaissance surveys and consultations with local communities to understand the baseline conditions and potential interactions between the proposed road maintenance activities and surrounding establishments. The community roads generally pass through rural settlements and agricultural landscapes within different unions and upazilas, where local infrastructure and community facilities are closely located near the roadside.

From an environmental perspective, the surrounding areas of the assessed community roads are predominantly characterized by agricultural landscapes, low-lying floodplains, scattered vegetation, and rural homestead gardens. Small ponds, irrigation canals, and natural drainage channels are also commonly found along or near the road alignments, which play a significant

role in local water management and fish cultivation. These natural and semi-natural environmental features contribute to the ecological balance of the area and therefore require careful consideration during construction activities to avoid unnecessary disturbance, sedimentation, or blockage of drainage paths.

The social features within the project influence area include rural households, schools, religious institutions, community centers, and public service facilities located close to the existing road corridors. Residential settlements are often situated along both sides of the roads, indicating that these roads serve as important local access routes for daily community activities. Educational institutions such as primary and secondary schools, madrasa buildings, and playgrounds may also be located within short distances from the road alignment. Religious establishments including mosques and community graveyards are common features in the project area and are often found near village centers along the road network. These social infrastructures are important gathering places for local residents and require careful consideration during construction activities to minimize disruption and maintain safe access.

In terms of economic features, the project influence area contains small local markets, roadside shops, agricultural storage areas, and facilities supporting rural livelihoods. Weekly rural markets (haats), small grocery shops, tea stalls, and agricultural input stores are frequently located at road intersections or village centers. These establishments depend heavily on the accessibility provided by community roads for transportation of goods and services. In addition, agricultural activities such as crop production, livestock rearing, and fish cultivation are key sources of livelihood for the surrounding communities. Improved road conditions are therefore expected to enhance local economic activities by facilitating easier transportation of agricultural products, improving market access, and reducing travel time for rural populations.

The cultural and community heritage features within the project influence area may include local mosques, Eidgah grounds, graveyards, Shaheed Minars, and other culturally significant landmarks. These sites hold social and cultural importance for local communities and are often located within close proximity to village roads. Any construction or maintenance work near such cultural features will require special attention to ensure that these sites are protected and that community access remains uninterrupted.

In addition to these environmental, social, economic, and cultural features, the project influence area may also include essential service infrastructure such as tube wells, rural electrification lines, irrigation pumps, drainage outlets, and small water supply systems. These utilities support the daily needs of the local communities and must be carefully protected during construction to prevent service disruptions. Where temporary disturbances are unavoidable, appropriate mitigation measures and coordination with local authorities will be necessary to restore services promptly.

Overall, the surrounding features and establishments within the project influence area reflect the typical rural landscape and socio-economic structure of Rangpur District. The identification and documentation of these features are essential for assessing potential environmental and social impacts associated with the community road improvement works. Detailed information on these environmental, social, economic, and cultural establishments identified during the field assessment has been systematically presented in **Table 3.1**, which provides a location-specific inventory of important features situated along or near the assessed road alignments. This inventory will help guide the implementation of appropriate mitigation measures and ensure that project activities are carried out in an environmentally and socially responsible manner.

Table 3.1: Important features under Project Influence Area

Division: Rangpur	**District: Rangpur**		**Upazila: Pirgachha**
Name of the Road:	**Itakumari Bazar-RK road Via Bagbari G.P.S (185734031)**		
Total Road Length (Km)	1.66 km		
Chainage	**Orientation (Left/Right)**		**Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)**
000-300	L		Pond in 1 m, House in 1 m, itakumari bot tola bazar
		R	Pond in 1 m, House in 1 m, itakumari bot tola bazar
300-600	L		Pond in 1 m, House in 1 m
		R	Agriculture Land in 1 m, House in 1 m
600-900	L		Agriculture Land in 1 m, House in 1 m, pond in 1 m
		R	Agriculture Land in 1 m, House in 1 m, Pond in 1 m.
900-1200	L		House in 1 m, Pond in 1 m, Nurosingho Jame Mosque in 1 m
		R	House in 1 m, Pond in 1 m
1200-1500	L		Agriculture Land in 1 m, House in 1 m, Pond in 1 m
		R	Agriculture Land in 1 m, House in 1 m, Pond in 1 m.
1500-1660	L		Agriculture Land in 1 m, House in 1 m, Nurosingho Langara Bazar in 1 m.
		R	Agriculture Land in 1 m, House in 1 m, Nurosingho Langara Bazar in 1 m.
Division: Rangpur	**District: Rangpur**		**Upazila: Kaunia**
Name of the Road:	**Gulshan More Bazar-Brammochari Bazar Road. (185424028)**		

Total Road Length (Km)	1.0 km		
Chainage	**Orientation (Left/Right)**		**Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)**
00-300	L		Bamboo Garden in 1 m, House in 1 m, Pvt House 1 m, Jack Fruit Tree 1 m, Pvt House 1 m
		R	Pvt House 1 m, Bamboo Garden 1 m, Corn Garden 1 m
300-600	L		Paddy Land 1 m, Corn Land 1 m, Ditch 1 m, Bamboo Garden 1 m
		R	Electric Pole, Corn Land 1 m, Bamboo Garden 1 m, Mango Tree 1 m, Coconut Tree 1 m
600-900	L		Pond in 1 m, Madrasha in 1 m, House in 1 m, Mango Tree 1 m, Jack Fruit Tree 1 m, Pvt House 1 m
		R	Pvt House 1 m, Bamboo Garden 1 m, Corn Garden 1 m
900-1000	L		Boddha vumi in 1m, Paddy Land 1 m, Corn Land 1 m, Ditch 1 m, Bamboo Garden 1 m
		R	Corn Land 1 m, Bamboo Garden 1 m, Mango Tree 1 m, Coconut Tree 1 m
Name of the Road:	**H/O Natu Miah-Golshan More Road. (185425079)**		
Total Road Length (m)	325 m + 75 m Link Road		
Chainage	**Orientation (Left/Right)**		**Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)**
600-900	L		House in 1 m, Mango Tree 1 m, Jack Fruit Tree 1 m, Pvt House 1 m
		R	Pvt House 1 m, Bamboo Garden 1 m, Corn Garden 1 m
900-925	L		Paddy Land 1 m, Corn Land 1 m, Ditch 1 m, Bamboo Garden 1 m
		R	Corn Land 1 m, Bamboo Garden 1 m, Mango Tree 1 m, Coconut Tree 1 m
Division: Rangpur	**District: Rangpur**		**Upazila: Gangachara**
Name of the Road:	**NHW near Fazal Filling Station-Katchna Road via Cold store (185925073)**		
Total Road Length (Km)	1.42 km		

Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Mosque (10m away)
		R	Settlements
300-600	L		Settlements
		R	Grave (4m away)
600-900	L		Grave (5m away)
		R	Barren land
900-1200	L		-
		R	Agricultural Land
1200-1420	L		Mosque (6m away)
		R	-
Division: Rangpur	**District: Rangpur**		**Upazila: Taraganj**
Name of the Road:	**Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road. (185275172)"**		
Total Road Length (km)	1.79 km		
Chainage	**Orientation (Left/Right)**		**Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)**
00-300	L		Agricultural land
		R	Filling Station (5m away), Farm (7m away)
300-600	L		Cold Storage (2m away), Brick Field
		R	Agricultural Land
600-900	L		Electric Pole (10m away)
		R	Electric Pole (4m away)
900-1200	L		Agricultural land
		R	Agricultural land
1200-1500	L		Agricultural land
		R	Agricultural land
1500-1790	L		Agricultural land
		R	Agricultural land

(*Data Source: Field Survey, March 2026)

4.0 Environmental and Social Impacts and Proposed Mitigation and Enhancement Measures

4.1 Environmental and Social Impacts for the Implementation of works

The proposed community road improvement in Rangpur District under the RIVER Project aim to rehabilitate and maintain existing rural road infrastructure to improve accessibility, disaster resilience, and socio-economic connectivity within the project influence area. Since the project interventions will mostly take place within the existing right-of-way of community roads, the anticipated environmental and social impacts are expected to be moderate, temporary, and site-specific in nature. However, certain environmental and social risks may arise during the construction and operational phases that require appropriate mitigation and enhancement measures to ensure sustainable project implementation.

Environmental and Social protection and enhancement will be an integral component of the sub-projects. Environmental and Social Mitigation and Enhancement Measures to address potential environmental and community impacts during construction and operation phase. These measures will be implemented in accordance with the Environmental and Social Management Framework (ESMF) of the RIVER Project. Key mitigation measures will include dust suppression through regular water spraying, proper management of construction waste, control of noise during construction activities, and prevention of water pollution from construction materials or machinery. Social mitigation measures will focus on minimizing disruption to local communities living along the road corridors. Construction activities will be carefully scheduled to avoid blocking community access routes for long periods. Temporary access arrangements will be maintained where construction works interfere with local movement. Safety awareness will be promoted among workers and community members to reduce occupational and public health risks. Local labor will be encouraged where possible, which may contribute to temporary employment opportunities for nearby residents. Site specific Environmental Impacts and Mitigation Measures are described in **Table 4.1.**

Table 4.1: Environmental and Social Impacts and Proposed Mitigation and Enhancement Measures for Community Road Improvement in Rangpur District

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
1	Itakumari Bazar-RK road Via Bagbari G.P.S	• Dust generation and air pollution during earthworks, transportation of construction materials, and road surface improvement which may affect nearby settlements and the area around Mosques. • Noise disturbance from construction machinery and vehicles, particularly affecting nearby residents and religious activities at the mosque. • Temporary disruption of local movement and access for residents, pedestrians, and local vehicles during road rehabilitation activities. • Occupational and community safety risks due to movement of construction vehicles and operation of equipment along the road corridor.	• Regular water spraying on exposed soil and road surfaces, covering of construction materials during transport, limiting vehicle speed, and maintaining machinery to control dust emissions. • Restrict construction work during sensitive hours (especially prayer times), maintain equipment to reduce noise, and avoid unnecessary honking or heavy machinery operation near the mosque area. • Maintain temporary access pathways, install warning signs and barricades, implement a basic traffic management plan, and inform local residents in advance about construction schedules. • Provide personal protective equipment (PPE) to workers, install safety signage and barricades, conduct safety briefings for workers, and ensure safe movement of construction vehicles within the work zone.
2	Gulshan More Bazar-Brammochari Bazar Road.	• Dust generation and air pollution from earthworks, transportation of materials, and road surface preparation which may affect nearby settlements and roadside shops. • Noise disturbance from construction equipment and vehicles, particularly	• Regular water spraying on exposed surfaces, covering of construction materials during transport, maintaining vehicles and limiting speed near settlements. • Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		affecting nearby households, schools, and local religious establishments. • Temporary disruption to local traffic and pedestrian movement during culvert repair, earthworks, and road surface improvement. • Potential drainage blockage and localized waterlogging due to damaged culverts or improper construction practices.	work during prayer times or school hours where feasible. • Install temporary traffic management signs, maintain alternate access routes, and ensure safe pedestrian passage during construction. • Rehabilitate and maintain existing culverts and cross-drainage structures, ensure proper alignment of drainage channels, and keep drainage paths clear during construction.
3	H/O Natu Miah-Golshan More Road.	• Dust generation and air pollution during earthworks, transportation of construction materials, and road surface improvement which may affect nearby settlements and the area around religious establishments. • Noise and vibration from construction equipment disturbing nearby residents, schools, and local community activities. • Temporary disruption of local traffic and pedestrian movement along the road corridor during construction activities. • Minor removal of roadside vegetation or small trees within the existing right of way. • Risk of soil erosion or embankment instability particularly during the rainy season.	• Restrict construction activities to daytime hours, maintain machinery properly, and avoid excessive noise near sensitive locations. • Install warning signs and barricades, ensure temporary access for pedestrians and local vehicles, and implement a basic traffic management plan. • Minimize cutting of trees and vegetation; undertake compensatory roadside tree plantation after construction where feasible. • Maintain alternative access paths where required, schedule works in sections to minimize disruption, and consult with local residents before major activities.

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		• Community safety risks due to movement of construction vehicles near settlements and agricultural fields. • Temporary disturbance to roadside economic activities and access to houses or agricultural land.	
4	Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road.	• Dust generation from earthworks, excavation, and movement of construction vehicles affecting nearby households and roadside shops. • Noise disturbance from operation of construction machinery near residential areas, schools, and religious establishments. • Temporary traffic congestion and disruption of local mobility during road repair and culvert improvement works. • Community safety risks due to movement of heavy vehicles and construction equipment near settlements and schools. • Temporary disturbance to local economic activities such as roadside shops and vendors.	• Regular water spraying on exposed surfaces, covering of construction materials during transport, and limiting vehicle speed within settlements. • Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction near sensitive locations during school or prayer times. • Implement traffic management measures including temporary diversions, warning signs, flagmen, and maintaining access to houses and local roads. • Install warning signs, safety barriers, and speed control measures; assign flagmen in busy locations to guide traffic and pedestrians. • Dispose excess materials at designated sites, reuse suitable materials for road embankment, and maintain proper waste management practices. • Maintain access to shops and markets during construction, conduct works in phases, and coordinate with local community representatives to minimize disruptions.

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
5	NHW near Fazal Filling Station-Katchna Road via Cold store	• Dust generation during earthworks, road resurfacing, and material transportation, affecting nearby homes, shops, schools, and roadside settlements. • Temporary obstruction of pedestrian and local traffic, creating difficulties for villagers, school children, and vendors. • Blockage or inadequate cross-drainage and culverts, leading to waterlogging and localized flooding along the road. • Generation of construction waste and debris, which may pollute nearby fields or drainage channels if improperly managed. • Disturbance to local livelihoods, including roadside vendors, small shops, and farmers during construction activities.	• Regular sprinkling of water on roads, covering transport vehicles, limiting speed of vehicles, and maintaining construction equipment to minimize dust. • Construct protection walls, palisading walls, and guide walls where required; use compaction and proper grading to stabilize embankments. • Maintain access to businesses, communicate construction schedule in advance, and coordinate temporary relocation or alternate access routes if required. • Ensure road maintenance after construction, integrate road safety features, and promote roadside plantation for environmental enhancement.

5.0 Environmental and Social Management Plan (ESMP)

5.1 Purpose of the ESMP

The purpose of the Environmental and Social Management Plan (ESMP) for the sub-project "Improvement of Community Infrastructure Connecting Roads" is to provide a structured framework to identify, mitigate, and manage potential environmental and social impacts associated with the design, construction, and operation of the community roads. The ESMP ensures that all project activities comply with national environmental and social regulations as well as the environmental and social standards of the World Bank, promoting sustainable and socially inclusive infrastructure development.

Specifically, the ESMP aims to minimize adverse effects on local communities, settlements, flood shelters, agricultural lands, roadside vegetation, water bodies, and sensitive receptors such as schools and religious institutions. It outlines detailed mitigation measures for construction-related impacts such as dust, noise, traffic disruption, soil erosion, and safety hazards, and includes measures for operational sustainability and long-term maintenance of the roads. Furthermore, the ESMP establishes procedures for stakeholder engagement, grievance redress, occupational health and safety, and monitoring and reporting, ensuring that the project delivers its intended benefit which is enhanced connectivity, safer access to flood shelters, and improved resilience of rural communities while also safeguarding the environment and promoting social well-being.

5.2 Environmental and Social Management Plan (ESMP)

The Environmental and Social Management Plan (ESMP) for the sub-project under the RIVER Project provides a comprehensive framework for the systematic management of potential environmental and social impacts throughout the design, construction, and operational phases of the project. The ESMP is developed to ensure compliance with the national environmental and social regulations of Bangladesh as well as the Environmental and Social Standards (ESS) of the World Bank, thereby promoting sustainable, safe, and socially inclusive implementation of road improvement works.

The ESMP identifies key potential environmental impacts, including dust and air pollution, noise and vibration from construction equipment, soil erosion, sedimentation in nearby water bodies, removal of roadside vegetation, and temporary disruption of natural drainage patterns. It also addresses social impacts such as disturbance to local settlements, access restrictions for pedestrians and vehicles, occupational health and safety risks for workers, and potential conflicts with nearby institutions including schools, mosques, markets, and flood shelters.

To mitigate these impacts, the ESMP proposes detailed measures across multiple categories. Environmental mitigation measures include regular water spraying and dust control, proper

storage and disposal of construction materials and waste, restoration of disturbed areas, erosion control and slope protection, protection of existing trees with compensatory planting where removal is unavoidable, and careful management of drainage systems to prevent waterlogging and contamination. Social mitigation measures include implementing traffic management plans, ensuring safe pedestrian pathways, establishing buffer zones near sensitive receptors such as schools and religious institutions, scheduling construction activities to minimize community disruption, and maintaining clear communication with local residents regarding work schedules and potential impacts.

The ESMP also emphasizes occupational health and safety (OHS), including mandatory use of personal protective equipment (PPE), safety training for all construction personnel, emergency response procedures, and routine site inspections to ensure compliance with safety standards. In addition, it establishes community engagement and Grievance Redress Mechanisms (GRM) to ensure that local stakeholders have avenues to raise concerns, provide feedback, and participate in monitoring the implementation of mitigation measures. The activity wise anticipated environmental and social impacts and corresponding mitigation measures and Site-Specific Impacts and mitigation/management measures have been outlined in **Table 5.1.**

Furthermore, the ESMP outlines a monitoring and reporting framework to track the effectiveness of mitigation measures, identify unforeseen impacts, and facilitate adaptive management. Regular monitoring of air and water quality, noise levels, traffic safety, and compliance with environmental safeguards is recommended, along with periodic reporting to project authorities and relevant regulatory agencies. The plan also includes a schedule for maintenance and operational safeguards post-construction to ensure long-term functionality, safety, and environmental sustainability of the improved road network.

Overall, the ESMP serves as an essential tool to ensure that the sub-project not only enhances community connectivity and access to flood shelters but also minimizes environmental degradation, safeguards community health and safety, and strengthens the resilience of rural populations in Taraganj, Pirgachha, Gangachara, and Kaunia Upazilas. By integrating environmental and social considerations into every stage of project implementation, the ESMP ensures that the benefits of improved road infrastructure are maximized while negative impacts are systematically prevented, mitigated, and managed.

Table 5.1: ESMP_ Pre-Construction phase, Construction Phase and Operation Phase

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. • Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • All the safeguard documents will be disclosed to all relevant stakeholders. • People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• 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. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Construction materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes,	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. • Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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 labor camps will be put in place.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		(wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
Construction	Slipping of soil masses, dust	• Slope protection measures (proper compaction,	Contractor	Environmental and

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	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.		Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm	• 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 activities on site. • Provide walkways that are clearly designated as a walkway; 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: • The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents	Road safety issues can be minimized in following ways: • By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. • Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at	UE (Upazila Engineer)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	may also be due to tiredness of drivers. • Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	appropriate locations to aware drivers about likely accidents due to over speeding. • All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	• 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	District XEN, LGED

5.3 Monitoring of ES Performance

Monitoring of Environmental and Social (ES) performance is a crucial component of the implementation of community road improvement activities under the RIVER Project to ensure that all environmental and social safeguard measures are effectively applied during construction and operation phases. A systematic monitoring framework to be established to assess compliance with the Environmental and Social Management Plan (ESMP), national environmental regulations of Bangladesh, and the safeguard requirements of the World Bank. The monitoring process will involve regular field inspections, supervision visits, and periodic reporting to evaluate the effectiveness of mitigation measures related to dust suppression, noise control, traffic management, occupational health and safety, waste management, protection of nearby water bodies, and conservation of roadside vegetation. Social aspects such as community safety, access to local settlements and institutions, prevention of labor influx issues, grievance redress

mechanisms, and engagement with local stakeholders will also be closely monitored. Monitoring facilitates continuous tracking of compliance, assessment of performance, and early identification of potential environmental and social risks. The monitoring plan clearly specifies the parameters to be observed, along with the frequency, timing, responsible stakeholders, and verification mechanisms for each key environmental and social component. It combines site-level implementation by contractors with supervision from the Project Implementation Unit (PIU) and the Design and Supervision Consultant (D&SC).

Monitoring activities shall adopt both proactive (preventive) approaches such as routine inspections, audits, and stakeholder consultations along with reactive (corrective) measures based on incident reporting, grievance redress mechanisms, and non-compliance findings. The monitoring framework is aligned with national environmental regulations set by the Department of Environment (DoE), the World Bank Environmental and Social Framework (ESF), and the internal Environmental and Social Management Guidelines of the Local Government Engineering Department (LGED).

Table 5.2: Monitoring Framework for achieving overall ES Performance

Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
1.	Air Quality / Dust Emission	Dust generation from earthworks and vehicle movement; effectiveness of water spraying	Weekly during construction	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Site inspection, photographic records
2.	Noise Pollution	Noise disturbance near settlements, schools, and religious institutions	Weekly / During heavy construction	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field observation, community feedback
3.	Construction Waste Management	Segregation, collection, and proper disposal of construction debris	Weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Site inspection, waste disposal records
4.	Soil Erosion and Land Degradation	Evidence of soil erosion, slope protection measures, roadside stabilization	Monthly and after heavy rainfall	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field inspection
5.	Drainage and Water Flow	Functionality of roadside drains and culverts; prevention of waterlogging	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification

Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
6.	Protection of Surface Water	Prevention of sediment, oil, or construction waste entering ponds, canals, or rivers	Bi-weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Visual inspection, photo documentation
7.	Storage of Construction Materials	Proper storage of sand, soil, bitumen, and aggregates	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Site inspection
8.	Fuel and Chemical Handling	Safe storage and handling of fuel, lubricants, and chemicals	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Inspection checklist
9.	Occupational Health and Safety	Availability and use of PPE (helmet, gloves, boots, reflective jackets)	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Safety checklist, field inspection
10.	Worker Safety Training	Records of safety briefings and toolbox meetings	Monthly	Contractor (Safety Officer); PIU/D&SC (verification)	Training records review
11.	Construction Site Safety	Warning signs, barricades, and safe access control at work sites	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Field inspection
12.	Traffic Management	Presence of traffic signs, flagmen, and safe vehicle movement	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Observation, traffic control records
13.	Community Health and Safety	Protection of pedestrians and local residents from construction hazards	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Community consultation, site inspection
14.	Access to Local Facilities	Uninterrupted access to homes, markets, schools, mosques, and agricultural land	Weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field observation
15.	Protection of Roadside Vegetation	Preservation of existing roadside trees and vegetation	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification

Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
16.	Compensatory Tree Plantation	Plantation of trees where roadside trees are removed	Quarterly	Contractor (Implementation); PIU/D&SC (verification)	Plantation records, site inspection
17.	Borrow Area and Earth Source Management	Proper sourcing of earth materials without damaging agricultural land	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification
18.	Labor Management	Absence of child labor and forced labor; compliance with labor laws	Monthly	Contractor (Implementation); PIU/D&SC (verification)	Labor records review
19.	Worker Welfare Facilities	Availability of safe drinking water, sanitation, and rest areas for workers	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Site inspection
20.	Gender and Social Inclusion	Participation of local community including women in consultations	Quarterly	Contractor (recording); PIU (review)	Consultation meeting records
21.	Grievance Redress Mechanism (GRM)	Number of grievances received and resolved within specified timeframe	Monthly	Contractor (recording); PIU (review)	GRM register review
22.	Community Consultation	Stakeholder engagement and awareness regarding construction activities	Quarterly	Contractor (recording); PIU (review)	Meeting minutes, attendance records
23.	Cultural and Religious Sites Protection	Protection of nearby mosques, graveyards, temples, or cultural structures	As required	Contractor (Implementation); PIU/D&SC (verification)	Field inspection
24.	Compliance with ESMP	Overall implementation status of mitigation measures described in ESMP	Monthly	Contractor (Implementation); PIU (verification)	Monitoring checklist, compliance report
25.	Environmental and Social Reporting	Preparation and submission of ES monitoring reports	Monthly / Quarterly	Contractor (Implementation); PIU/D&SC (verification)	Monitoring reports

5.4 Capacity Development Measures

Effective management of Environmental, Social, and Gender issues in construction projects requires proactive capacity building for all actors involved including the Implementing Agency, Contractors, and Supervision Consultants. To ensure compliance with environmental and social standards, all project stakeholders must be adequately trained and informed about their responsibilities, mitigation measures, and reporting mechanisms. Capacity-building programs through formal trainings, on-site guidance, tool-box meetings, and awareness sessions help strengthen institutional capacity, improve coordination, and ensure that sustainability and gender equity principles are integrated into project planning, implementation, and monitoring.

The following table outlines the recommended capacity-building measures, target participants, training frequency, and key topics to be covered under an ESG management framework for building and road construction projects.

Table 5.3: Capacity-Building and Training Measures for ES Compliance and Management

Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
1	**LGED / Project Management Unit (PIU)**	Orientation on Environmental and Social Safeguards	To strengthen understanding of E&S policies, legal requirements, and roles in project implementation.	- National environmental & labor laws- World Bank E&S Framework- Grievance Redress Mechanism (GRM)- ESMP implementation & monitoring- Gender Issues in Infrastructure Development Project.	At project start and annually	Environmental & Social Specialists (PIU)/ D&S Consultant
2	**Supervision Consultants**	Training on E&S Supervision and Monitoring	To ensure that consultants effectively monitor contractors' compliance with E&S standards.	- ESMP & site-specific E&S checklists- Waste management & pollution control- Labor & working condition compliance- Occupational Health & Safety (OHS)- Gender-sensitive supervision- Incident reporting & corrective actions.	Before mobilization and quarterly refreshers	PIU with support from E&S Experts

Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
3	**Contractor's Management Staff**	Induction and Periodic E&S Management Training	To ensure site managers and engineers integrate E&S compliance in daily site operations.	- Contractor's ESMP & Method Statements- Environmental and Social Codes of Practices (ESCoPs)- OHS plan implementation- Labor rights and grievance mechanism- Community health & safety- Gender-based violence (GBV) and SEA/SH prevention	Prior to construction & bi-annually, if deemed required.	Supervision Consultant / PIU E&S Team
4	**Contractor's Workforce (Skilled & Unskilled Workers)**	Toolbox Meetings/ Awareness Sessions	To build awareness and behavioral change for safe, responsible, and inclusive site practices.	- Worksite safety protocols (PPE use, accident prevention)- Environmental cleanliness & waste segregation- Respectful workplace behavior & anti-harassment- Gender equality & inclusion- HIV/AIDS and communicable disease awareness	Weekly or bi-weekly at site	Contractor's E&S Officer / OHS Supervisor
5	**Community Representatives / Local Stakeholders**	Information & Awareness Session	To enhance local understanding of project impacts, grievance redress, and gender inclusion measures.	- Project scope & benefits- Potential impacts & mitigation measures- Community safety measures- GRM process- Gender & inclusion awareness	During pre-construction & as needed	PIU & Contractor's Community Engagement Officer
6	**Gender Focal Points (PIU, Contractor, Consultant)**	Gender and Social Inclusion (GESI) Training	To promote integration of gender considerations into project implementation.	- Gender Action Plan implementation- GBV/SEA/SH mitigation & referral pathways- Inclusive employment & equal pay- Women's participation in decision-making	At project start & mid-term	PIU Gender Specialist / External Expert

5.5 Tree Plantation Plan

The Government of Bangladesh has long promoted roadside plantation to improve environmental quality, restore ecological balance, and support rural livelihoods through timber, fuel, and other biological resources. Trees absorb carbon dioxide and release oxygen, reduce dust pollution, and provide habitat and economic value. To compensate for project-related tree loss, the Forest Department requires plantation at a 3:1 ratio (three trees planted for every tree felled).

Plantation will be carried out along roadside slopes, embankments, and other available spaces within and beyond the right-of-way, including suitable Upazila-owned land. Native fruit-bearing, flowering, medicinal, and ornamental species will be prioritized, selected in consultation with the Forest Department based on lost vegetation. Saplings (minimum 1 m height) will be protected and maintained through the defect liability period.

The initiative aims to restore biodiversity, enhance greenery, prevent erosion, improve aesthetics, and ensure long-term environmental sustainability while supporting local employment.

According to the prevailing practice in Bangladesh, the Forest Department has recommended to plant minimum three trees for each tree cut for the implementation of the proposed project.

Under the proposed tree plantation plan:

- Timber tree species will cover 40% of the total area,
- Fruit tree species will cover 30% of the total area,
- Medicinal tree species will cover 20% of the total area and
- Fuel tree species will cover the rest 10% of the total area.

Spacing between each plant shall be calculated according to the available space within the ROW. The tree plantation shall follow the following SOPs provided in Table 5.6.

Table 5.4: SOP for Tree Plantation at road side

Plant Selection / Height and Spacing	Planting and Fencing Details	Maintenance
• **Most types of trees average height should be more than 1 meter which equals more than 3ft. at the time of planting;** • **As all tree** heights are **not same, at the time of some specific tree plantation Upazila and**	Preparation of plantation pits will involve excavation of pits measuring 600 mm × 600 mm × 450 mm. The excavated soil will be mixed with loamy silty soil and cow dung to create suitable planting media. Saplings will then be planted and securely supported using 1800 mm long Borrak bamboo stakes, tied with jute rope, including the provision of	• Watering: needs two times in a day; Prefer specially, rainy season for tree plantation if it is in other season then proper watering is needed; • Needs weed out grass and other

Plant Selection / Height and Spacing	Planting and Fencing Details	Maintenance
Contractor should communicate with Consultant Team; • **Tree plantation spacing should be 3m c/c from one tree to another tree**	necessary tools and planting materials, all in accordance with the instructions of the E-I-C. In addition, protective tree guards will be provided using high-quality Muli bamboo, measuring approximately 1200 mm in height and 500 mm in diameter. The guards will be constructed using 2 mm thick bamboo splits arranged in a grid pattern with 75 mm × 75 mm square openings, reinforced with additional bamboo splits on both sides and secured with G.I. wire. Each tree guard will be firmly supported by three Borrak bamboo posts of 1800 mm length (63 mm diameter), with at least 600 mm embedded into the ground through proper excavation and backfilling. All works, including supply, preparation, installation, and finishing, will be completed as per the direction of the E-I-C.	unnecessary vegetation • Need regular monitoring by the Contractor till the end of defect liability period and later the Office of the Upazila Engineer.

5.6 Cost of Environmental and Social Enhancement Works in BOQ

The estimated cost of environmental and social enhancement works has been incorporated into the Bill of Quantities (BOQ) for the sub-project covering five identified community roads across Taraganj, Kaunia, Gangachara, and Pirgachha Upazilas. The detailed road wise estimate, with tentative cost for implementing the ESMP, is given in **Annexure 1**. These costs are specifically allocated to implement mitigation measures and safeguard activities that address environmental and social risks during construction and operation phases. Key components included in the BOQ for ES enhancement works comprise dust suppression through regular water spraying,

The BOQ also includes provisions for occupational health and safety (OHS) equipment for workers PPE, First Aid Box, Labor shed, Environmental management, drinking water facility with water tests, Temporary latrine for both 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. By integrating these costs into the project BOQ, the sub-project ensures that environmental and social safeguards are

systematically implemented without compromising project timelines or quality, while promoting sustainable, safe, and resilient road infrastructure that benefits local communities and maintains safe access to flood shelters.

6.0 PUBLIC CONSULTATION MEETING

6.1 Stakeholder Engagement

Stakeholder engagement is a critical component for ensuring that the perspectives, concerns, and suggestions of affected communities and relevant stakeholders are incorporated into project planning and implementation, a comprehensive series of stakeholder engagement and site-specific consultation meetings were conducted for all proposed shelter sites. These meetings were held from March 28-29, 2026. Public consultation meetings were conducted in the alongside covering of the five (5) identified community roads. Refer to **Annexure 2** for details of the attendance of the meeting. Participants included local residents, community leaders, school authorities, representatives of religious institutions, flood shelter managers, and local government officials. During these consultations, stakeholders were informed about the objectives, scope, and expected benefits of the road improvement works, including enhanced connectivity to flood shelters, improved mobility, and disaster preparedness. Discussions focused on potential environmental and social impacts such as temporary disruption to access, noise, dust, removal of roadside vegetation, and traffic safety during construction.

Key outcomes from these consultations included requests for proper traffic management near schools and marketplaces, adequate drainage improvements to prevent waterlogging, compensation or replanting for affected trees, and timely communication regarding construction schedules. The feedback gathered has been integrated into the Environmental and Social Management Plan (ESMP) to ensure that mitigation measures are responsive to local needs, enhance community safety, and promote transparency and participation throughout the project cycle.

6.2 Methodology

Public consultation meetings were designed to ensure inclusive, transparent, and participatory engagement with local stakeholders. Site-specific consultation meetings were systematically conducted at all proposed flood shelter locations across Rangpur District to ensure inclusive participation and transparent stakeholder engagement in accordance with the Environmental and Social Framework (ESF) prescribed ES Assessment checklist and the project's safeguard requirements. Prior to the consultations, stakeholders that include local residents, community leaders, school authorities, religious institution representatives, and local government officials, bazar management committee were informed about the purpose, scope, and potential impacts of the proposed road improvements. Meetings were conducted at accessible community locations, such as schools, union parishad offices, and community centers, to maximize

participation. During the sessions, project plans and environmental and social considerations were presented using simple visual aids and local language explanations to facilitate understanding. Stakeholders were encouraged to express concerns, provide suggestions, and prioritize site-specific issues, particularly regarding traffic safety, drainage, tree protection, access to flood shelters, and construction-related disturbances. The feedback collected through these consultations was systematically documented, analyzed, and incorporated into the **Environmental and Social Management Plan (ESMP)** and project design to ensure that mitigation measures are practical, locally relevant, and responsive to the needs and expectations of the affected communities.

This consultative process played a critical role in identifying location-specific issues, such as access constraints, local waterlogging, land use sensitivity, or community preferences, and helped enhance project acceptance and ownership at the grassroots level. Refer to **Figure 6.1** for selected photographs of the participatory public consultation held at the sub-project sites and **Table 6.1** refers to Consultation meeting participants' summary for the sub-project.

Table 6.1: Consultation Meetings Summary

Sl. No.	Name of Community Road	Date DD-MM-YYYY	Venue	Main Participant Groups	No. of Participants
1.	Itakumari Bazar-RK road Via Bagbari G.P.S	29.03.2026	In Itakumari	The local individuals, elites, chairman and/or member of respective Union Parishad, farmer, businessmen, religious leaders, women, fishermen etc.	15
2.	Gulshan More Bazar-Brammochari Bazar Road.	29.03.2026	In Ballav Bishu		15
3.	H/O Natu Miah-Golshan More Road.	29.03.2026	In Ballav Bishu		13
4.	Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road.	28.03.2026	In Choto Rupai		15
5.	NHW near Fazal Filling Station-Katchna Road via Cold store	29.03.2026	In Katchna		20

Figure 6.1: Public Consultation through FGD's and KII alongside the proposed road

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

During the public consultation meetings conducted in the project influence areas of the proposed community road sub-projects in Rangpur District, local community members, representatives of local government institutions, teachers, farmers, and other stakeholders actively shared their views regarding the planned interventions under the project. Participants highlighted several major challenges within the project area. These included deteriorating road conditions during the rainy season, insufficient drainage systems causing waterlogging, damaged culverts disrupting natural water flow, and erosion of road embankments in vulnerable locations. They also raised concerns about possible short-term disturbances during construction, such as dust, noise, traffic congestion, and increased safety risks for pedestrians, particularly school children.

To address these issues, participants suggested a range of practical solutions. Key recommendations included repairing and installing adequate culverts and cross-drainage systems to maintain proper water flow and prevent stagnation. They also emphasized reinforcing road embankments and constructing protective measures like retaining walls or palisading in erosion-prone areas to improve durability. In addition, the community recommended implementing dust and noise control strategies during construction, along with enhancing road safety through warning signs, speed breakers near schools, and better visibility at intersections. Maintaining continuous access for local residents and agricultural transportation during construction was identified as essential. Furthermore, participants encouraged prioritizing local labor to support economic benefits within the community. Overall, the consultation findings highlight the need to incorporate community-based recommendations into project design and execution to reduce environmental and social impacts while strengthening infrastructure resilience and safety. The issues and recommendations collected during these consultations have been summarized and documented in **Table 6.2**, which will guide the integration of appropriate environmental, social, and safety mitigation measures during project implementation.

Table 6.2: Issues and Recommendations raised by the Participants

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
1.	Itakumari Bazar-RK road Via Bagbari G.P.S (185734031)	29.03.2026 and In Itakumari	• Existing road surfaces are damaged and become muddy and difficult to use during the rainy season. • Some road sections remain submerged due to poor drainage and low elevation. • Need to ensure safe and quick access to flood shelters during emergencies. • Construction waste may be dumped improperly and affect nearby land or water bodies. • Potential impact on nearby agricultural lands and irrigation channels. • Need for community awareness regarding project activities and safety measures.	• Improve road pavement and strengthen the road base to ensure all-weather accessibility. • Raise the road level where necessary and construct adequate side drains and cross-drainage structures. • Design road improvements to ensure uninterrupted connectivity to nearby flood shelters. • Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements. • Conduct community awareness programs and maintain regular communication with local stakeholders. • Encourage contractors to prioritize hiring local workers where possible.
2.	Gulshan More Bazar-Brammochari Bazar Road. (185424028)	29.03.2026 and In Ballav Bishu	• Dust pollution during construction may affect nearby houses, schools, and markets. • Noise and disturbance may occur near schools, mosques, and residential areas. • Traffic congestion and safety risks may occur during construction activities.	• Regular water spraying and proper management of construction materials to minimize dust generation. • Restrict heavy construction activities during sensitive hours and maintain noise control measures. • Prepare and implement a traffic management plan including warning signs, barriers, and designated detours.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			• Concerns about removal of roadside trees during road widening. • Temporary disruption to access of local houses, shops, and agricultural lands during construction. • Need to ensure safe and quick access to flood shelters during emergencies. • Risk of erosion and damage to road shoulders during heavy rainfall.	• Avoid unnecessary tree cutting; where unavoidable, implement compensatory plantation programs. • Maintain temporary access routes and inform the community in advance about construction schedules. • Design road improvements to ensure uninterrupted connectivity to nearby flood shelters. • Strengthen road shoulders and provide slope protection and erosion control measures. • Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements. • Ensure proper drainage design and avoid blockage of irrigation channels during construction.
3.	H/O Natu Miah-Golshan More Road. (185425079)	29.03.2026 and In Ballav Bishu	• Waterlogging occurs in some low-lying sections of the road. • Road width is narrow in certain segments which creates difficulty for two-way traffic. • Dust pollution during construction may affect nearby households and shops. • Farmers depend on roadside access to transport agricultural products to local markets.	• The road surface should be improved with proper pavement and compaction to ensure all-weather accessibility. • Adequate roadside drainage and culverts should be constructed to facilitate smooth water flow and prevent waterlogging. • Minor widening should be considered within the available Right of Way (ROW) to improve traffic movement and safety.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			• Some households are located very close to the road alignment. • Flood shelter accessibility is important during flood emergencies. • Community members requested installation of safety signage.	• Regular water spraying and proper construction management should be implemented to minimize dust generation. • Traffic management measures, warning signs, and temporary safety barriers should be installed during construction. • Construction activities should be planned to avoid blocking access to agricultural lands and transport routes.
4.	Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road. (185275172)	29.03.2026 and In Katchna	• Waterlogging occurs in several low-lying sections of the road during monsoon. • Movement of school students and pedestrians may be at risk during construction activities. • Dust generation during construction may affect nearby houses and roadside shops. • Noise from construction machinery may disturb nearby residents and institutions. • Some roadside trees may need to be removed during road widening. • Temporary disruption to local transportation and market access may occur during construction.	• Adequate side drains and cross-drainage structures (culverts) should be constructed or improved to ensure proper drainage. • Contractors should implement traffic safety measures, including warning signage, speed control, and safe pedestrian passage near schools and settlements. • A temporary traffic management plan should be prepared to ensure continued movement of local transport and access to markets such as Kabarstan Hat and Sarker Hat. • Installation of road safety signage, speed breakers, and road markings near market areas is recommended.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
5.	NHW near Fazal Filling Station-Katchna Road via Cold store (185925073)	28.03.2026 and In Choto Rupai	• Road width is narrow in certain segments which creates difficulty for two-way traffic. • Dust pollution during construction may affect nearby households and shops. • Movement of construction vehicles may create safety risks for pedestrians and school children. • Roadside trees provide shade and environmental benefits for the community. • Farmers depend on roadside access to transport agricultural products to local markets. • Some households are located very close to the road alignment. • Improper disposal of construction waste may affect nearby agricultural land. • Community members requested installation of safety signage.	• Minor widening should be considered within the available Right of Way (ROW) to improve traffic movement and safety. • Regular water spraying and proper construction management should be implemented to minimize dust generation. • Traffic management measures, warning signs, and temporary safety barriers should be installed during construction. • Contractors should maintain safe working distances and ensure minimal disturbance to local residents. • The road improvement should prioritize ensuring safe and quick access to the nearby flood shelter. • Construction work should be scheduled during daytime and equipment should be properly maintained to reduce noise. • Waste materials should be properly managed and disposed of at designated locations. • Road safety signs and markings should be installed near settlements, intersections, and flood shelters.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the environmental and social assessment conducted for Community Roads at Rangpur District under the RIVER Project, it can be concluded that the proposed improvement of five (5) community roads across Taraganj Upazila, Kaunia Upazila, Gangachara Upazila, and Pirgachha Upazila in Rangpur District is environmentally and socially feasible, provided that the proposed mitigation and management measures are properly implemented. The improvement of this community roads will significantly enhance rural connectivity, improve year-round accessibility, and ensure safe and reliable access to nearby flood shelters, which is crucial during flood emergencies and other natural disasters. The project is expected to bring considerable socio-economic benefits to the local population by facilitating access to markets, schools, health facilities, and other essential services, while also supporting the transportation of agricultural products and strengthening local economic activities.

The assessment indicates that most of the proposed road improvement works will be carried out within the existing Right of Way (ROW), which minimizes the need for land acquisition and significantly reduces the risk of physical displacement or resettlement. However, some minor environmental and social impacts may arise during the construction phase, including temporary dust and noise pollution, disruption of local traffic and pedestrian movement, temporary obstruction of drainage channels, and short-term access limitations for nearby settlements, agricultural lands, and community institutions. In addition, occupational health and safety risks for construction workers and safety concerns for pedestrians, particularly near schools, markets, and flood shelters, may occur if adequate safety measures are not implemented.

To address these potential impacts, the Environmental and Social Management Plan (ESMP) has been prepared as an integral component of this report. The ESMP outlines practical mitigation and enhancement measures such as dust suppression through regular water spraying, proper management and disposal of construction waste, installation of adequate drainage structures to prevent waterlogging, slope stabilization to reduce erosion, and compensatory tree plantation for any unavoidable vegetation removal. Traffic management measures, including warning signs, barricades, and speed control near sensitive locations, should be implemented to ensure public safety during construction.

In addition, strict compliance with occupational health and safety (OHS) standards should be ensured at all construction sites. Contractors should provide appropriate personal protective equipment (PPE), conduct regular safety training for workers, and implement emergency response procedures to minimize workplace accidents. Environmental monitoring should also be conducted periodically to ensure that construction activities remain within acceptable environmental limits for air quality, noise levels, and waste management.

Stakeholder consultations conducted in the project areas indicate strong community support for the proposed road improvements, particularly due to the anticipated benefits in terms of improved mobility, enhanced disaster preparedness, and better access to essential services. Community members emphasized the importance of proper drainage systems, road safety measures, protection of roadside vegetation, and regular maintenance after completion of the works. These concerns have been incorporated into the ESMP to ensure that the project remains responsive to the needs and expectations of local stakeholders.

In conclusion, the improvement of community infrastructure connecting roads under the RIVER Project in Rangpur District represents a positive intervention that will contribute to sustainable rural infrastructure development and increased resilience of flood-prone communities. With the effective implementation of the recommended environmental and social mitigation measures, continuous monitoring, and active stakeholder engagement, the project will minimize potential adverse impacts while maximizing long-term benefits for the communities in Taraganj, Kaunia, Gangachara, and Pirgachha Upazilas. It is therefore recommended that the project proceed with implementation while ensuring strict adherence to the Environmental and Social Management Plan (ESMP) and relevant regulatory and institutional requirements.

ANNEXURE 1:

ROAD WISE ENVIRONMENTAL AND SOCIAL FINDINGS UNDER RANGPUR DISTRICT

ANNEXURE 1: ROAD WISE ENVIRONMENTAL AND SOCIAL FINDINGS UNDER RANGPUR DISTRICT

Name of Sub-Project: Improvement of Community Road for **Itakumari Bazar-RK road Via Bagbari G.P.S, ID: 185734031**
Implementing Agency/Agencies: Local Government Engineering Department (LGED)

District: Rangpur **Upazila:** Pirgachha **Union:** Itakumari

Name of Community/Local Area: Itakumari Kali Mondir, Itakumari bot tola bazar, Srikanto mor, Nurosingho Jame mosque, Nurosingho Langara Bazar

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project includes the improvement of the Itakumari Bazar-RK Road via Bagbari G.P.S, which is currently unpaved along the entire stretch from chainage 0+000 to 1+660. The road is supported by existing drainage infrastructure, including a U-Drain (4.9 m × 1.3 m) located at chainage 0+543 m, along with additional U-Drain sections (7 m × 1 m) at chainages 0+290 m, 0+543 m, 0+863 m, and 1+511 m. To enhance drainage efficiency and protect vulnerable sections of the embankment, extensive palisading works have been proposed at multiple locations on both sides of the road, including chainages 0+004 to 0+130 (right), 0+190 to 0+225 (right), 0+454 to 0+540 (left), 0+633 to 0+656 (left), 0+675 to 0+688, 0+692 to 0+706, 0+705 to 0+731, 0+721 to 0+750, 0+881 to 0+905, 1+010 to 1+038, 1+079 to 1+102, 1+129 to 1+141, 1+141 to 1+175, and 1+450 to 1+459. The primary intervention consists of Bituminous Carpeting (BC) over the full length from 0+000 to 1+660, which will significantly improve riding quality, ensure all-weather accessibility, and enhance the structural durability of the road. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 4,980 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1+660m. Detail Environmental features within 100m of the both sides from the centre 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

Chainage	(Left/Right)		Environmental and Social Impact
000-300	L		Pond in 1 m, House in 1 m, itakumari bot tola bazar
		R	Pond in 1 m, House in 1 m, itakumari bot tola bazar
300-600	L		Pond in 1 m, House in 1 m
		R	Agriculture Land in 1 m, House in 1 m
600-900	L		Agriculture Land in 1 m, House in 1 m, pond in 1 m
		R	Agriculture Land in 1 m, House in 1 m, Pond in 1 m.
900-1200	L		House in 1 m, Pond in 1 m, Nurosingho Jame Mosque in 1 m
		R	House in 1 m, Pond in 1 m
1200-1500	L		Agriculture Land in 1 m, House in 1 m, Pond in 1 m
		R	Agriculture Land in 1 m, House in 1 m, Pond in 1 m.
1500-1660	L		Agriculture Land in 1 m, House in 1 m, Nurosingho Langara Bazar in 1 m.
		R	Agriculture Land in 1 m, House in 1 m, Nurosingho Langara Bazar in 1 m.

Starting Point of Itakumari Bazar-RK road Via Bagbari G.P.S

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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

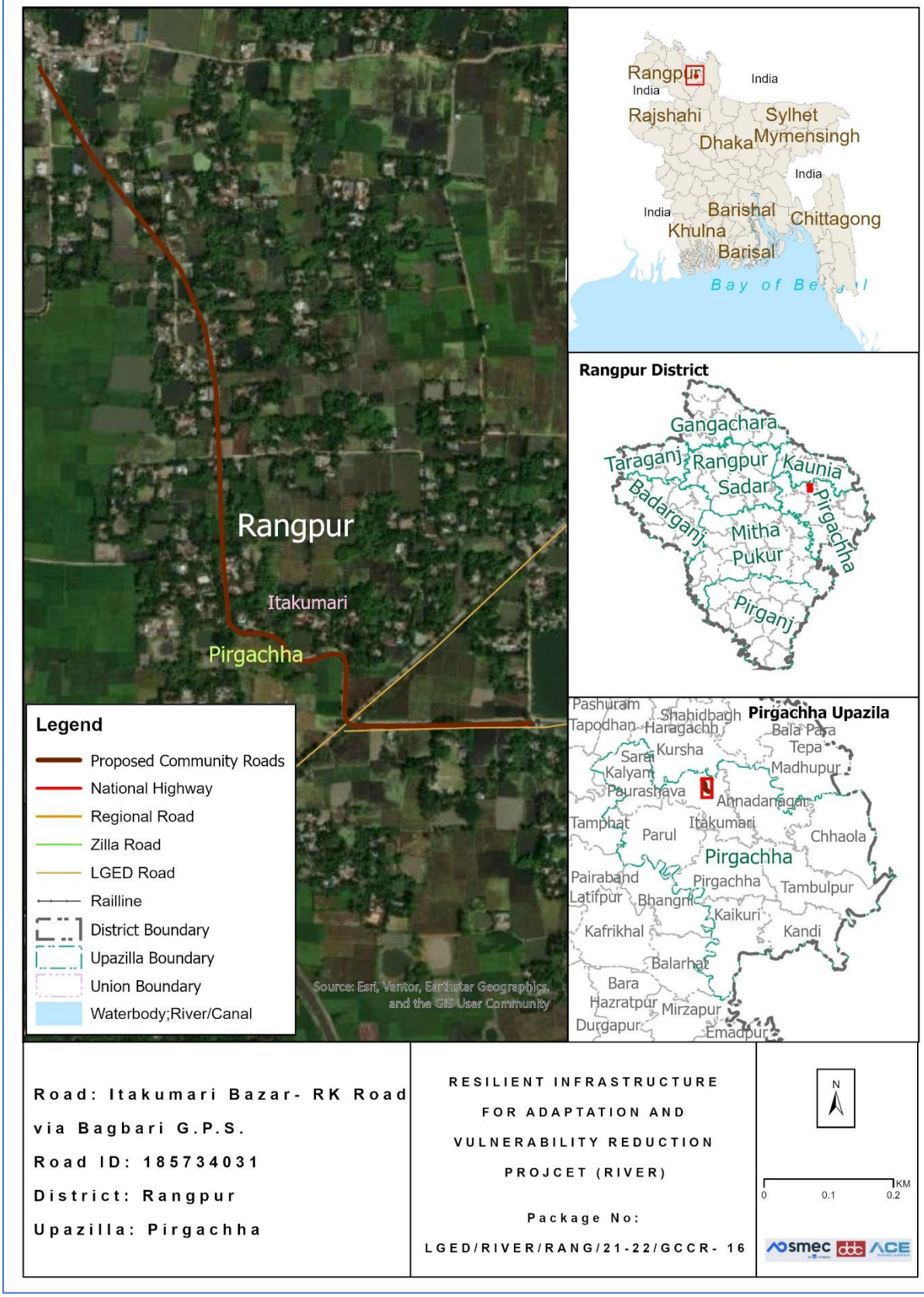
objection to construction this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree 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 scope of works does 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 cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season. The proposed Sub-project area for the construction included flat areas and moderate 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, gravels, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
No historical or archaeological sites were identified within the direct influence area of the proposed sub-project. The road corridor is characterized by a mix of rural settlements, agricultural land, and small-scale commercial activity closely aligned along both sides of the road, typically within about 1 m from the centerline. From chainage 0-300 m, both sides include ponds, houses, and the Itakumari Bot Tola Bazar, indicating a busy local commercial node. Between 300-600 m, the left side continues with ponds and houses, while the right side transitions to agricultural land alongside residential structures. From 600-900 m and 1200-1500 m, both sides are predominantly characterized by agricultural land, houses, and ponds, reflecting a typical rural landscape. At 900-1200 m, a significant religious establishment, Nurosingho Jame Mosque, is located on the left side within approximately 1 m, while residential and pond features continue on the right. In the final segment (1500-1800 m), both sides include agricultural land, houses, and the Nurosingho Langara Bazar, representing another local commercial concentration. Given that the proposed works will be confined to the existing alignment, no major adverse impacts are anticipated; however, appropriate

mitigation measures will be implemented to minimize temporary disturbances, especially in densely populated and market areas.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC)**.** According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 0 0m to Chainage 1660 m**.**

Sub-project Location:

Important Features	
ID	185734031
District	Rangpur
Upazila	Pirgachha
Union	Itakumari
Total Chainage	1660m
Proposed Chainage	1660m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.715797 N Longitude: 89.390373 E
Road Ending Point Coordinates	Latitude: 25.725075 N Longitude: 89.383344 E

Land ownership

Land is owned by Government.

Expected construction period: 12 (twelve months approx.)

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:

i) The proposed Sub-project is located within Itakumari Kali Mondir, Itakumari bot tola bazar, Srikanto mor, Nurosingho Jame mosque, Nurosingho Langara Bazar.
ii) No historical sites were found
iii) Not required to relocate local community.
iv) Some trees, vegetation and livelihood will be affected.
v) Very low chance of loss of agricultural land.
vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

***B.1*: Environmental and Social 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:

Several environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately 1 km of the project area. The road corridor is characterized by a mix of rural settlements, agricultural land, and small-scale commercial activity closely aligned along both sides of the road, typically within about 1 m from the centerline. From chainage 0-300 m, both sides include ponds, houses, and the Itakumari Bot Tola Bazar, indicating a busy local commercial node. Between 300-600 m, the left side continues with ponds and houses, while the right side transitions to agricultural land alongside residential structures. From 600-900 m and 1200-1500 m, both sides are predominantly characterized by agricultural land, houses, and ponds, reflecting a typical rural landscape. At 900-1200 m, a significant religious establishment, Nurosingho Jame Mosque, is located on the left side within approximately 1 m, while residential and pond features continue on the right. In the final segment (1500-1800 m), both sides include agricultural land, houses, and the Nurosingho Langara Bazar, representing another local commercial concentration. Given that the proposed works will be confined to the existing alignment, no major adverse impacts are anticipated; however, appropriate mitigation measures will be implemented to minimize temporary disturbances, especially in densely populated and market areas.

Location of environmental and Social 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.

Baseline air quality and noise levels:

Dust:
Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, van-garis, and bicycles along the existing road surface, which contributes slightly to local air pollution.
Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but short-term, site-

specific within a relatively small area, and reversible or preventable through appropriate mitigation measures**.**

Noise:
The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be** temporary and limited to the construction period.

Baseline soil quality:

The sub-project area is primarily characterized by alluvial soils typical of the Teesta floodplain in Rangpur District. The soils are predominantly composed of sandy loam to silt loam, developed from deposits carried by the Teesta and its associated river systems. In some locations, particularly in low-lying areas, the soil texture varies from silty clay to clay loam due to seasonal sedimentation and water retention. These soils are generally moderately to highly fertile and support intensive agricultural activities. The land is relatively well-drained compared to haor regions, although localized waterlogging may occur during the monsoon season in depressions and poorly drained sections. Overall, the soil characteristics of the area are suitable for both agriculture and infrastructure development, provided that appropriate drainage and soil stabilization measures are incorporated into project design.

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

Groundwater is the primary source of potable water in the sub-project area of Rangpur District. Local communities predominantly rely on shallow tube wells for their daily domestic water needs, while deep tube wells are commonly used for drinking purposes. The groundwater table in this region is relatively shallow compared to other parts of the country and is typically found at a depth of approximately 80 to 180 feet below ground level, varying seasonally due to monsoon recharge and proximity to the Teesta river system. Groundwater quality assessments indicate the presence of iron in tube-well water, which may cause aesthetic issues such as taste and staining, while arsenic levels are generally low or within acceptable limits in most areas. Therefore, appropriate public health measures, including the installation of iron removal systems, periodic water quality monitoring, and community awareness programs, are essential to ensure safe drinking water. The use of deep tube wells that extract water from confined aquifers is recommended to provide a more reliable and safe water supply.

Groundwater quality: pH-6.1 to 7.9, DO-3.0 to 6.8 mg/l, TDS-60 to 450 mg/l, EC-90 to 800 µs/cm, Fe-0.6 to 5.5 mg/l and As-Low (Field Study Report, March 2026)

Status of wildlife movement:

The sub-project area supports a variety of common bird species typically found in the agricultural and rural landscapes of Rangpur District. Frequently observed species include

ghugu (dove), bok (egret), choroi (House Sparrow, Passer domesticus), shalik (Common Myna, Acridotheres tristis), and doel (Oriental Magpie Robin, Copsychus saularis). These birds play an important role in maintaining ecological balance by controlling insect populations, aiding in seed dispersal, and supporting agricultural ecosystems. In addition, the area is inhabited by small mammals and reptiles commonly found in northern floodplain regions, such as Bon Biral (Jungle Cat, Felis chaus), Bengal fox (Vulpes bengalensis), mongoose (Herpestes edwardsii), and various snake species. These animals function as natural predators, helping to regulate rodent populations and contributing to agricultural pest control. Aquatic biodiversity is also present in nearby water bodies, supporting fish species typical of floodplain environments. Overall, the diversity of birds, mammals, and aquatic species reflects a functioning and interconnected rural ecosystem. Therefore, the protection of these species through sustainable land and water management, habitat conservation, and environmentally responsible development practices is essential to maintain biodiversity, ecological resilience, and long-term environmental sustainability in 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.

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):

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.

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. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
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 20 kg daily and sludge may amount to 5 kg per day.

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 350 kg.
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.
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 formal engineered drainage system exists along this road alignment; however, several natural drainage features are located very close to the corridor. Ponds are the dominant feature along both sides of the road and are observed within approximately 1 m from the centerline at multiple chainages, including 0-300 m, 300-600 m, 600-900 m, 900-1200 m, and 1200-1500 m. These water bodies play an important role in local drainage and water retention. Although no canals or rivers were identified along this alignment, the close proximity of numerous ponds indicates a naturally water-sensitive environment. As the proposed works will be confined within the existing alignment, only minor and temporary disturbances are anticipated during construction. However, appropriate precautionary measures will be required to ensure that natural water flow and pond functions are not disrupted.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
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, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and 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: No
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) No
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) No.
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 stagnant water bodies remained for encouraging 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) 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.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Itakumari Bazar-RK road Via Bagbari G.P.S

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. • Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs	PIU & Contractor	Social Development Specialist and Gender Specialist

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• All the safeguard documents will be disclosed to all relevant stakeholders. • People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.		of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing	• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	interventions: Generation of ESHS issues.	approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• 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. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, 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.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.		
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. • Construction materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance)	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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.		
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. • Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction	Conflicts with existing	• Water sources (e.g., ground or surface water)	PIU & Contractor	Social

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	users due to the scarcity of resource base.	for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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.		Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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 labor camps will be put in place.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
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.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.	• 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 activities on site. • Provide walkways that are clearly designated as a walkway; 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.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	• Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	• 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during	Contractor	Environmental Consultant of PIU/D&SC,

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	the project implementation period (including site clearance 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.	demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.		district XEN.
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding	• 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	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	water bodies, flora and fauna	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.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: • The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be	Road safety issues can be minimized in following ways: • By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. • Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware	UE (Upazila Engineer)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	due to tiredness of drivers. • Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	drivers about likely accidents due to over speeding. • All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	• 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	District XEN, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1992 Sq.m	@38.15 Tk. Per sqm	75,994.80
2.	**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	1660.0m	@ 2.56 BDT	4,249.60
3.	**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
4.	**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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	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.			
5.	**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	30,000.00
6.	**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	15,000.00
7.	**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	LS	LS @ Tk 30,000	30,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles			
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	10,000.00
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	5,000.00
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	5,000.00
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	30,000.00
12.	**Environmental and Social management** Environmental management costs of the Environment & 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 person to be appointed for 5 roads]**	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			**270,890.12**

Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Gulshan More Bazar-Brammochari Bazar Road, ID: 185424028**

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

District: Rangpur **Upazila:** Kaunia **Union:** Shahidbagh

Name of Community/Local Area Shahidbagh

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Gulshan More Bazar-Brammochari Bazar Road is currently unpaved from chainage 0+000 to 1+000. Existing hydraulic structures include a culvert (1 m × 1 m) at chainage 0+611 m, along with an additional culvert (2.0 m × 2.0 m) at the same location. The road is also equipped with multiple U-Drain sections (0.600 m × 0.600 m) at chainages 0+438 m, 0+733 m, and 0+788 m, which contribute to effective drainage. To protect the embankment and ensure long-term stability, palisading works have been proposed on the left side at several segments, including 0+010 to 0+027 (17 m), 0+250 to 0+260 (10 m), 0+370 to 0+380 (10 m), 0+600 to 0+611 (11 m), and 0+750 to 0+769 (19 m). The proposed intervention includes Bituminous Carpeting (BC) along the full road length from 0+000 to 1+000, aimed at improving trafficability and ensuring a durable pavement surface. These measures aim to reduce waterlogging, improve hydraulic performance, and ensure long-term road stability. Necessary road safety measures and environmental mitigation provisions have also been incorporated in the project design and cost estimation to minimize potential environmental and social impacts during both construction and operation phases.

Estimated Footprint of the project is 4,800 sqm

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1000m link road. 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

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Bamboo Garden in 1 m, House in 1 m, Pvt House 1 m, Jack Fruit Tree 1 m, Pvt House 1 m
		R	Pvt House 1 m, Bamboo Garden 1 m, Corn Garden 1 m
300-600	L		Paddy Land 1 m, Corn Land 1 m, Ditch 1 m, Bamboo Garden 1 m
		R	Electric Pole, Corn Land 1 m, Bamboo Garden 1 m, Mango Tree 1 m, Coconut Tree 1 m

Chainage	(Left/Right)		Environmental and Social Impact
600-900	L		Pond in 1 m, Madrasha in 1 m, House in 1 m, Mango Tree 1 m, Jack Fruit Tree 1 m, Pvt House 1 m
		R	Pvt House 1 m, Bamboo Garden 1 m, Corn Garden 1 m
900-1000	L		Boddha vumi in 1m, Paddy Land 1 m, Corn Land 1 m, Ditch 1 m, Bamboo Garden 1 m
		R	Corn Land 1 m, Bamboo Garden 1 m, Mango Tree 1 m, Coconut Tree 1 m

Starting Point of Gulshan More Bazar-Brammochari Bazar Road

Overall Comments

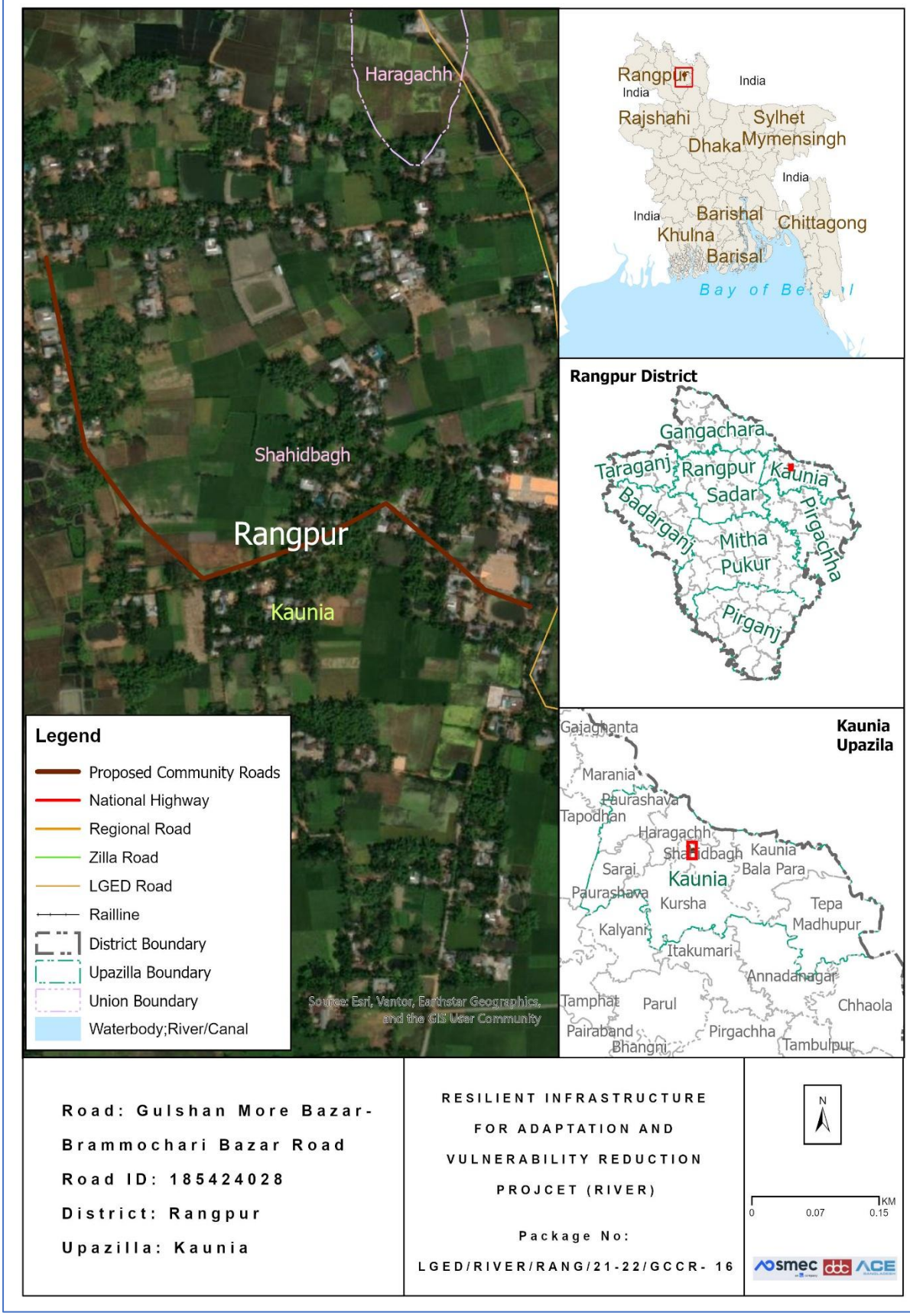
D&SC conducted consultation meeting with community regarding the sub-project activities. Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed sub-project (Road construction) 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 have been observed in the road area. But, some local trees like betel nut, rain tree 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 scope of works does 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 cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season. The proposed Sub-project area for the construction included flat areas and moderate 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, gravels, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
No historical or archaeological sites were identified within the project influence area. The road alignment is bordered by a combination of homesteads, agricultural lands, vegetation, and minor infrastructure features, generally located within 1 m of the centerline. From chainage 0-300 m, both sides consist of private houses, bamboo gardens, and cultivated lands such as corn fields, along with scattered fruit trees including jackfruit. Between 300-600 m, the left side includes paddy fields, corn land, ditches, and bamboo gardens, while the right-side features similar agricultural uses along with electric poles and fruit trees such as mango and coconut. From 600-900 m, a madrasha is located on the left side within approximately 1 m, along with ponds, houses, and fruit trees, while the right side remains predominantly residential and agricultural. In the 900-1200 m section, the left side includes a notable cultural/religious site (Boddha Vumi) along with agricultural land and vegetation, while the right side continues with cultivated land and tree cover. The close proximity of these features necessitates careful construction management to avoid disturbance, although no significant long-term impacts are expected.



Location Map of the proposed Road

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 Bituminous Carpeting (BC). According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1000m.

Sub-project Location:

Important Features	
ID	185424028
District	Rangpur
Upazila	Kaunia
Union	Shahidbagh
Total Chainage	1000m
Proposed Chainage	1000m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.781869 N Longitude: 89.375379 E
Road Ending Point Coordinates	Latitude: 25.785457 N Longitude: 89.370252 E

Land ownership
Land is owned by Government.

Expected construction period: 12 (twelve months approximately)

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:

i) The proposed Sub-project is located within Shahidbagh.
ii) No historical sites were found
iii) Not required to relocate local community.
iv) Some trees, vegetation and livelihood will be affected.
v) Very low chance of loss of agricultural land.
vi) Some Household Boundary made of bamboo and tin may need adjustments

Section B: Environmental and Social Screening

***B.1*: Environmental and Social features 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, and religious features within 1 kilometer of the sub-project corridor include several community and environmental elements located along both sides of the alignment. From chainage 0-300 m, both sides consist of private houses, bamboo gardens, and cultivated lands such as corn fields, along with scattered fruit trees including jackfruit. Between 300-600 m, the left side includes paddy fields, corn land, ditches, and bamboo gardens, while the right-side features similar agricultural uses along with electric poles and fruit trees such as mango and coconut. From 600-900 m, a madrasah is located on the left side within approximately 1 m, along with ponds, houses, and fruit trees, while the right side remains predominantly residential and agricultural. In the 900-1200 m section, the left side includes a notable cultural/religious site (Boddha Vumi) along with agricultural land and vegetation, while the right side continues with cultivated land and tree cover. The close proximity of these features necessitates careful construction management to avoid disturbance, although no significant long-term impacts are expected.

Location of environmental and Social 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.

Baseline air quality and noise levels:

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 vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle-related pollutants which will affect people who live and work near the sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible/ preventable by mitigation measures.

Noise:
Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.

Baseline soil quality:

The sub-project area is primarily characterized by alluvial soils typical of the Teesta floodplain in Rangpur District. The soils are predominantly composed of sandy loam to silt loam, developed from deposits carried by the Teesta and its associated river systems. In some locations, particularly in low-lying areas, the soil texture varies from silty clay to clay loam due to seasonal sedimentation and water retention. These soils are generally moderately to highly fertile and support intensive agricultural activities, including the cultivation of rice, maize, wheat, and vegetables. The land is relatively well-drained compared to haor regions, although localized waterlogging may occur during the monsoon season in depressions and poorly drained sections. Overall, the soil characteristics of the area are suitable for both agriculture and infrastructure development, provided that appropriate drainage and soil stabilization measures are incorporated into project design.

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

Groundwater is the primary source of potable water in the sub-project area of Rangpur District. Local communities predominantly rely on shallow tube wells for their daily domestic water needs, while deep tube wells are commonly used for drinking purposes. The groundwater table in this region is relatively shallow compared to other parts of the country and is typically found at a depth of approximately 80 to 180 feet below ground level, varying seasonally due to monsoon recharge and proximity to the Teesta river system. Groundwater quality assessments indicate the presence of iron in tube-well water, which may cause aesthetic issues such as taste and staining, while arsenic levels are generally low or within acceptable limits in most areas. Therefore, appropriate public health measures, including the installation of iron removal systems, periodic water quality monitoring, and community awareness programs, are essential to ensure safe drinking water. The use of deep tube wells that extract water from confined aquifers is recommended to provide a more reliable and safe water supply.

Groundwater quality: pH-6.1 to 7.9, DO-3.0 to 6.8 mg/l, TDS-60 to 450 mg/l, EC-90 to 800 µs/cm, Fe-0.6 to 5.5 mg/l and As-Low (Field Study Report, March 2026)

Status of wildlife movement:

The sub-project area supports a variety of common bird species typically found in the agricultural and rural landscapes of Rangpur District. Frequently observed species include ghugu (dove), bok (egret), choroi (House Sparrow, Passer domesticus), shalik (Common Myna, Acridotheres tristis), and doel (Oriental Magpie Robin, Copsychus saularis). These birds play an important role in maintaining ecological balance by controlling insect populations, aiding in seed dispersal, and supporting agricultural ecosystems. In addition, the area is inhabited by small mammals and reptiles commonly found in northern floodplain regions, such as Bon Biral (Jungle Cat, Felis chaus), Bengal fox (Vulpes bengalensis), mongoose (Herpestes edwardsii), and various snake species. These animals function as natural predators, helping to regulate rodent populations and contributing to agricultural pest control. Aquatic biodiversity is also present in nearby water bodies,

supporting fish species typical of floodplain environments. Overall, the diversity of birds, mammals, and aquatic species reflects a functioning and interconnected rural ecosystem. Therefore, the protection of these species through sustainable land and water management, habitat conservation, and environmentally responsible development practices is essential to maintain biodiversity, ecological resilience, and long-term environmental sustainability in 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.

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): 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.
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. The Paved Road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
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 20 kg daily and sludge may amount to 5 kg per day.

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 350 kg.
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.
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) There is no formal drainage system along this road; however, natural drainage features are present in the form of ponds and ditches located very close to the alignment. A pond is observed at chainage 600-900 m on the left side within approximately 1 m from the centerline. Additionally, roadside ditches are present along sections such as 300-600 m and 900-1200 m, which contribute to local surface drainage. These features play a supporting role in maintaining local hydrological balance. As construction activities will remain within the existing alignment, only temporary and localized impacts are expected. Appropriate drainage management measures should be adopted to avoid blockage or alteration of these natural drainage paths.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
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, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and 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: No
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) No
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) No.
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 stagnant water bodies remained for encouraging 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) 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.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Gulshan More Bazar-Brammochari Bazar Road

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. • Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • All the safeguard documents will be disclosed to all relevant stakeholders.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.		
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without prior permission of the	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• 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. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Construction materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		routes, schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. • Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		extraction or 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.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Rules.		
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.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities 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 activities on site. • Provide walkways that are clearly designated as a walkway; 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Operation & Maintenance	Road Safety. Impacts include: • The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. • Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	Road safety issues can be minimized in following ways: • By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. • Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. • All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.	UE (Upazila Engineer)	District Executive Engineer, LGED
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	• 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	District XEN, LGED

Cost of Environmental Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. No.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1200 Sq.m	@38.15 Tk. Per sqm	45,780.00
2.	**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	1000	@ 2.56 BDT	2,560.00
3.	**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
4.	**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
5.	**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
6.	**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
7.	**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
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

Sl. No.	Description of item	Quantity	Unit price	Total amount
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
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
12.	**Environmental management** Environmental management costs of the Environment & 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 person to be appointed for 5 roads]**	Each	@ Tk. 35000	35,000
Total amount for this Road				**238,985.72**






Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **H/O Natu Miah-Golshan More Road, ID: 185425079**

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

District: Rangpur **Upazila:** Kaunia **Union:** Shahidbagh

Name of Community/Local Area: Shahidbagh

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The H/O Natu Miah-Golshan More Road consists of an unpaved section from chainage 0+600 to 0+925, along with an additional 75 m link road. Existing drainage facilities include a U-Drain (5 m × 1 m) located at chainage 0+665 m, as well as smaller U-Drain structures (0.600 m × 0.600 m) at chainages 0+020 m and 0+048 m. The proposed development involves the construction of Bituminous Carpeting (BC) along the section from 0+600 to 0+925 and the 75 m link road. These improvements will enhance connectivity, improve surface conditions, and support efficient drainage performance. These combined improvements will ensure better water management, increased structural stability, and improved connectivity for the surrounding communities.

Estimated footprint / land area for this sub-project is 1,200 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 325m + 75 link road. 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

Chainage	(Left/Right)		Environmental and Social Impact
600-900	L		House in 1 m, Mango Tree 1 m, Jack Fruit Tree 1 m, Pvt House 1 m
		R	Pvt House 1 m, Bamboo Garden 1 m, Corn Garden 1 m
900-925	L		Paddy Land 1 m, Corn Land 1 m, Ditch 1 m, Bamboo Garden 1 m
		R	Corn Land 1 m, Bamboo Garden 1 m, Mango Tree 1 m, Coconut Tree 1 m

Starting Point of H/O Natu Miah-Golshan More Road

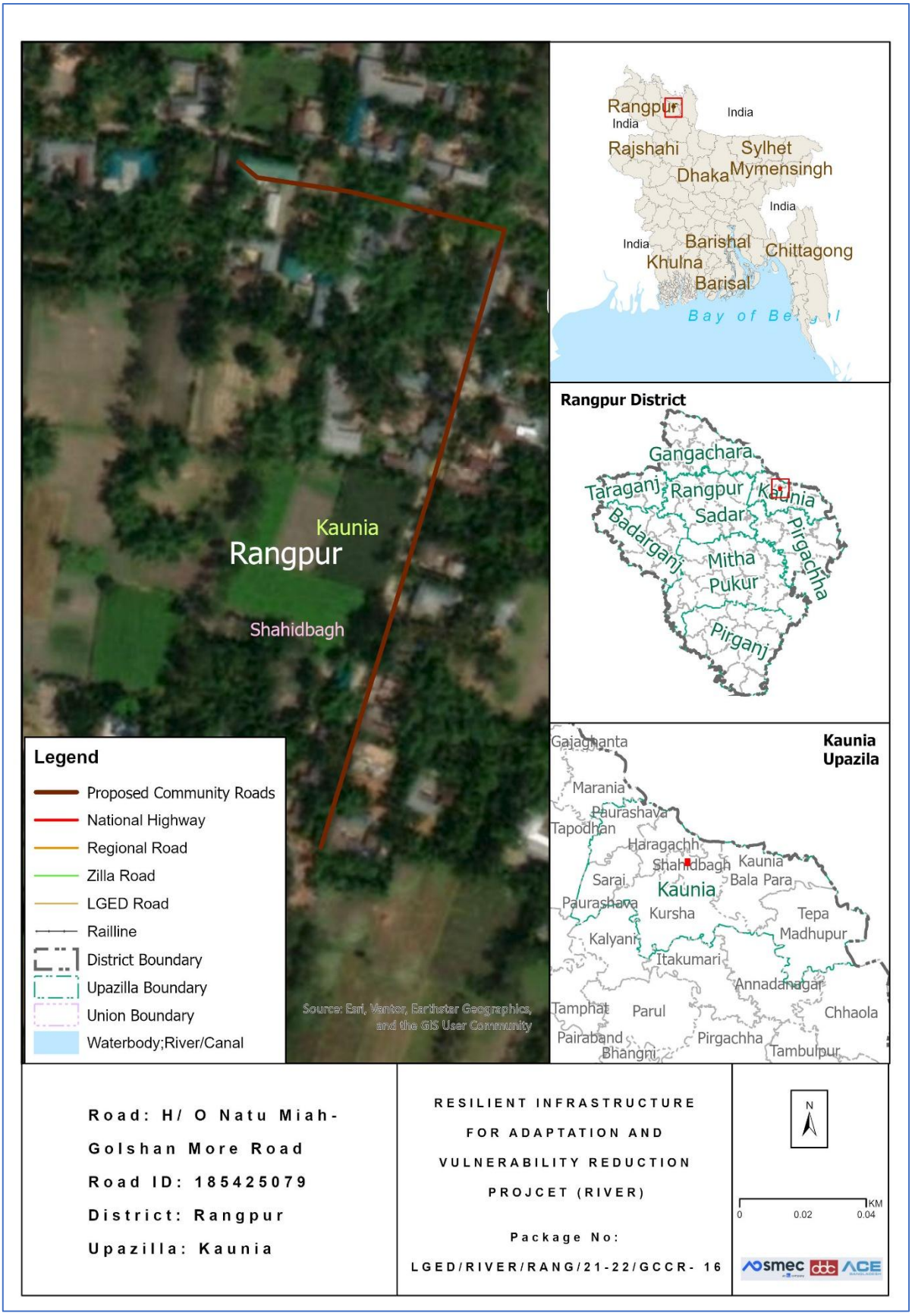
Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like Mehogoni, rain tree 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 scope of works does 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 cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season. The proposed Sub-project area for the construction included flat areas and moderate 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, gravels, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
No historical or archaeological sites were identified within the influence area of this short road segment. The alignment passes through a semi-rural setting dominated by residential and agricultural features located within approximately 1 m from the road centerline. From 0-300 m, both sides include houses, private homesteads, bamboo gardens, and fruit trees such as mango and jackfruit. Between 300-600 m, the left side transitions into paddy and corn fields with associated ditches and bamboo gardens, while the right side continues with agricultural land and scattered vegetation including mango and coconut trees. Due to the narrow corridor and close proximity of structures and vegetation, construction activities will require careful handling to minimize temporary impacts.



Location Map of the proposed Road

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 Bituminous Carpeting. According to the design this sub-project will be developed with Bituminous Carpeting (Damaged) from Ch. 600m to Ch. 925m.

Sub-project Location:

Important Features	
ID	185425079
District	Rangpur
Upazila	Kaunia
Union	Shahidbagh
Total Chainage	325m
Proposed Chainage	325m + 75 link road
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.781518 N Longitude: 89.377425 E
Road Ending Point Coordinates	Latitude: 25.78364 N Longitude: 89.37708 E

Land ownership
Land is owned by Government.

Expected construction period: 12 (twelve months approximately)

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:

- The proposed Sub-project is located within Shahidbagh
- No historical sites were found
- Some trees, vegetation and livelihood will be affected.
- Very low chance of loss of agricultural land.
- Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

***B.1*: Environmental and Social 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:
No sensitive environmental, cultural, archaeological, or religious sites were observed within the vicinity of the sub-project area.

Location of environmental and Social important and sensitive areas:
The alignment passes through a semi-rural setting dominated by residential and agricultural features located within approximately 1 m from the road centerline. From 0-300 m, both sides include houses, private homesteads, bamboo gardens, and fruit trees such as mango and jackfruit. Between 300-600 m, the left side transitions into paddy and corn fields with associated ditches and bamboo gardens, while the right side continues with agricultural land and scattered vegetation including mango and coconut trees. Due to the narrow corridor and close proximity of structures and vegetation, construction activities will require careful handling to minimize temporary impacts.

Baseline air quality and noise levels:

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 vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.
Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle-related pollutants which will affect people who live and work near the sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible/ preventable by mitigation measures.

Noise:
Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.

Baseline soil quality:
The sub-project area is primarily characterized by alluvial soils typical of the Teesta floodplain in Rangpur District. The soils are predominantly composed of sandy loam to silt loam, developed from deposits carried by the Teesta and its associated river systems. In some locations, particularly in low-lying areas, the soil texture varies from silty clay to clay loam due to seasonal sedimentation and water retention. These soils are generally moderately to highly fertile and support intensive agricultural activities, including the cultivation of rice, maize, wheat, and vegetables. The land is relatively well-drained compared to haor regions, although localized waterlogging may occur during the monsoon season in depressions and poorly drained sections. Overall, the soil characteristics of the

area are suitable for both agriculture and infrastructure development, provided that appropriate drainage and soil stabilization measures are incorporated into project design.

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

Groundwater is the primary source of potable water in the sub-project area of Rangpur District. Local communities predominantly rely on shallow tube wells for their daily domestic water needs, while deep tube wells are commonly used for drinking purposes. The groundwater table in this region is relatively shallow compared to other parts of the country and is typically found at a depth of approximately 80 to 180 feet below ground level, varying seasonally due to monsoon recharge and proximity to the Teesta river system. Groundwater quality assessments indicate the presence of iron in tube-well water, which may cause aesthetic issues such as taste and staining, while arsenic levels are generally low or within acceptable limits in most areas. Therefore, appropriate public health measures, including the installation of iron removal systems, periodic water quality monitoring, and community awareness programs, are essential to ensure safe drinking water. The use of deep tube wells that extract water from confined aquifers is recommended to provide a more reliable and safe water supply.

Groundwater quality: pH-6.1 to 7.9, DO-3.0 to 6.8 mg/l, TDS-60 to 450 mg/l, EC-90 to 800 µs/cm, Fe-0.6 to 5.5 mg/l and As-Low (Field Study Report, March 2026)

Status of wildlife movement:

The sub-project area supports a variety of common bird species typically found in the agricultural and rural landscapes of Rangpur District. Frequently observed species include ghugu (dove), bok (egret), choroi (House Sparrow, Passer domesticus), shalik (Common Myna, Acridotheres tristis), and doel (Oriental Magpie Robin, Copsychus saularis). These birds play an important role in maintaining ecological balance by controlling insect populations, aiding in seed dispersal, and supporting agricultural ecosystems. In addition, the area is inhabited by small mammals and reptiles commonly found in northern floodplain regions, such as Bon Biral (Jungle Cat, Felis chaus), Bengal fox (Vulpes bengalensis), mongoose (Herpestes edwardsii), and various snake species. These animals function as natural predators, helping to regulate rodent populations and contributing to agricultural pest control. Aquatic biodiversity is also present in nearby water bodies, supporting fish species typical of floodplain environments. Overall, the diversity of birds, mammals, and aquatic species reflects a functioning and interconnected rural ecosystem. Therefore, the protection of these species through sustainable land and water management, habitat conservation, and environmentally responsible development practices is essential to maintain biodiversity, ecological resilience, and long-term environmental sustainability in 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.

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): 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.
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. The Paved Road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
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.

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 350 kg.
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.
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 engineered drainage system is present along this short road segment. However, natural drainage is facilitated through roadside ditches and low-lying agricultural land, particularly between chainages 300-600 m where ditches exist within approximately 1 m of the road. These features assist in surface runoff and local water management. Given the short length of the road and the absence of major water bodies such as ponds or canals, the potential impact on drainage is minimal. Nevertheless, careful construction practices will be required to prevent temporary obstruction of these small drainage paths.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
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, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

No traffic movement impacts on light but low effects of noise and 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: No
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) No
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) No.
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 stagnant water bodies remained for encouraging 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) 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.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No
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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: H/O Natu Miah-Golshan More Road

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • All the safeguard documents will be disclosed to all relevant stakeholders. • People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
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	PIU	Social Development Specialist and Gender Specialist

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		access will be provided.		of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• 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. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		the path at limited level. • Construction materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		construction works start.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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 labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of	• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of	Contractor	Environmental and Social Development

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	chemicals/contaminants, etc. to nearby water bodies	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.		Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	• 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 activities on site. • Provide walkways that are clearly designated as a walkway; 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include:	Road safety issues can be minimized in following ways: • By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.	UE (Upazila Engineer)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	• The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. • Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	• Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. • All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	• 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	District XEN, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	480 Sq.m	@38.15 Tk. Per sqm	18,312.00
2.	**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	400 m	@ 2.56 BDT	1,024.00
3.	**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
4.	**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
5.	**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
6.	**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
7.	**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
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

Sl. no.	Description of item	Quantity	Unit price	Total amount
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
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
12.	**Environmental management** Environmental management costs of the Environment & 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 person to be appointed for 5 roads]**	Each	@ Tk. 35000	35,000
	Total amount for this Road			**209,981.72**

Figure: Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road, ID: 185275172**

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

District: Rangpur **Upazila:** Gangachara **Union:** Gajaghanta, Marania

Name of Community/Local Area: Gajaghanta, Mahissar

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): This road section remains unpaved from chainage 0+000 to 1+790. Existing hydraulic structures include culverts at chainages 0+579 m (3.7 m × 1.3 m × 0.9 m) and 1+682 m (5 m × 1.4 m × 1.2 m), as well as a bridge (2.0 m × 2.0 m) at chainage 1+010 m. Additionally, slope protection measures have been implemented at chainage 1+764 m over a length of 16 m. The proposed works include Bituminous Carpeting (BC) along the entire stretch from 0+000 to 1+790 and culvert improvement at chainage 0+579 m. To ensure embankment stability, palisading works are proposed at multiple locations on both sides, including 0+300 to 0+319 (left), 0+340 to 0+358 (left), 0+523 to 0+540 (right), 0+706 to 0+717 (right), 0+998 to 1+010 (right), 1+190 to 1+219 (both sides), and 1+764 to 1+780 (right). These interventions will significantly improve drainage, structural integrity, and resistance to erosion. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, all sourced from approved local suppliers. The project footprint will largely remain within the existing road alignment to minimize environmental and social impacts, and provisions for road safety measures and Environmental and Social Mitigation measures have been included in the project cost estimation to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 5,370 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1790m. 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

Chainage	(Left/Right)		Environment and Social Impact
00-300	L		Agricultural land
		R	Filling Station (5m away), Farm (7m away)
300-600	L		Cold Storage (2m away), Brick Field
		R	Agricultural Land

Chainage	(Left/Right)		Environment and Social Impact
600-900	L		Electric Pole (10m away)
		R	Electric Pole (4m away)
900-1200	L		Agricultural land
		R	Agricultural land
1200-1500	L		Agricultural land
		R	Agricultural land
1500-1790	L		Agricultural land
		R	Agricultural land

Starting Point of Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more - Gawsoya bazar via Mohisasur road

Overall Comments

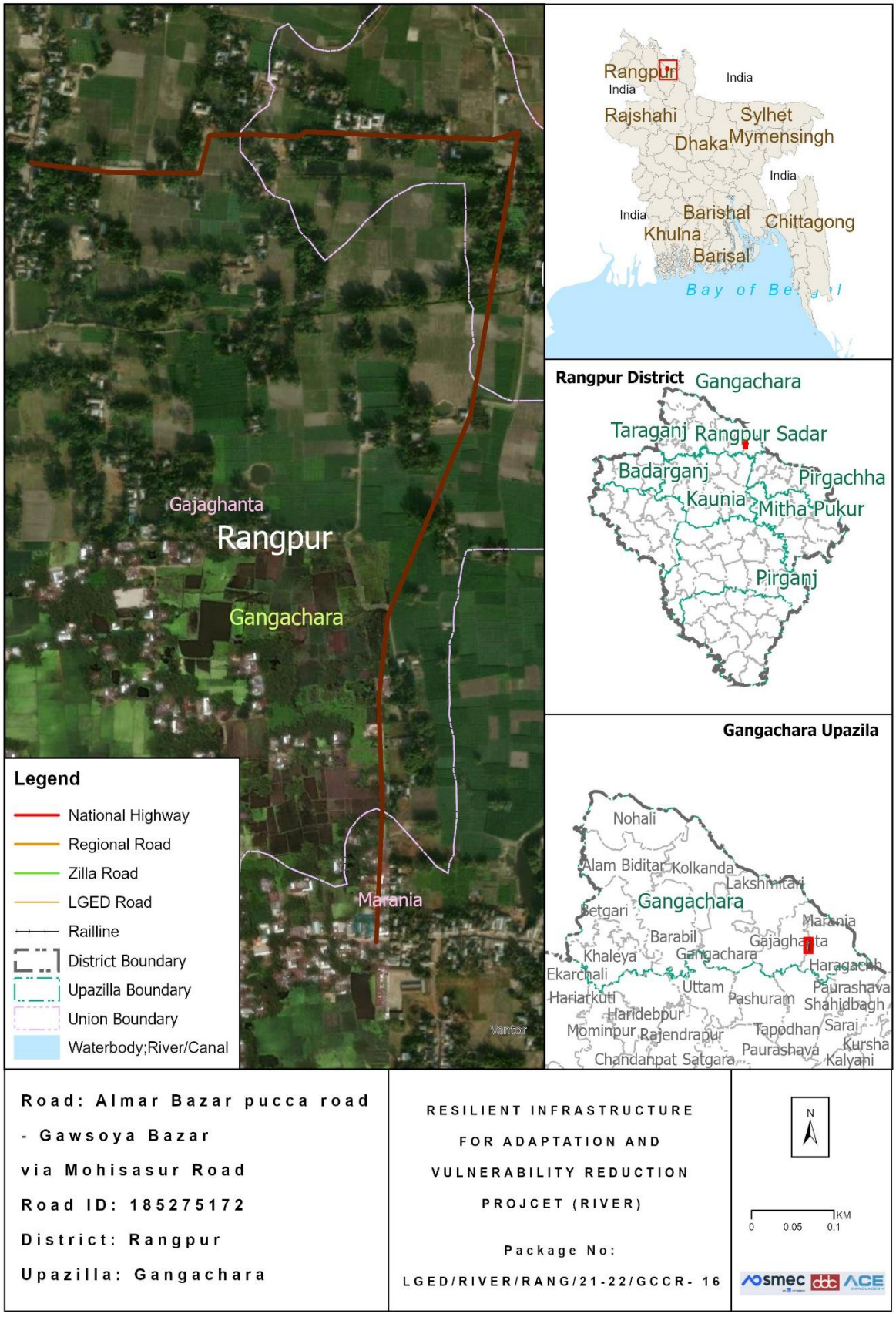
D&SC conducted consultation meeting with community regarding the sub-project activities. Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed sub-project (Road construction) is not located within any remarkable environmentally sensitive area and will not cause any severe effect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree 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 scope of works does 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 cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season. The proposed Sub-project area for the construction included flat areas and moderate 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, gravels, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
No historical or archaeological sites were identified within the influence area of this sub-project. The road alignment is predominantly surrounded by agricultural land and small-scale commercial and utility features at varying distances. From chainage 0-300 m, the left side consists of agricultural land, while on the right side a filling station (approximately 5 m away) and a farm (approximately 7 m away) are present. Between 300-600 m, the left side includes a cold storage facility (about 2 m away) and a brick field, while the right side remains primarily agricultural. From 600-900 m, electric poles are located on both sides at distances of approximately 10 m (left) and 4 m (right), indicating the presence of utility infrastructure. In the 900-1200 m section, both sides are mainly characterized by agricultural land. Given the rural nature of the corridor and limited sensitive receptors, significant impacts are not anticipated, though standard environmental management practices will be followed to control temporary construction-related disturbances.



Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:
The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC)**.** According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 0 m to Chainage 1790 m**.**

Sub-project Location:

Important Features	
ID	185275172
District	Rangpur
Upazila	Gangachara
Union	Gajaghanta, Marania
Total Chainage	1790m
Proposed Chainage	1790m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.835086 N Longitude: 89.296708 E
Road Ending Point Coordinates	Latitude: 25.843594 N Longitude: 89.292674 E

Land ownership
Land is owned by Government.

Expected construction period: 12 (twelve months approx.)

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:

- The proposed Sub-project is located within Ujail Chowdhury para.
- No historical sites were found
- Not required to relocate local community.
- Some trees, vegetation and livelihood will be affected.
- Very low chance of loss of agricultural land.
- Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

***B.1*: Environmental and Social 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:

Several sensitive environmental, cultural, religious, and educational institutions are located within approximately 1 kilometer of the project site. From chainage 0-300 m, the left side consists of agricultural land, while on the right side a filling station (approximately 5 m away) and a farm (approximately 7 m away) are present. Between 300-600 m, the left side includes a cold storage facility (about 2 m away) and a brick field, while the right side remains primarily agricultural. From 600-900 m, electric poles are located on both sides at distances of approximately 10 m (left) and 4 m (right), indicating the presence of utility infrastructure. In the 900-1790 m section, both sides are mainly characterized by agricultural land. Given the rural nature of the corridor and limited sensitive receptors, significant impacts are not anticipated, though standard environmental management practices will be followed to control temporary construction-related disturbances.

Location of environmental and Social 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.

Baseline air quality and noise levels:

Dust:

Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, van-garis, and bicycles along the existing road surface, which contributes slightly to local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.

Noise:

The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will be temporary and limited to the construction period.

Baseline soil quality:

The sub-project area is primarily characterized by alluvial soils typical of the Teesta floodplain in Rangpur District. The soils are predominantly composed of sandy loam to silt loam, developed from deposits carried by the Teesta and its associated river systems. In some locations, particularly in low-lying areas, the soil texture varies from silty clay to clay loam due to seasonal sedimentation and water retention. These soils are generally moderately to highly fertile and support intensive agricultural activities, including the cultivation of rice, maize, wheat, and vegetables. The land is relatively well-drained compared to haor regions, although localized waterlogging may occur during the monsoon season in depressions and poorly drained sections. Overall, the soil characteristics of the area are suitable for both agriculture and infrastructure development, provided that appropriate drainage and soil stabilization measures are incorporated into project design.

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

Groundwater is the primary source of potable water in the sub-project area of Rangpur District. Local communities predominantly rely on shallow tube wells for their daily domestic water needs, while deep tube wells are commonly used for drinking purposes. The groundwater table in this region is relatively shallow compared to other parts of the country and is typically found at a depth of approximately 80 to 180 feet below ground level, varying seasonally due to monsoon recharge and proximity to the Teesta river system. Groundwater quality assessments indicate the presence of iron in tube-well water, which may cause aesthetic issues such as taste and staining, while arsenic levels are generally low or within acceptable limits in most areas. Therefore, appropriate public health measures, including the installation of iron removal systems, periodic water quality monitoring, and community awareness programs, are essential to ensure safe drinking water. The use of deep tube wells that extract water from confined aquifers is recommended to provide a more reliable and safe water supply.

Groundwater quality: pH-6.1 to 7.9, DO-3.0 to 6.8 mg/l, TDS-60 to 450 mg/l, EC-90 to 800 µs/cm, Fe-0.6 to 5.5 mg/l and As-Low (Field Study Report, March 2026)

Status of wildlife movement:

The sub-project area supports a variety of common bird species typically found in the agricultural and rural landscapes of Rangpur District. Frequently observed species include ghugu (dove), bok (egret), choroi (House Sparrow, Passer domesticus), shalik (Common Myna, Acridotheres tristis), and doel (Oriental Magpie Robin, Copsychus saularis). These birds play an important role in maintaining ecological balance by controlling insect populations, aiding in seed dispersal, and supporting agricultural ecosystems. In addition, the area is inhabited by small mammals and reptiles commonly found in northern floodplain regions, such as Bon Biral (Jungle Cat, Felis chaus), Bengal fox (Vulpes bengalensis), mongoose (Herpestes edwardsii), and various snake species. These animals function as natural predators, helping to regulate rodent populations and contributing to agricultural pest control. Aquatic biodiversity is also present in nearby water bodies, supporting fish species typical of floodplain environments. Overall, the diversity of birds,

mammals, and aquatic species reflects a functioning and interconnected rural ecosystem. Therefore, the protection of these species through sustainable land and water management, habitat conservation, and environmentally responsible development practices is essential to maintain biodiversity, ecological resilience, and long-term environmental sustainability in 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.

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): 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.
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. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
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 20 kg daily and sludge may amount to 5 kg per day.

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 350 kg.
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.
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 formal engineered drainage system is available along this road; however, natural drainage occurs through surrounding agricultural lands and open spaces along the alignment. No significant ponds, canals, or rivers were identified within close proximity, although agricultural land dominates both sides throughout most chainages (0-300 m, 300-600 m, and 900-1200 m), supporting natural infiltration and runoff. Given the rural setting and absence of major water bodies, the overall drainage impact is expected to be low. However, standard precautionary measures should be adopted during construction to ensure that natural surface runoff is not obstructed.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and 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: No
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) No
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) No.
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 stagnant water bodies remained for encouraging 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) 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.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Almar Bazar Pucca Road near Hasan Abdullah Hafizia Madrasha More-Gawsoya Bazar via Mohisasur Road

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. • Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted	PIU & Contractor	Social Development Specialist and

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Separate community level consultation meeting with the potential affected HHs • All the safeguard documents will be disclosed to all relevant stakeholders. • People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.		Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-	Site Selection for workers	• Workers camp, site office and stack yard	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Stage	camps, stack yards & implementing interventions: Generation of ESHS issues.	should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times.		Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• 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. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, within the construction site is not near to any kinds of latrine and soaks well which could be contaminated by those.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.		
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. • Construction materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		yards, and maintaining a visitor's log book at entrance) • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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.		
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		underground sources will be kept on site. • Local community must be consulted before any construction works start.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-	Preparation of a waste management plan covering the following aspects: • Waste from the temporary accommodation facilities for labor	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	hazardous waste during construction.	• Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
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.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation,	• 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 activities on site. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	• 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • 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.		

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 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, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.
Construction activity	Odours and pollution caused by leaking	• Preventative maintenance schedule should be followed.	Contractor	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	• 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.		Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: • The increased vehicular movement and speed may trigger	Road safety issues can be minimized in following ways: • By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. • Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-	UE (Upazila Engineer)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. • Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. • All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	• 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	District XEN, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	2148 Sq.m	@38.15 Tk. Per sqm	81,946.20
2.	**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	1790.0 m	@ 2.56 BDT	4,582.40
3.	**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
4.	**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	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
5.	**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	30,000.00
6.	**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	15,000.00
7.	**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	30,000.00
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	10,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
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	5,000.00
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	5,000.00
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	30,000.00
12.	**Environmental management** Environmental management costs of the Environment & 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 person to be appointed for 5 roads]**	Each	@ Tk. 35000	35000.00
	Total amount for this Road			**277,174.32**

Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **NHW near Fazal Filling Station-Katchna Road via Cold store, ID: 185925073**
Implementing Agency/Agencies: Local Government Engineering Department (LGED)

District: Rangpur **Upazila:** Taraganj **Union:** Ekarchali

Name of Community/Local Area: Katchna

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The NHW near Fazal Filling Station-Katchna Road via Cold Store is currently unpaved from chainage 0+000 to 1+420. The road includes several existing culverts at chainages 0+011 m (4.3 m × 2.4 m × 1.3 m), 0+680 m (6 m × 4.3 m × 3 m), and 0+888 m (6.3 m × 1.7 m × 1.3 m). In addition, a short Herringbone Brick (HBB) road section of 30 m exists between chainages 0+668 m and 0+698 m. The proposed intervention includes Bituminous Carpeting (BC) along the full stretch from 0+000 to 1+420. To protect vulnerable sections of the embankment, palisading works are proposed on the left side between chainages 1+243 and 1+271 (28 m). These improvements will enhance road durability, ensure efficient drainage, and provide safe and reliable connectivity.

Estimated footprint / land area for this sub-project is 4,260 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1420m. 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

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Mosque (10m away)
		R	Settlements
300-600	L		Settlements
		R	Grave (4m away)
600-900	L		Grave (5m away)
		R	Barren land
900-1200	L		----
		R	Agricultural Land
1200-1420	L		Mosque (6m away)
		R	-

Starting Point of NHW near Fazal Filling Station-Katchna Road via Cold store

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed sub-project (Road construction) 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 have been observed in the road area. But, some local trees like betel nut, rain tree 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.

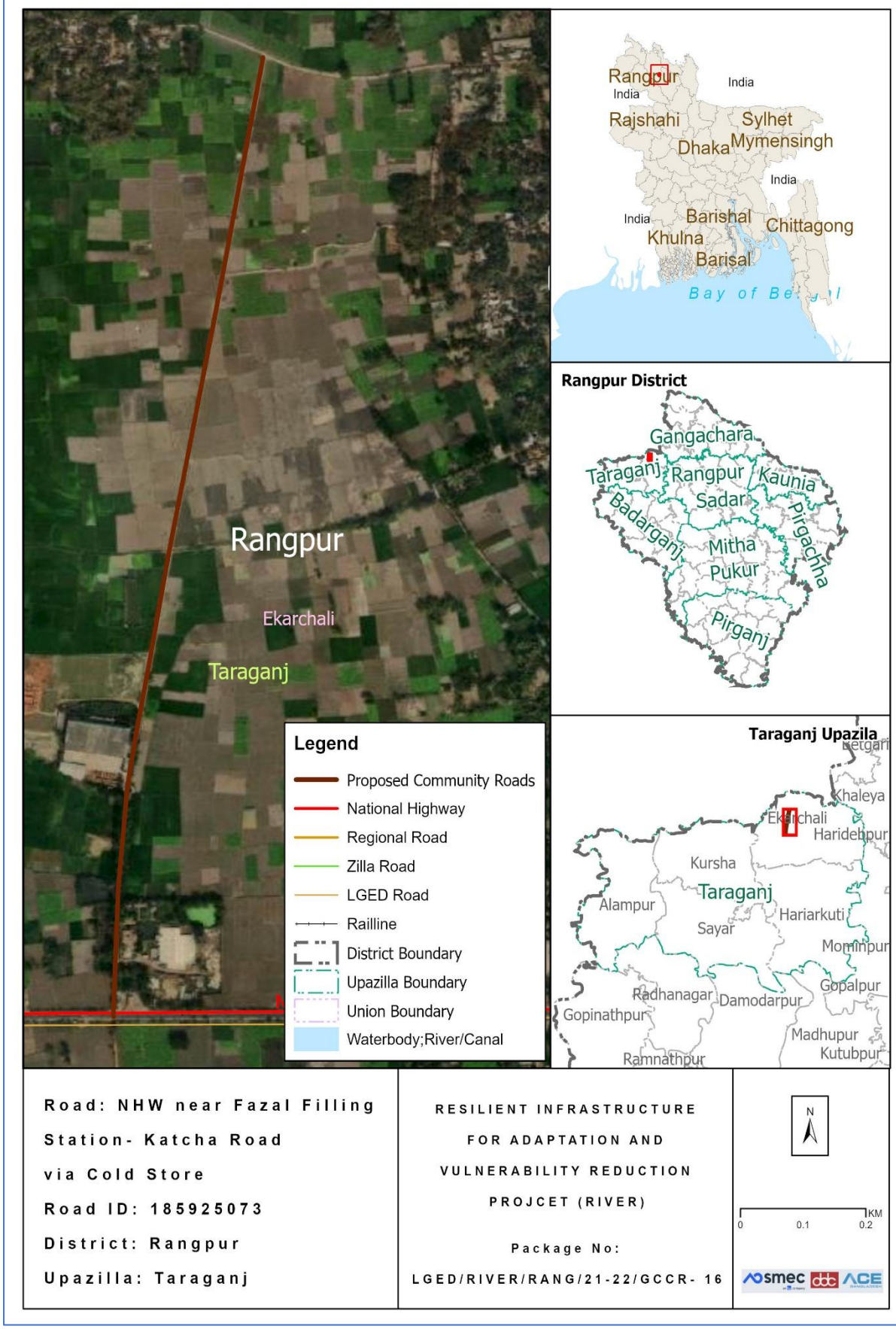
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season. The proposed Sub-project area for the construction included flat areas and moderate 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, gravels, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites were identified within the project area. The road alignment traverses a mix of settlement areas, agricultural land, and open spaces, with some sensitive features located within short distances from the road. At chainage 0-300 m, a mosque is located approximately 10 m away on the left side, while the right side is characterized by settlements. Between 300-600 m, settlements continue on the left, while a grave site is located approximately 4 m away on the right. From 600-900 m, a grave is present approximately 5 m from the left side, while the right side consists of barren land. In the 900-1200 m section, the right side includes agricultural land, while the left side shows minimal features. Between 1200-1420 m, another mosque is located approximately 6 m away on the left side. The presence of religious and burial sites within close proximity highlights the need for precautionary measures during construction to avoid disturbance.



Location Map of the proposed Road

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 union road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1420m.

Sub-project Location:

Important Features	
ID	185925073
District	Rangpur
Upazila	Taraganj
Union	Ekarchali
Total Chainage	1420m
Proposed Chainage	1420m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.811551 N Longitude: 89.061668 E E
Road Ending Point Coordinates	Latitude: 25.824361 N Longitude: 89.063909 E

Land ownership
Land is owned by Government.

Expected construction period: 12 (Twelve) months (Approx.)

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:

- The proposed Sub-project is located within Katchna village.
- No historical sites were found
- Not required to relocate local community.
- Some trees, vegetation and livelihood will be affected.
- Very low chance of loss of agricultural land.
- Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

***B.1*: Environmental and Social 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:

Several environmental features are located within approximately 100 meters of the project site. At chainage 0-300 m, a mosque is located approximately 10 m away on the left side, while the right side is characterized by settlements. Between 300-600 m, settlements continue on the left, while a grave site is located approximately 4 m away on the right. From 600-900 m, a grave is present approximately 5 m from the left side, while the right side consists of barren land. In the 900-1200 m section, the right side includes agricultural land, while the left side shows minimal features. Between 1200-1500 m, another mosque is located approximately 6 m away on the left side. The presence of religious and burial sites within close proximity highlights the need for precautionary measures during construction to avoid disturbance.

Location of environmental and Social 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.

Baseline air quality and noise levels:

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 vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Conducting works at dry season and moving large quantity of materials may create dusts and increase in concentration of vehicle-related pollutants which will affect people who live and work near the sites. The impacts are negative but short-term, site-specific within a relatively small area and reversible/ preventable by mitigation measures.

Noise:

Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.

Baseline soil quality:

The sub-project area is primarily characterized by alluvial soils typical of the Teesta floodplain in Rangpur District. The soils are predominantly composed of sandy loam to silt loam, developed from deposits carried by the Teesta and its associated river systems. In some locations, particularly in low-lying areas, the soil texture varies from silty clay to clay loam due to seasonal sedimentation and water retention. These soils are generally moderately to highly fertile and support intensive agricultural activities, including the

cultivation of rice, maize, wheat, and vegetables. The land is relatively well-drained compared to haor regions, although localized waterlogging may occur during the monsoon season in depressions and poorly drained sections. Overall, the soil characteristics of the area are suitable for both agriculture and infrastructure development, provided that appropriate drainage and soil stabilization measures are incorporated into project design.

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

Groundwater is the primary source of potable water in the sub-project area of Rangpur District. Local communities predominantly rely on shallow tube wells for their daily domestic water needs, while deep tube wells are commonly used for drinking purposes. The groundwater table in this region is relatively shallow compared to other parts of the country and is typically found at a depth of approximately 80 to 180 feet below ground level, varying seasonally due to monsoon recharge and proximity to the Teesta river system. Groundwater quality assessments indicate the presence of iron in tube-well water, which may cause aesthetic issues such as taste and staining, while arsenic levels are generally low or within acceptable limits in most areas. Therefore, appropriate public health measures, including the installation of iron removal systems, periodic water quality monitoring, and community awareness programs, are essential to ensure safe drinking water. The use of deep tube wells that extract water from confined aquifers is recommended to provide a more reliable and safe water supply.

Groundwater quality: pH-6.1 to 7.9, DO-3.0 to 6.8 mg/l, TDS-60 to 450 mg/l, EC-90 to 800 µs/cm, Fe-0.6 to 5.5 mg/l and As-Low (Field Study Report, March 2026)

Status of wildlife movement:

The sub-project area supports a variety of common bird species typically found in the agricultural and rural landscapes of Rangpur District. Frequently observed species include ghugu (dove), bok (egret), choroi (House Sparrow, Passer domesticus), shalik (Common Myna, Acridotheres tristis), and doel (Oriental Magpie Robin, Copsychus saularis). These birds play an important role in maintaining ecological balance by controlling insect populations, aiding in seed dispersal, and supporting agricultural ecosystems. In addition, the area is inhabited by small mammals and reptiles commonly found in northern floodplain regions, such as Bon Biral (Jungle Cat, Felis chaus), Bengal fox (Vulpes bengalensis), mongoose (Herpestes edwardsii), and various snake species. These animals function as natural predators, helping to regulate rodent populations and contributing to agricultural pest control. Aquatic biodiversity is also present in nearby water bodies, supporting fish species typical of floodplain environments. Overall, the diversity of birds, mammals, and aquatic species reflects a functioning and interconnected rural ecosystem.

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.

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): 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.
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. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
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 20 kg daily and sludge may amount to 5 kg per day.

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 350 kg.
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.
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 formal drainage infrastructure exists along this alignment, but natural drainage features are present in the form of low-lying land and surrounding open areas. While no ponds, canals, or rivers were specifically identified, sections of barren land (600-900 m) and agricultural land (900-1200 m) contribute to natural infiltration and surface drainage. These areas play an indirect role in maintaining local hydrological balance. As the project activities will remain within the existing road boundary, only minor and temporary impacts are anticipated, which can be managed through standard environmental practices.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).
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, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and 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: No
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) No
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) No.
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 stagnant water bodies remained for encouraging 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) 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.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: NHW near Fazal Filling Station-Katchna Road via Cold Store

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. • If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. • Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • All the safeguard documents will be disclosed to all relevant stakeholders.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.		
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without prior permission of the	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• 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. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Construction materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		routes, schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. • Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		extraction or 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.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Rules.		
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.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual	• 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 activities on site. • Provide walkways that are clearly designated as a walkway; 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		erosive potential of surface water flows elsewhere. • 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		document. • The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include:	Road safety issues can be minimized in following ways: • By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.	UE (Upazila Engineer)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	• The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. • Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	• Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. • All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	• 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	District XEN, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1704 Sqm	@38.15 Tk. Per sqm	65,007.60
2.	**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	1420m	@ 2.56 BDT	3,635.20
3.	**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
4.	**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
5.	**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
6.	**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
7.	**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
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

Sl. no.	Description of item	Quantity	Unit price	Total amount
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
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
12.	**Environmental management** Environmental management costs of the Environment & 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 person to be appointed for 5 roads]**	1 no.	@ Tk. 35000	35,000
	Total amount for this Road			**259,288.52**






Existing Surroundings of the Sub-Project

ANNEXURE 2:
ATTENDANCE OF CONSULTATION MEETING

ANNEXURE 2: ATTENDANCE OF CONSULTATION MEETING

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Itakumari Bazar-RK road Via Bagbari G.P.S
Date:

Road ID: 185734031

Place of Consultation:

Village: Itakumari Ward No.: Union: Itakumari Upazila: Pirgacha

District: Rangpur.

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
1	Rofiqul Islam	M	50	Agri	Srikanto		
2	Abdul Khalek	M	45	Agri	U		
3	Johurul Islam	M	36	Business	U		
4	Arun Kumar	M	62	Ex. Servic	U		
5	Md. Nur Alom	M	42	Tailor	U		
6	Dipok	M	42	Business	U		
7	Aggor Ali	M	62	Agri	Norshing		
8	Anil	M	38	Bosness	U		
9	Sri polashchandro	M	32	U	U		
10	Shofiqul Islam	M	43	U	Srikanta		
11	Hafizur Rahman	M	33	U	Norshing		
12	Sharon	M	20	U	U		
13	Jahangir Alam	M	30	Agri	U		
14	Kabir Ahmed	M	47	Bosness	U		
15	Kashem	M	50	Agro Dever	U		
16	Alamin	M	32	U	U		
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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Gulshan More Bazar-Brammochari Bazar Road. **Date:** 29.03.26

Road ID: 185424028

Place of Consultation:

Village: Baliar Bishu **Ward No.:** 02 **Union:** Shahidbagh **Upazila:** Kaunia

District: Rangpur.

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
1	Md. Azizul Islam	M	66	Farmer	Baliar Bishu		
2	Md. Faruk Hossain	M	45	Business	"		
3	Md. Afsar Rahman	M	35	"	"		
4	Sree subash chandra	M	55	Farmer	"		
5	Md. Nur Nabi	M	42	Business	"		
6	Md. Dulup Mia	M	29	Student	"		
7	Md. Shafiqul Islam	M	50	Farmer	"		
8	Md. Rubel Hasan	M	24	Farmer	"		
9	Md. Abdul Jalil	M	56	Service	"		
10	Md. Dilowar Hossain	M	24	Service	"		
11	Md. Shihab Rahman	M	27	Farmer	"		
12	Sree Robi chandra	M	34	Business	"		
13	Md. Wazian Rahman	M	31	Farmer	"		
14	Md. Jahedul Islam	M	40	Business	"		
15	Md. Maidul Islam	M	30	Business	"		
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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: H/O Natu Miah-Golshan More Road. **Date:** 29.03.26

Road ID: 185425079

Place of Consultation:

Village: Ballabvisa **Ward No.:** 02 **Union:** Shahidbagh **Upazila:** Kaunia

District: Rangpur.

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
1	Md. Amanul Islam	M	56	Business	Shahidbagh		
2	Md. Shirajul Islam	M	54	〃	Shahidbagh		
3	Md. Juwel Rana	M	27	Student	〃		
4	Md. Nahidul Islam	M	40	Business	〃		
5	Md. Jakirul Hasan	M	18	〃	〃		
6	Md. Mahabub Rahman	M	42	Farmer	〃		
7	Md. Mojedul Islam	M	37	Business	〃		
8	Md. Abdal Hamid	M	74	Business	〃		
9	Md. Mostafizal Hoque	M	40	Business	〃		
10	Sree Ganesh Chandra Barman	M	42	Labour	〃		
11	Soneka Rani	F	55	Housewife	〃		
12	Maleka Begum	F	55	〃	〃		
13	Saleha Begum	F	45	〃	〃		
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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Almar Bazar pucca road near Hasan Abdullah Hafizia madrasha more-Gawsoya bazar via Mohisasur Road.

Date: 28.03.26

Road ID: 185275172

Place of Consultation: Choto Rupai

Village: Choto Rupai **Ward No.:** 02 **Union:** Ghagoghanta **Upazila:** Gangachara

District: Rangpur.

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
1	Md. Anisur Rahman	M	95	Farmer	Choto Rupai		
2	Md. Asraful Alam	M	66	〃	〃		
3	Md. saiful	M	70	〃	〃		
4	Md. Nawshad Ali	M	64	〃	〃		
5	Md. Mamud Rana	M	32	Business	〃		
6	Md. Nasir Islam	M	45	Farmer	〃		
7	Md. Mossaraf Hossain	M	42	Farmer	〃		
8	Md. Anwarul Islam	M	67	Service	〃		
9	Md. Farshad	M	36	Day labor	Mahishashur		
10	Rezaul Karim	M	24	Service privat	〃 〃		
11	Md. Fayzar Ali	M	65	Van Driver	Choto Rupai		
12	Rafiqul	M	26	Service privat	〃 〃		
13	Mst. Ummey Kulsum	F	28	Housewife	〃 〃		
14	Mst. Reba Parvin	F	28	〃 〃	〃 〃		
15	Parul	F	35	〃 〃	〃 〃		
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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: NHW near Fazal Filling Station-Katchna road via Cold store **Date:** 29/03/2026

Road ID: 185925073

Place of Consultation:

Village: Kachna **Ward No.:** 01 **Union:** Ekanchali **Upazila:** Taraganj

District: Rangpur.

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
1	Md. DULU	M	37	Job	Kachna		DU/U
2	Md. Abdul Kader	M	42	Business man	Lakshipur		
3	Md. Mojidul	M	45	Farmer	Lakshmipur		
4	Md. Torlim Uddin	M	75	Farmer	Lakhipur		
5	Md. Saidul	M	48	Farmer	Lakhipur		
6	Md. Hafizul	M	35	Businessman	Lakhipur		
7	Md. Abdus samad	M	70	Member	Kachna		
8	Md. Azizur Rahman	M	37	Business man	Lakhipur		
9	Md. Hossain	M	37	Farmer	Lakhipur		
10	Md. Hafijur	M	30	Business man	Kachna		
11	Md. Rokon Babu	M	22	Student	Kachna sahpara		
12	Dulal Chondro Roy	M	60	Farmer	Kachna		
13	Sreeprotish Roy	M	37	Farmer	Kachna		
14	Kayllesh Chondro Roy	M	45	Farmer	Kachna		
15	Komika Ram	F	36	Housewife	Kachna		
16	Sree Dilip Chondro Roy	M	45	Farmer	Kachna		
17	Dipti Rani	F	45	Housewife	Kachna		
18	Sree minal	M	45	Farmer	Kachna		
19	Sree Beauty Rani	F	33	Housewife	Kachna		
20	Dipali Rani	F	35	Housewife	Kachna		