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Ministry of Local Government, Rural Development & Co-operatives
Local Government Division
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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Improvement of Community Infrastructure, Growth Centre, others roads & Connecting Roads at Rajbari District



**Environmental & Social Assessment and Management Report of
Community Roads**

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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 Rajbari District has been prepared for the sub-project titled “Improvement of Community Infrastructure, Growth Centre, others roads & Connecting Roads at Rajbari 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, nine (9) community infrastructures connecting roads in Rajbari 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- Rajbari Sadar (1 road with total length of 1 km), Kalukhali (5 roads with total length of 7.72 km), Goalanda (2 roads with 2.52 km), and Pangsha (1 road with active length of 1.2 km) Upazila-which are characterized by rural settlements, agricultural landscapes, and periodic exposure to seasonal flooding.

A short profile of the roads to be implemented					
Sl. No.	Name of Upazila	Name of Proposed Community Road (Road ID)	Total Length (Km)	Avg. width (m)	Distances from nearby Shelters
1.	Rajbari Sadar	Barmmandia-Mohisha Khola Road (382765020)	1	3	0.6 km
2.	Kalukhali	Majbari GC-Arunganj GC Road (382773038)	0.95	3	0.4 km
3.		Horinbaria Bazar-Dattabari Pacca Road (382774229)	1.85	3	0.3 km
4.		Moukari-Shamlabari Road (382774085)	1	3	1 km
5.		Habaspur GC-Arungong GC road (382772012)	2.45	4	0.15 km
6.		Kalikapur UP-Kalikapur Bazar Road (382773023)	1.47	3	2 km
7.	Goalanda	Shoruperchak Madrasha-Charmowkori Road (382295018)	1.5	2.7	3 km
8.		Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)	1.02	2.8	4 km
9.	Pangsha	Bahadurpur UP-Bagmara via Police Camp Road (382734181)	1.2	3	0.1 km

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 **Barmmandia-Mohisha Khola Road (382765020)** will be upgraded through **bituminous carpeting from Ch. 0+000 to 1+000**, covering the full **1.00 km** length of the road. The existing surface is HBB, and the proposed works also include **palisading at several vulnerable roadside sections**, mainly on the left side and one section on the right side. The surrounding corridor includes close roadside settlements, small shops, a graveyard, agricultural land, ponds, and ditches. Since ponds and ditches are located near the carriageway at multiple points, construction activities will need to avoid blocking local drainage. Safety signage and cautionary measures will also be required near the shop, settlement, and graveyard areas to reduce risks to pedestrians and local road users.
- (ii) The **Majbari GC-Arunganj GC Road (382773038)** is proposed for **BC improvement along Ch. 0+000 to 0+950**, replacing the existing mix of HBB and earthen pavement. A key intervention under this road is the **reconstruction of the damaged 1.5 m × 4.0 m culvert at Ch. 0+465 to 0+466.5**, along with **277 m of slope protection on the right side from Ch. 0+673 to 0+950**. The road runs beside agricultural fields, settlements, ponds, small canals, and sensitive religious facilities such as a mosque, madrasa, and temple. Because several small canals are located in the later stretch, drainage continuity should be maintained during construction. Warning signs and speed-control measures will be useful near religious institutions and settlement clusters.
- (iii) Along the **Horinbaria Bazar-Dattabari Pacca Road (382774229)**, the proposed intervention consists of **bituminous carpeting from Ch. 0+000 to 1+875**, upgrading the existing HBB and earthen sections. The works also include **218 m of slope protection from Ch. 0+170 to 0+388 on the right side**. The road passes by a small shop, agricultural plots, gardens, settlements, canal-side areas, and a number of electric poles located very close to the alignment. Due to the close position of utility poles and canal sections, construction should be carried out with caution to avoid utility disturbance, roadside erosion, and drainage interruption. Road safety signs should be placed where settlements and roadside activities are concentrated.
- (iv) For the **Moukari-Shamlabari Road (382774085)**, the full **1.00 km HBB road will be improved with BC from Ch. 0+000 to 1+000**. The road also has an existing **12 m × 4.0 m culvert between Ch. 0+700 and 0+712**, and **palisading is proposed at vulnerable locations**. The alignment is mostly rural, with agricultural land, trees, and settlements located close to both sides. As local households and cultivated lands are present throughout the corridor, construction works should maintain safe access for residents and avoid unnecessary disturbance to farmland. The drainage function around the culvert should be kept open, and caution signs should be used near settlement areas.
- (v) The **Habaspur GC-Arungong GC Road (382772012)** will receive **bituminous carpeting over the entire Ch. 0+000 to 2+450 section**, converting the existing earthen road into

an improved paved surface. The proposed intervention also includes **reconstruction of the damaged 6 m × 3.7 m culvert at Ch. 1+284 to 1+290**. This road has several sensitive receptors nearby, including family graveyards, a crematorium, Eidgah, mosque, school, bridge, culvert, utility poles, Grameen Tower, shops, and Gotompur Bazar. Because of this mixed social and utility setting, safety management should be stronger near community facilities, religious sites, the school, and the bazar area. Warning boards, speed-control measures, and careful utility protection will help reduce construction and operation-stage risks.

- (vi) The **Kalikapur UP-Kalikapur Bazar Road (382773023)** is proposed for **BC improvement from Ch. 0+000 to 1+470**, including both the existing paved section and the earthen portion near the end. The alignment connects several important public and community facilities, including the UP office, hospital, Eidgah, madrasa, mosque, Kalikapur Bazar, nearby rail line, pond, farm area, households, and riverbank. As the road serves institutional, religious, market, and residential users, road safety measures should be prioritized at busy and sensitive points. Signage, speed control, and caution boards should be placed near the hospital, UP office, madrasa, mosque, Eidgah, bazar, and rail-line area. Extra attention is also needed near the pond and riverbank to reduce edge failure, drainage, and safety concerns.
- (vii) The **Shoruperchak Madrasa-Charmowkori Road (382295018)** will be improved through **BC works from Ch. 0+000 to 1+500**, covering the existing HBB and BFS pavement sections. The road also has an existing **pipe culvert near Ch. 1+266**, and **palisading is proposed at vulnerable locations**. The surrounding features include agricultural land, households, a pond, ditch, Hasmot Paikpara Private School, and a mosque. Since the school and mosque are located close to the road, pedestrian safety should be carefully addressed through signage and speed-control measures. Drainage near the ditch and pipe culvert should remain functional so that the improved road does not create local waterlogging.
- (viii) The **Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)** will be upgraded by **bituminous carpeting from Ch. 0+000 to 1+020**, covering the existing BC and BFS sections. The proposed works also include **palisading at vulnerable roadside sections**, while an existing **U-drain is located near Ch. 0+872**. The road corridor includes a shop, households, graveyard, ditch, agricultural land, Eidgah Maidan, and a pond close to the alignment. These features indicate both social sensitivity and drainage concerns. Therefore, safety signs should be installed near the household, shop, graveyard, Eidgah, and pond areas, and the existing U-drain and ditch should be kept clear to support proper runoff management.
- (ix) The **Bahadurpur UP-Bagmara via Police Camp Road (382734181)** will be improved with **BC from Ch. 0+000 to 1+200**, covering the HBB, earthen, and link road sections. The major proposed interventions include **U-drain works at Ch. 200 m and Ch. 670 m**, together with **palisading at Ch. 37 m, Ch. 893 m, and Ch. 1030 m**. The road serves important local facilities such as Bahadurpur Health Complex, mosque, Union Parishad, Bahadurpur Police Station, nearby agricultural land, dairy farm, and 63 No. Bilgajaria GPS within the broader road influence area. Since public service facilities and institutional uses are located near the corridor, traffic safety measures should be provided at key access points. Drainage works should be implemented carefully to restore runoff flow and reduce the possibility of waterlogging along the improved road.

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:

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
1.	Barmmandia-Mohisha Khola Road (382765020)	HBB - (Ch.0+000 to 1+000)	BC- (Ch.0+000 to 1+000) Palisading - Ch.0+237 to 0+260 (Left Side), Ch.0+365 to 0+400 (Left Side), Ch.0+409 to 0+430 (Left Side), Ch.0+552 to 0+594 (Right Side), Ch.0+577 to 0+584 (Left Side), Ch.0+905 to 0+963 (Left Side)	Road signage near settlements, graveyard, shop, ponds and ditches; speed breaker near settlement/shop cluster around Ch. 0+053 to 0+080; warning signs and guide posts near pond/ditch locations; temporary pedestrian access during construction.	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
2.	Majbari GC-Arunganj GC Road (382773038)	HBB - (Ch.0+00 to 0+085) Unpaved/Earthen - (Ch.0+085 to 0+950)	BC (Ch.0+00 to 0+950) Slope protection (277m) - Ch. 0+673 to 0+950 (Right Side) Culvert - (1.5m × 4.0m) Ch. 0+465 to 0+466.5	Mosque, madrasha, temple and settlement caution signs; speed breakers near religious/educational and settlement sections; pond and small canal warning signs near Ch. 0+425, 0+626, 0+673, 0+715 and 0+810; tree protection	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
				marking where required.	
3.	Horinbaria Bazar-Dattabari Pacca Road (382774229)	HBB - (Ch.0+00 to 0+170) Unpaved/Earthen - (Ch.0+170 to 1+850)	BC (Ch.0+00 to 1+875) Slope protection (218m) - Ch. 0+170 to 0+388 (Right Side)	Shop, settlement and canal-side warning signs; speed breakers near shop and settlement areas; reflective markers near electric poles; guide posts along canal-side sections; temporary pedestrian access during construction.	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
4.	Moukari-Shamlabari Road (382774085)	HBB - (Ch.0+00 to 1+000)	BC (Ch.0+000 to 1+000) Palisading	Settlement caution signs along both sides; speed breakers near settlement-dense sections; agricultural access signs and temporary crossing points; tree protection marking near roadside trees.	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
5.	Habaspur GC-Arungong GC road (382772012)	Earthen/Unpaved - (Ch.0+00 to 2+450)	BC - (Ch.0+00 to 2+450) Culvert - (6m x 3.7m) Ch. 1+284 to 1+290	Crematorium, graveyard, school, Eidgah, mosque, shop and bazar signs; speed breakers near school, religious sites and bazar; bridge/culvert warning signs; reflective markers near electric poles; temporary traffic	Not available in site Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
				control near community facilities.	locals, tree plantation.
6.	Kalikapur UP-Kalikapur Bazar Road (382773023)	BC- (Ch.0+00 to 1+250) Unpaved/Earthen - (Ch.1+250 to 1+470)	BC-(Ch. 0+000 to 1+470)	UP office, hospital, Eidgah, madrasha, mosque, rail line, pond, bazar and riverbank warning signs; speed breakers near hospital, madrasha, mosque and bazar; rail warning marking and reflector posts; guide posts near pond and riverbank.	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
7.	Shoruperchak Madrasha-Charmowkori Road (382295018)	HBB - (Ch.0+00 to 0+925) BFS - (Ch.0+925 to 1+500)	BC (Ch.0+00 to 1+500) Palisading	School, mosque, household, pond and ditch warning signs; speed breakers near school and mosque; temporary pedestrian walkway near school zone; caution tape near pond and ditch-side work areas.	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
8	Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)	BC- (Ch.0+00 to 0+352) BFS- (Ch.0+352 to 1+020)	BC (Ch.0+00 to 1+020) Palisading	Shop, household, graveyard, ditch, pond and Eidgah warning signs; speed breaker near shop, settlement and Eidgah sections; temporary access management for graveyard, Eidgah and households.	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
					the workers/locals.
9.	Bahadurpur UP-Bagmara via Police Camp Road (382734181)	HBB - (Ch.0+00 to 0+320, Ch.0+373 to 0+540) Link Road (110m) Unpaved/Earthen - (Ch.0+320 to 0+373, Ch.0+540 to 1+090)	BC (Ch.0+00 to 1+200) U Drain (Ch.200m, Ch.670m) Palisading (Ch. 37, Ch. 893, Ch. 1030)	Dairy farm, health complex, mosque, Union Parishad, police station, U-drain and school approach signs; speed breakers near health complex, UP, mosque, police station and school approach; temporary access control near public service facilities.	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.

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 waste, 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.

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.

Social mitigation measures include the preparation and implementation of a Traffic Management Plan to ensure the safe movement of vehicles and pedestrians during construction works. Adequate signage, barricades, and warning signals will be installed at construction sites to reduce accident risks. 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 five upazilas of Rajbari District, namely Rajbari Sadar Upazila, Pangsha Upazila, Kalukhali Upazila, Goalanda Upazila and Rajbari Sadar 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 Rajbari 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 Rajbari 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 Rajbari 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 Rajbari District under the RIVER Project.

2.1 Sub-Project Location

The sub-project covers selected community roads located in Rajbari 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 two upazilas:

1. **Pangsha Upazila** - Situated within the highly volatile Brahmaputra floodplain, Pangsha Upazila experiences recurrent monsoon flooding and riverbank erosion that frequently destroy existing earthen roads and isolate vulnerable rural populations. As much of the area consists of char land with deteriorated infrastructure and high flood susceptibility, improving these community roads is vital for ensuring reliable connectivity to flood shelters.
2. **Kalukhali 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. **Goalanda Upazila** - The existing rural road infrastructure in Goalanda Upazila predominantly consists of earthen tracks susceptible to seasonal inundation. Frequently leaving expansive and remote char land communities completely isolated during the peak monsoon. Upgrading these community roads with climate-resilient elevations is critical to ensure unimpeded, safe access to multi-purpose flood shelters during extreme weather events.

4. **Rajbari Sadar Upazila** - As the district headquarters, this upazila has a mix of semi-urban and rural areas. The connecting 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 Rajbari District is attached in **Figure 2.1**.

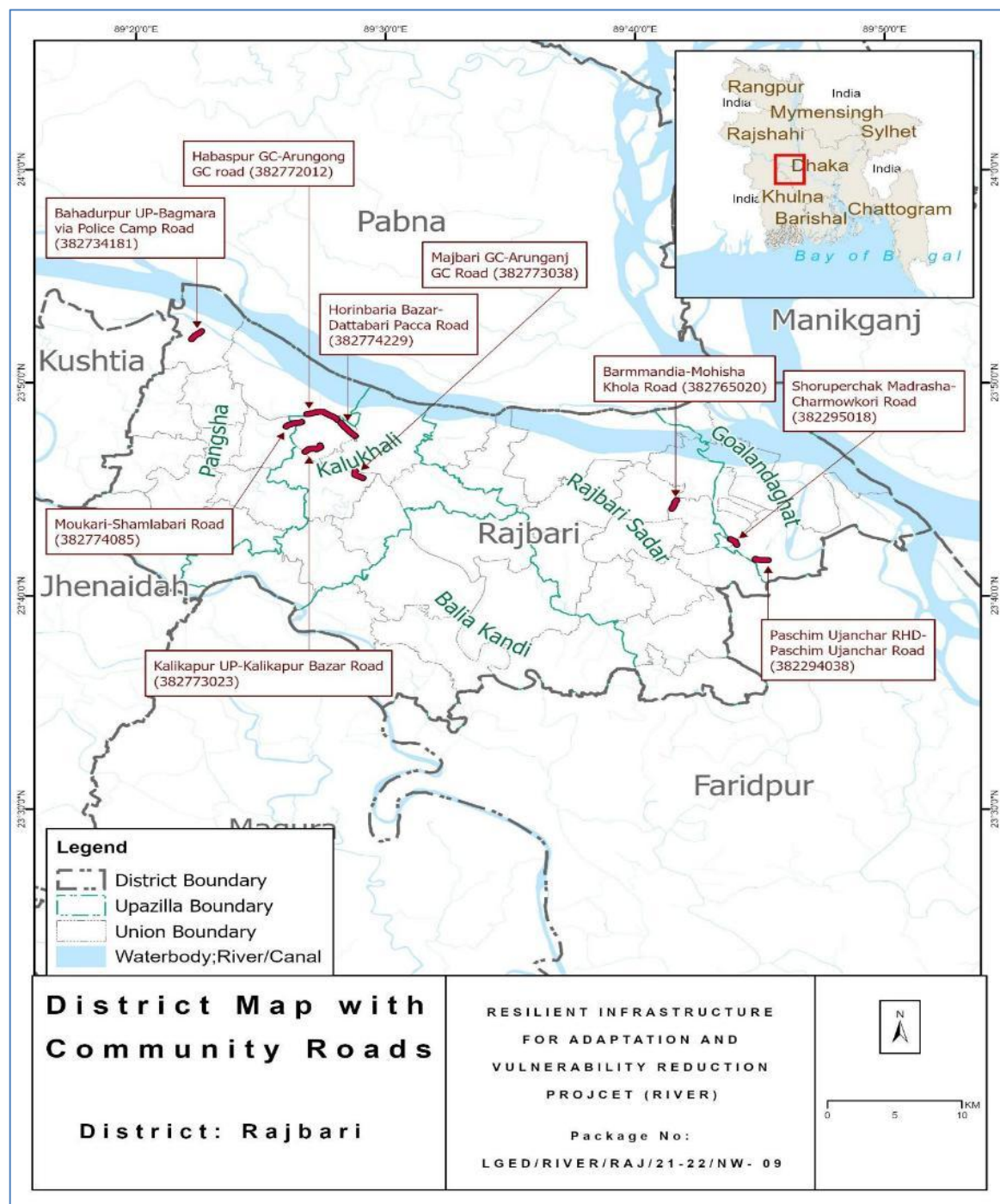


Figure 2.1: Map illustrating Community Roads of Rajbari District

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.

2.5 Elementary information of Community Road in Rajbari District

The community road package components in Rajbari District, located in the western region of Dhaka 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 Rajbari Sadar, Pangsha, Kalukhali, and Goalanda Upazila. Each road component has been identified with specific GPS coordinates to define its alignment and location within the respective union parishads such as Chara Bottola, Shafiq Kazi Bari, Babur Bari, Boalia, Angina Bridge, Thakur Para, Dattabari, Moukari, Shamlabari, Sonatoni, Raynagar, Jhaugram, Shoruperchawk Bazar, Char Moukori, Nobosimuddin Para, Sobdulkhara, Mridapara, Mridadanga, Bagmara etc. These community roads are strategically selected to connect surrounding rural settlements, growth centers 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.	Rajbari Sadar	Brammandia, Mohisakhola	Barmmandia-Mohisha Khola Road (382765020)	<u>Starting Point</u> 23.741749 N 89.694422 E <u>Ending Point</u> 23.735041 N 89.690716 E	1	Chara Bottola, Shafiq Kazi Bari, Babur Bari	11 No. Singa GPS	0.6 km from proposed shelter
2.	Kalukhali	Boalia	Majbari GC-Arunganj GC Road (382773038)	<u>Starting Point</u> 23.7587847 N 89.4848989 E	0.95	Boalia, Angina Bridge	1 No. Ratandia Model GPS	0.4 km from proposed shelter

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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
				<u>Ending Point</u> 23.7642215 N 89.479922 E				
3.		Kalikapur	Horinbaria Bazar-Dattabari Pacca Road (382774229)	<u>Starting Point</u> 23.7918 N 89.47966 E <u>Ending Point</u> 23.8041 N 89.46797 E	1.85	Thakur Para, Dattabari	Kalukhali GPS	0.3 km from proposed shelter
4.		Kalikapur	Moukari-Shamlabari Road (382774085)	<u>Starting Point</u> 23.799106 N 89.433523 E <u>Ending Point</u> 23.802736 N 89.44212 E	1	Moukari, Shamlabari	Yakub Hossain GPS	1 km from proposed shelter
5.		Kalikapur	Habaspur GC-Arungong GC road (382772012)	<u>Starting Point</u> 23.8041 N 89.46797 E <u>Ending Point</u> 23.81064 N 89.45592 E	2.45	Sonatoni, Raynagar	Para Belgachi Mofijuddin GPS	0.15 km from proposed shelter
6.		Kalikapur	Kalikapur UP-Kalikapur Bazar Road (382773023)	<u>Starting Point</u> 23.7844603 N 89.4561275 E	1.47	Jhaugram	Yakub Hossain GPS	2 km from proposed 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
				<u>Ending Point</u> 23.7807354 N 89.4476064 E				
7.	Goalanda	Chotobakla	Shoruperchak Madrasha-Charmowkori Road (382295018)	<u>Starting Point</u> 23.695901 N 89.747062 E <u>Ending Point</u> 23.707601 N 89.734016 E	1.5	Shoruperchawk Bazar, Char Moukori, Nobosimuddin Para	Char Baliakandi GPS	3 km from proposed shelter
8.		Ujanchar	Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)	<u>Starting Point</u> 23.694767 N 89.755543 E <u>Ending Point</u> 23.695701 N 89.747062 E	1.02	Sobdulkhara, Mridapara, Mridadanga	Ujanchar Model GPS	4 km from proposed shelter
9.	Pangsha	Bahadurpur	Bahadurpur UP-Bagmara via Police Camp Road (382734181)	<u>Starting Point</u> 23.873794 N 89.377001 E <u>Ending Point</u> 23.86727 N 89.370305 E	1.2	Bagmara	63 No. Bilgajaria GPS	0.1 km from proposed shelter

[*Sources of data: Field survey, April 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 Rajbari 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 Rajbari Sadar, Pangsha, Kalukhali, Goalanda and Rajbari Sadar Upazila.

Existing Pavement Condition and Chainage: Most of the existing roads are paved, semi-paved, HBB or earthen 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 Rajbari 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)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
1.	Barmmandia-Mohisha Khola Road (Village-B)	382765020	1.0	HBB - (Ch.0+000 to 1+000)	Culvert - (Ch. 8m).	Not available in site	BC- (Ch.0+000 to 1+000) Palisading - Ch.0+237 to 0+260 (Left Side), Ch.0+365 to 0+400 (Left Side), Ch.0+409 to 0+430 (Left Side), Ch.0+552 to 0+594 (Right Side), Ch.0+577 to 0+584 (Left Side), Ch.0+905 to 0+963 (Left Side)
2.	Majbari GC-Arunganj GC Road (UNR)	382773038	0.95	HBB - (Ch.0+00 to 0+085) Unpaved/Earthen - (Ch.0+085 to 0+950)	Damaged Culvert - (1.5m × 4.0m) Ch. 0+465 to 0+466.5.	Not available in site	BC (Ch.0+00 to 0+950) Slope protection (277m) - Ch. 0+673 to 0+950 (Right Side) Culvert - (1.5m × 4.0m) Ch. 0+465 to 0+466.5
3.	Horinbaria Bazar-Dattabari Pacca Road (Village-A)	382774229	1.85	HBB - (Ch.0+00 to 0+170) Unpaved/Earthen - (Ch.0+170 to 1+850)	-	Not available in site	BC (Ch.0+00 to 1+875) Slope protection (218m) - Ch. 0+170 to 0+388 (Right Side)
4.	Moukari-Shamlabari Road (Village-A)	382774085	1	HBB - (Ch.0+00 to 1+000)	Culvert - (12m × 4.0m) Ch. 0+700 to 0+712	Not available in site	BC (Ch.0+000 to 1+000) Palisading

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Sl. No.	Road Name	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
5.	Habaspur GC-Arungong GC Road (UZR)	382772012	2.45	Earthen/Unpaved- (Ch.0+00 to 2+450)	Damaged Culvert - (6m × 3.7m) Ch. 1+284 to 1+290	Not available in site	BC - (Ch.0+00 to 2+450) Culvert - (6m × 3.7m) Ch. 1+284 to 1+290
6.	Kalikapur UP-Kalikapur Bazar Road (UNR)	382773023	1.47	BC- (Ch.0+00 to 1+250) Unpaved/Earthen- (Ch.1+250 to 1+470)	-	Not available in site	BC-(Ch. 0+000 to 1+470)
7.	Shoruperchak Madrasha- Charmowkori Road (Village-B)	382295018	1.5	HBB - (Ch.0+00 to 0+925) BFS - (Ch.0+925 to 1+500)	Pipe culvert (Ch. 1266m)	Not available in site	BC (Ch.0+00 to 1+500) Palisading
8	Paschim Ujanchar RHD- Paschim Ujanchar Road (Village-A)	382294038	1.02	BC- (Ch.0+00 to 0+352) BFS- (Ch.0+352 to 1+020)	U-Drain (Ch.872m)	Not available in site	BC (Ch.0+00 to 1+020) Palisading
9.	Bahadurpur UP- Bagmara via Police Camp Road (Village-A)	382734181	1.2	HBB - (Ch.0+00 to 0+320, Ch.0+373 to 0+540) Link Road (110m) Unpaved/Earthen - (Ch.0+320 to 0+373, Ch.0+540 to 1+090)	Damaged Drain (Ch.200m) Damaged Pipe Drain (Ch.670m) U Drain (Ch.936m, Ch.1030m)	Not available in site	BC (Ch.0+00 to 1+200) U Drain (Ch.200m, Ch.670m) Palisading (Ch. 37, Ch. 893, Ch. 1030)

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 such as graveyard, mosque, madrasah 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 Minar's 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 Rajbari 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: Dhaka	District: Rajbari	Upazila: Rajbari Sadar
Name of the Road:	Barmmandia-Mohisha Khola Road (382765020)	
Total Road Length (km)	1.00 km	
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L	Settlement (Ch. 53m) 30m away, Ditch (Ch. 248) 5m away
	R	Settlement (Ch. 53m) 3m away, Graveyard (Ch. 63m) 5m away, Shop (Ch. 80m) 3m away
300-600	L	Pond (Ch. 375m) 5m away, Pond (Ch. 412m) 5m away, Pond (Ch. 578m) 5m away
	R	Settlement (Ch. 455m) 10m away, Ditch (Ch. 554) 4m away
600-1000	L	Settlement (Ch. 615m) 4m away, Agricultural Land (Ch. 665m) 10m away, Pond (Ch. 904) 5m away
	R	Settlement (Ch. 684m) 5m away, Agricultural Land (Ch. 690m) 8m away, Ditch (Ch. 657) 5m away, Settlement (Ch. 1000m) 5m away
Division: Dhaka	District: Rajbari	Upazila: Kalukhali
Name of the Road:	Majbari GC-Arunganj GC Road (382773038)	
Total Road Length (km)	0.95 km	
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L	Agricultural land (Adjacent)
	R	Mosque 5m away, Madrasha 300 m away

300-600	L		Settlement, Pond (Ch. 425)
		R	Temple, Trees, Settlement
600-950	L		Pond (Ch. 626), Small Canal (Ch. 673)
		R	Small Canal (Ch. 673), Small Canal (Ch. 715), Small Canal (Ch. 810), Settlement
Name of the Road:	Horinbaria Bazar-Dattabari Pacca Road (382774229)		
Total Road Length (km)	1.85 km		
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)	
00-300	L		Shop (Ch. 71m) 2m away
		R	Electric Pole (Ch. 40m) 1m away
300-600	L		Agricultural land 5m away, Garden 5m away, Settlement 3m away
		R	Agricultural land 5m away, Settlement 10m away
600-900	L		Electric Pole (Ch. 850m) 1m away, Electric Pole (Ch. 895m) 1m away
		R	Canal 5m away
900-1200	L		Electric Pole (Ch. 932m), Electric Pole (Ch. 998m), Electric Pole (Ch. 1054m), Electric Pole (Ch. 1117m), Electric Pole (Ch. 1195m)
		R	Canal 5m away
1200-1500	L		Garden 5m away, Settlement 3m away
		R	Canal 5m away
1500-1850	L		Agricultural land 5m away, Garden 5m away, Settlement 3m away
		R	Canal 5m away
Name of the Road:	Moukari-Shamlabari Road (382774085)		
Total Road Length (km)	1.00 km		
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)	
00-300	L		Agricultural land 5m away, Settlement 10m away
		R	Agricultural land 3m away, Settlement 5m away

300-600	L		Agricultural land 3m away, Settlement 5m away
		R	Agricultural land 5m away, Settlement 3m away
600-1000	L		Agricultural land 5m away, Trees 3m away, Settlement 3m away
		R	Agricultural land 3m away, Settlement 5m away
Name of the Road:	Habaspur GC-Arungong GC road (382772012)		
Total Road Length (km)	2.45km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Family Graveyard (Ch. 280m)
		R	Crematorium (Ch. 45m)
300-600	L		Family Graveyard (Ch. 565m)
		R	Agricultural Land
600-900	L		Family Graveyard (Ch. 705m), Electric Pole (Ch. 712m), Electric Pole (Ch. 834m), Electric Pole (Ch. 856m), Electric Pole (Ch. 896m)
		R	Electric Pole (Ch. 761m), Electric Pole (Ch. 801m), Shop (Ch. 900m)
900-1200	L		Electric Pole (Ch. 990m), School (Ch. 1130m)
		R	Electric Pole (Ch. 1024m), Electric Pole (Ch. 1083m), Electric Pole (Ch. 1182m), Eidgah (Ch. 925m)
1200-1500	L		Electric Pole (Ch. 1372m), Graveyard (Ch. 1410m)
		R	Electric Pole (Ch. 1418m), Electric Pole (Ch. 1513m), Bridge (Ch. 1235m), Culvert (Ch. 1284m)
1500-1800	L		Electric Pole (Ch. 1588m)
		R	Electric Pole (Ch. 1513m), Electric Pole (Ch. 1632m), Electric Pole (Ch. 1775m)
1800-2100	L		Eidgah (Ch. 1908m), Electric Pole (Ch. 2013m)
		R	Mosque (Ch. 1908m)
2100-2450	L		Electric Pole (Ch. 2328m), Grameen Tower (Ch. 2181m)
		R	Electric Pole (Ch. 2315m), Gotompur Bazar (Ch. 2450m)

Name of the Road:	Kalikapur UP-Kalikapur Bazar Road (382773023)		
Total Road Length (km)	1.470 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		UP office (Ch. 16m), Hospital (Ch. 68m)
		R	Farm (Ch. 267m)
300-600	L		Jhaugram Eidgah (Ch. 445m)
		R	Trees (Ch. 451m), Madrasha, (Ch, 540m)
600-900	L		Mosque (Ch. 767m)
		R	Rail Line (Ch. 690m), Pond (Ch. 747m)
900-1200	L		Household (Ch. 1190m)
		R	BFS Road (Ch. 1190)
1200-1470	L		Kalikapur Bazar (Ch. 1250m)
		R	Riverbank (Ch. 1460m)
Division: Dhaka	District: Rajbari		Upazila: Goalanda
Name of the Road:	Shoruperchak Madrasha-Charmowkori Road (382295018)		
Total Road Length (km)	1.5 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Agricultural Land
		R	Pond (Ch. 175m) 5m away
300-600	L		Hasmot Paikpara Private School (Ch. 314m) 5m away
		R	Household (Ch. 314m) 10m away
600-900	L		Mosque (Ch. 609m) 5m away
		R	Agricultural Land
900-1200	L		Agricultural Land
		R	Household (Ch. 923m) 10m away, Ditch (Ch. 942m) 5m away
1200-1500	L		Agricultural Land
		R	Household (Ch. 1500m) 5m away

Name of the Road:	Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)		
Total Road Length (km)	1.02km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Shop (Ch. 8m) 5m away, Household (Ch. 115m) 10m away, Graveyard (Ch. 280m) 10m away
		R	Ditch (Ch. 121m) 10m away, Household (Ch. 270m) 5m away
300-600	L		Household (Ch. 600m) 5m away
		R	Agricultural Land
600-1020	L		Agricultural Land, Eidgah Maidan (Ch. 910m) 5m away
		R	Pond (Ch. 850m) 5m away
Division: Dhaka	District: Rajbari		Upazila: Pangsha
Name of the Road:	Bahadurpur UP-Bagmara via Police Camp Road (382734181)		
Total Road Length (km)	1.2 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Dairy Farm 10m away, Bahadurpur Health Complex 62m away
		R	Mosque, Union Parishad
300-600	L		Bahadurpur Police Station (Ch. 320m)
		R	Agricultural Land
600-900	L		Agricultural Land
		R	Agricultural Land
900-1200	L		Agricultural Land
		R	63 No. Bilgajaria GPS 250m away

(*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 Rajbari 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 Rajbari District

Sl. No.	Name of Community Road and Road ID	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
1	Barmmandia-Mohisha Khola Road (382765020)	- Dust generation affecting homesteads and agricultural land, runoff risk to adjacent ditches, noise disturbance and temporary access disruption. - Noise disturbance from construction machinery and vehicles, particularly affecting nearby residents and school 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. - 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	Majbari GC-Arunganj GC Road (382773038)	- Dust generation and air pollution from earthworks, transportation of materials, and road surface preparation which may affect nearby settlements and roadside shops. - Operation of construction machinery and compaction equipment will generate noise and vibration, which may disturb activities at the nearby temple (20m away) and surrounding community.	- 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 work during prayer times or school hours where feasible.

Sl. No.	Name of Community Road and Road ID	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		- Excavation, soil stockpiling, and runoff from construction sites may cause sedimentation and pollution of the nearby ditch (20m away), affecting local drainage and water flow. - Material transportation and movement of construction vehicles may temporarily disrupt local access and create safety risks for pedestrians and nearby residents. - Improper waste disposal and accidental spillage (fuel, oil, bitumen) may degrade soil and water quality in adjacent agricultural land and drainage systems	- 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	Horinbaria Bazar-Dattabari Pacca Road (382774229)	- Dust generation during earthworks, road resurfacing, and material transportation, affecting nearby homes, shops, schools, and roadside settlements. - 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 and Road ID	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	Moukari-Shamlabari Road (382774085)	- Earthworks, excavation, and embankment construction may generate dust affecting nearby paddy land (00-300 m), potentially impacting crop growth and soil quality. - Construction runoff, sedimentation, and accidental spillage may pollute adjacent ponds (300-600 m), affecting water quality and aquatic life. - Operation of construction machinery and compaction equipment may generate noise and vibration disturbing nearby households (600-900 m). - Material transport and movement of construction vehicles may create safety risks and temporary access disruption for local residents. - Improper disposal of construction waste may contaminate agricultural land and nearby water bodies.	- During earthworks, apply regular water spraying, cover construction materials, and control vehicle speed to minimize dust impacts on paddy land. - 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 and Road ID	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
5	Habaspur GC-Arungong GC road (382772012)	- Dust generation during earthworks, road resurfacing, and material transportation, affecting nearby homes, shops, schools, and roadside settlements. - Operation of construction machinery and compaction equipment may generate noise and vibration disturbing the nearby mosque (4m away) and surrounding settlements, including interference with religious activities. - 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.
6	Kalikapur UP-Kalikapur Bazar Road (382773023)	- Earthwork, excavation, and embankment construction may generate dust affecting nearby rural homesteads and agricultural land, causing inconvenience to residents and potential impacts on crops. - Construction activities may generate noise and vibration affecting nearby settlements and the graveyard at Ch. 900m (3.5m away), which is a culturally sensitive site. - Construction works near the end point of the proposed road may disturb services and access	- To minimize community grievances near the graveyard site, local residents should be properly informed about the construction activities, and any concerns raised by the community should be carefully considered and appropriately incorporated. - Regular sprinkling of water on roads, covering transport vehicles, limiting speed of vehicles, and maintaining construction equipment to minimize dust. - Ensure uninterrupted access for community clinic during construction period with proper safety

Sl. No.	Name of Community Road and Road ID	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		to the nearby community clinic (10m away) which is potentially affecting patients and healthcare access.	barriers, safety signage. High risk related road construction activities should be minimized during the peak hour for hospital. Patients coming to community clinic from the surrounding villages should not be obstructed or getting blocked from road construction activities.
7	Shoruperchak Madrasha- Charmowkori Road (382295018)	- Partial obstruction of access routes to the Eidgah and graveyard at Ch.1082m and Ch.900m, respectively, may hinder movement for prayers and other religious activities. In particular, during the two annual Eid occasions, dust generation and construction related noise near the proposed chainage of Eidgah may increase community grievances. - Earthwork, excavation, and embankment construction may generate dust affecting nearby rural homesteads and agricultural land, causing inconvenience to residents and potential impacts on crops. - Dust generated from construction activities may degrade air quality, create visual disturbance, and adversely affect nearby residents along the proposed road site.	- Ensure uninterrupted access for Eidgah and for graveyard during the EID prayer times. - Regular sprinkling of water on roads, covering transport vehicles, limiting speed of vehicles, and maintaining construction equipment to minimize dust. - Ensure all vehicles transporting construction materials or debris are covered to prevent spillage and dust dispersion. - 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.

Sl. No.	Name of Community Road and Road ID	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
8	Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)	• Earthwork, excavation, and embankment construction (00-1500 m) may generate dust affecting nearby rural settlements, causing nuisance and potential health discomfort to residents. • Operation of construction machinery and compaction equipment may create noise and vibration, disturbing local communities along the road corridor. • Material transport and construction vehicle movement may cause temporary disruption to local access, mobility, and roadside activities in settlement areas. • Construction activities (1500-2400 m) may affect adjacent agricultural land, including dust deposition and potential soil degradation. • Runoff from construction sites, improper waste disposal, and soil disturbance may lead to minor erosion and impact nearby land and drainage conditions. • Occupational and community health and safety risks due to movement of heavy machinery and vehicles near settlements	• During earthworks and material transport, implement regular water spraying, cover transported materials, and enforce speed control to reduce dust impacts on settlements and agricultural land. • Restrict high-noise construction activities to daytime hours, maintain machinery properly, and minimize disturbance in densely populated areas. • Implement a traffic and access management plan, including signage, barricades, and designated pedestrian pathways to ensure safe movement of local residents. • Schedule construction activities in phases to minimize disruption to community access and daily activities. • Provide proper drainage and erosion control measures (e.g., side drains, slope stabilization) to prevent runoff impacts on agricultural land. • Ensure proper collection, handling, and disposal of construction waste at designated locations; prohibit dumping near settlements or farmland. • Provide PPE, safety training, and supervision for workers; ensure controlled movement of construction vehicles within the work zone.
9	Bahadurpur UP-Bagmara via Police Camp Road (382734181)	• Earthwork, excavation, and embankment may generate dust affecting the nearby Narayanpur GPS (school), rural homesteads,	• During earthworks, implement regular water spraying, cover construction materials, and control

Sl. No.	Name of Community Road and Road ID	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		and agricultural land, potentially impacting students and local residents. • Construction activities near ponds may cause sedimentation, runoff, and water pollution, affecting water quality and aquatic life. • Noise and vibration from construction machinery may disturb the nearby school, homesteads, and graveyards, including culturally sensitive sites. • Construction near graveyards (Ch. 27 m and 267 m) may create social and cultural concerns among local communities. • Improper waste disposal and construction runoff may affect surrounding agricultural land.	vehicle speed to minimize dust impacts on the school, homesteads, and agricultural land. • Install protective barriers, silt traps, and temporary drainage near ponds; strictly prohibit disposal of waste into water bodies. • Avoid high-noise construction activities near the school during class hours and near graveyards; maintain buffer zones and inform the community in advance. • Implement a traffic and road safety management plan, including signage, speed control, and flagmen near the school and settlement areas to protect pedestrians and children. • Maintain uninterrupted access to homesteads and community facilities during construction through temporary pathways. • Ensure proper collection and disposal of construction waste at designated sites preventing contamination of land and water bodies

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, Growth Center, others roads & Community 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 benefits 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. 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
Pre-Construction	Loss of right to access	Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.	PIU	Social Development

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Stage		In case of unavoidable circumstances, alternative access will be provided.		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. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • 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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; 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 of 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
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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be kept 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.		
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 fluorescent 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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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 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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
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.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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. • 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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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, 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.	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.	• 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. • 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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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. - 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 runoff. 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 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 Stage	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 due to tiredness of drivers.	- 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	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
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
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

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
15.	Protection of Roadside Vegetation	Preservation of existing roadside trees and vegetation	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification
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

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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. However, a generic list of species to be used for the plantation is given below in **Table 5.4**, and it is to be noted that the tree species should be native to the project location.

Table 5.4: The List of Selected Species for Tree Plantation

SL No.	Local Name	English Name	Scientific Name
Timber Tree			
1	Debdaru	Indian Mast Tree	<i>Polyalthia longifolia</i>
2	Gurjan	Gurjun	<i>Dipterocarpus turbinatus</i>
3	Silkoroi	White Siris	<i>Albizia procera</i>
4	Segun	Teak	<i>Tectona grandis</i>
5	Akashmoni	Earleaf Acacia	<i>Acacia auriculiformis</i>
6	Katbadam	Bengal almond	<i>Terminalia calappa</i>
7	Jarul	Giant Crape-myrtle	<i>Lagerstroemia speciosa</i>
	Punal	Asian indigo	<i>Callophyllum inophyllum</i>
8	Mahogany	Mahogany	<i>Swietenia mahagoni</i>
9	Epil-Ipil	White Lead Tree	<i>Leucaena leucocephala</i>
Fruit Tree			
10	Am	Mango	<i>Mangifera indica</i>
11	Kathal	Jackfruit	<i>Artocarpus heterophyllum</i>
12	Peyara	Guava	<i>Psidium guajava</i>
13	Jam	Black Berry	<i>Syzygium cumini</i>
14	Khejur	Date Palm	<i>Phoenix sylvestris</i>
15	Tal	Palm	<i>Borossus flabelliformis</i>
16	Amra	Hogplum	<i>Spondias pinnata</i>
17	Narikel	Coconut	<i>Cocos nucifera</i>
18	Chalta	Elephant Apple	<i>Dillenia indica</i>
19	Kul/Boroi	Jujube	<i>Ziziphus mauritiana</i>
20	Lichu	Lychee	<i>Litchi chinesis</i>
21	Tetul	Tamarind	<i>Temarindus indica</i>
22	Jambura	Pumelo	<i>Citrus grandis</i>

SL No.	Local Name	English Name	Scientific Name
23	Bel	Wood Apple	<i>Aegle marmelos</i>
24	Kodbel	Wood Apple	<i>Limonia acidissima</i>
25	Jolpai	Olive	<i>Elaeocarpus floribundus</i>
Medicinal Tree			
26	Neem	Indian lilac	<i>Azadirachta indica</i>
27	Arjun	Arjun	<i>Terminalia arjuna</i>
28	Amlaki	Indian gooseberry	<i>Phyllanthus emblica</i>
29	Horitoki	Chebulic Myrobalan	<i>Terminalia chebula</i>
30	Bohera	Beleric Myrobalan	<i>Terminalia belliricha</i>
31	Akando	White Aak Plant	<i>Calotropis gigantea</i>
Fuel Tree			
32	Shimul	Silk Cotton Tree	<i>Bombax ceiba</i>
33	Gab	Malabar ebony	<i>Diospyros spp.</i>
34	Kadam	Burflower Tree	<i>Anthocephalus chinensis</i>
35	Jhau	Tamarisk	<i>Tamarix dioica</i>
36	Pituli	Patchouli	<i>Trewta nudiflora</i>

According to the prevailing practice in Bangladesh, the FD 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.

Apart from roadsides, other places for planting trees shall be proposed at mosques, temples, madrasas, schools, colleges etc. 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 5.5**.

Table 5.5: Standard of Procedures (SOPs) for Tree Plantation

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;	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	• Watering: needs two times in a day; Prefer especially rainy season for tree plantation if it is in other season then proper watering is needed;
•	As all tree heights are not same, at the time of some specific tree plantation Upazila and Contractor		• Needs weed out grass and other unnecessary vegetation

Plant Selection		
Height and Spacing	Planting and Fencing Details	Maintenance
should communicate with Consultant Team; Tree plantation spacing should be 3m c/c from one tree to another tree	provision of 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.	Need regular monitoring by Upazila

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 nine identified community roads across Rajbari Sadar, Kalukhali, Goalanda, and Pangsha 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 in March 29-31, 2026. Public consultation meetings were conducted in the alongside covering of the nine (9) 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. Stakeholders were encouraged to provide feedback on site-specific concerns and suggest measures to minimize negative impacts.

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 Rajbari 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.	Barmmandia-Mohisha Khola Road (382765020)	31.03.2026	Shafiq Kazi Bari	The local individuals, elites, chairman and/or member of respective Union Parishad, farmer, businessmen, religious leaders, women, fishermen etc.	07
2.	Majbari GC-Arunganj GC Road (382773038)	29.03.2026	Shahapara More		10
3.	Horinbaria Bazar-Dattabari Pacca Road (382774229)	30.03.2026	Para Belgachi		09
4.	Moukari-Shamlabari Road (382774085)	31.03.2026	Moukuri More		09
5.	Habaspur GC-Arungong GC road (382772012)	30.03.2026	Doubari More		11
6.	Kalikapur UP-Kalikapur Bazar Road (382773023)	29.03.2026	Jhaugram		09
7.	Shoruperchak Madrasha-Charmowkori Road (382295018)	29.03.2026	Shoruperchawk Bazar		08
8.	Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)	31.03.2026	Mridadanga (Shop of Abul)		08

Sl. No.	Name of Community Road	Date DD-MM-YYYY	Venue	Main Participant Groups	No. of Participants
9.	Bahadurpur UP- Bagmara via Police Camp Road (382734181)	30.03.2026	Bahadurpur UP Office		11



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 Rajbari 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 identified several key issues affecting the project area, particularly poor road conditions during the rainy season, inadequate drainage systems leading to waterlogging, damaged culverts obstructing natural water flow, and erosion of road embankments in vulnerable sections. In addition, community members expressed concerns regarding potential temporary disturbances during the construction phase, including dust generation, noise pollution, traffic congestion, and safety risks for school children and pedestrians.

In response, participants proposed a number of practical mitigation measures. These included the proper rehabilitation and installation of culverts and cross-drainage structures to ensure uninterrupted natural water flow and prevent water stagnation. They also emphasized the need for strengthening road embankments and constructing protective structures such as retaining walls or palisading in erosion-prone areas to enhance structural stability.

Furthermore, participants recommended the implementation of effective dust and noise control measures during construction activities, along with the installation of appropriate road safety features, including warning signs, speed breakers near educational institutions, and improved visibility at road intersections. Ensuring uninterrupted access for local residents and agricultural transport during construction was also highlighted as a priority. Additionally, community members suggested prioritizing local labor employment to enhance socio-economic benefits. Overall, the consultation outcomes underscore the importance of integrating community-driven recommendations into project planning and implementation to minimize environmental and social impacts while improving local 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.	Barmmandia-Mohisha Khola Road (382765020)	31.03.2026 and in Shafiq Kazi Bari	- 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.	Majbari GC-Arunganj GC Road (382773038)	29.03.2026 and in Shahapara More	- 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.

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.	- Prepare and implement a traffic management plan including warning signs, barriers, and designated detours. - 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.	Horinbaria Bazar-Dattabari Pacca Road (382774229)	30.03.2026 and in Para Belgachi	- Waterlogging occurs in some low-lying sections of the road. - Road width is narrow in certain segments which creates difficulty for two-way traffic.	The road surface should be improved with proper pavement and compaction to ensure all-weather accessibility.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			• Dust pollution during construction may affect nearby households and shops. • Farmers depend on roadside access to transport agricultural products to local markets. • 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.	• 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. • 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.	Moukari-Shamlabari Road (382774085)	31.03.2026 and in Moukuri More	• 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.	• 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.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			- 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.	- 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.
5.	Habaspur GC-Arungong GC road (382772012)	30.03.2026 and in Doubari More	- 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.	- 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

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			Temporary disruption to local transportation and market access may occur during construction.	- movement of local transport and access to markets. - Installation of road safety signage, speed breakers, and road markings near market areas is recommended.
6.	Kalikapur UP- Kalikapur Bazar Road (382773023)	29.03.2026 and in Jhaugram	- Road surface is heavily deteriorated and becomes impassable during the rainy season due to waterlogging. - Dust and noise from construction activities may affect nearby households, shops, and school children. - Temporary disruption to public access and local transportation during construction. - Risk of damage to irrigation channels and agricultural lands adjacent to the road. - Community members expressed concern about road safety near the community clinic.	- Road pavement should be improved with proper base preparation and surface treatment to ensure all-weather usability. - Adequate side drains and culverts should be constructed to prevent waterlogging and protect adjacent farmlands. - Water spraying should be carried out regularly during construction to control dust; noise-generating activities should be limited to daytime hours. - A temporary traffic management plan should be implemented to maintain access to local markets and residences during construction. - Road safety signs, speed breakers, and markings should be installed near community clinic area and pedestrian crossings.
7.	Shoruperchak Madrasha-	29.03.2026 and in Shoruperchawk Bazar	Road surface is damaged and becomes muddy and unusable during the monsoon season.	Road surface should be raised at low-lying sections and properly paved to prevent flooding and ensure all-weather access.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
	Charmowkori Road (382295018)		- Low-lying sections of the road are prone to flooding and prolonged waterlogging. - Proximity of the road to the Eidgha requires special attention to safety and access during religious gatherings. - Dust and noise from construction may disturb nearby residents and the religious institution. - Pedestrian movement, particularly of women, elderly, and children, may be at risk during construction. - Some roadside trees may require removal during road improvement works.	- Adequate cross-drainage structures and side drains should be installed to manage stormwater effectively. - Construction scheduling should take into account religious gathering times at the Eidgha to avoid disruption and safety hazards. - Traffic safety measures including warning signs, barriers, and designated pedestrian pathways should be maintained throughout construction. - Where tree removal is unavoidable, compensatory plantation should be carried out along the roadside. - Community awareness programs should be conducted to inform residents about construction timelines and safety protocols.
8.	Paschim Ujanchar RHD-Paschim Ujanchar Road (382294038)	31.03.2026 and in Mridadanga (Shop of Abul)	- Road surface is poorly maintained and becomes difficult to traverse during the rainy season due to mud and waterlogging. - The road serves as a key access route to the Eidgha and local market, requiring uninterrupted access during religious events and market days.	- Road pavement and base should be strengthened to ensure durability and all-weather accessibility. - Construction activities near the Eidgha should be carefully scheduled to avoid disruption during Friday prayers and religious occasions.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			• Movement of heavy construction vehicles poses safety risks to pedestrians and local residents. • Improper disposal of construction waste may affect adjacent agricultural land and water bodies. • Dust generation during dry construction phases may affect nearby shops and households. • Concerns raised about the potential impact of road widening on boundary walls and structures close to the road alignment.	• Proper waste disposal sites should be designated, and contractors should be required to manage construction debris responsibly. • Traffic management measures including temporary barriers, warning signs, and speed controls should be enforced throughout the construction period. • Community members and shopkeepers should be informed in advance of construction schedules to allow appropriate preparation. • Road safety signage and pedestrian-friendly features should be installed near the Eidgha and market areas upon project completion.
9.	Bahadurpur UP- Bagmara via Police Camp Road (382734181)	30.03.2026 and in Bahadurpur UP Office	• Road condition is poor and several sections become submerged during flood events, disrupting connectivity between the two GPS flood shelters. • The road serves as a critical evacuation route during flood emergencies, requiring reliable all-weather access. • Some sections of the road have insufficient elevation and are vulnerable	• Road elevation should be raised at vulnerable flood-prone sections to ensure connectivity is maintained during flood emergencies and for safe access to both GPS flood shelters. • Adequate embankment protection, slope stabilization, and erosion control measures should be incorporated into the road design.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			to erosion during heavy rainfall and river flooding. • Dust and noise from construction activities may affect nearby households and agricultural areas. • Temporary blockage of access routes during construction may hamper mobility of local residents and farmers. • Community members expressed concern about the safety of children and pedestrians during construction near the GPS school.	• Cross-drainage structures and side drains should be constructed or upgraded to facilitate effective drainage and prevent road damage. • Construction activities near the GPS school should be restricted during school hours and appropriate safety barriers should be maintained at all times. • A temporary traffic and access management plan should be prepared and communicated to the community prior to commencement of works. • Road safety signage, reflective barriers and speed control measures should be installed, particularly near the GPS schools and flood shelter access points. • Local community members and workers should be prioritized for employment during construction as far as practicable.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the environmental and social assessment conducted for Community Roads at Rajbari District under the RIVER Project, it can be concluded that the proposed improvement of Nine (9) community roads across Rajbari Sadar, Kalukhali, and Pangsha Upazila in Rajbari 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 Rajbari 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 Rajbari Sadar, Kalukhali, and Pangsha 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 RAJBARI
DISTRICT

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

Name of Sub-Project: Improvement of Community Road for **Barmmandia-Mohisha Khola Road, ID:382765020**

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

District: Rajbari

Upazila: Rajbari Sadar

Union: Brammandia, Mohisakhola

Name of Community/Local Area: Chara Bottola, Shafiq Kazi Bari, Babur Bari

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project focuses on the improvement of the Barmmandia-Mohisha Khola Road (Road ID: 382765020), which has a total length of 1.00 km and is currently surfaced with Herringbone Brick from chainage 0+000 to 1+000. The improvement works involve upgrading the entire stretch with Bituminous Carpeting to enhance pavement strength, improve riding quality, and ensure reliable year-round accessibility. Existing infrastructure includes a culvert located at chainage 8 m, which will continue to support drainage along the corridor. To strengthen vulnerable sections and prevent edge erosion, palisading works have been proposed at several locations, including chainages 0+237 to 0+260 (left side), 0+365 to 0+400 (left side), 0+409 to 0+430 (left side), 0+552 to 0+594 (right side), 0+577 to 0+584 (left side), and 0+905 to 0+963 (left side). The improvement activities will be carried out within the existing alignment to minimize impacts, with appropriate safety and environmental measures incorporated into the design. 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 3,000 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1000m. 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
00-300	L		Settlement (Ch. 53m) 30m away, Ditch (Ch. 248) 5m away

Chainage	(Left/Right)		Environmental and Social Impact
		R	Settlement (Ch. 53m) 3m away, Graveyard (Ch. 63m) 5m away, Shop (Ch. 80m) 3m away
300-600	L		Pond (Ch. 375m) 5m away, Pond (Ch. 412m) 5m away, Pond (Ch. 578m) 5m away
		R	Settlement (Ch. 455m) 10m away, Ditch (Ch. 554) 4m away
600-1000	L		Settlement (Ch. 615m) 4m away, Agricultural Land (Ch. 665m) 10m away, Pond (Ch. 904) 5m away
		R	Settlement (Ch. 684m) 5m away, Agricultural Land (Ch. 690m) 8m away, Ditch (Ch. 657) 5m away, Settlement (Ch. 1000m) 5m away



Starting Point of Barmmandia-Mohisha Khola 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 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.

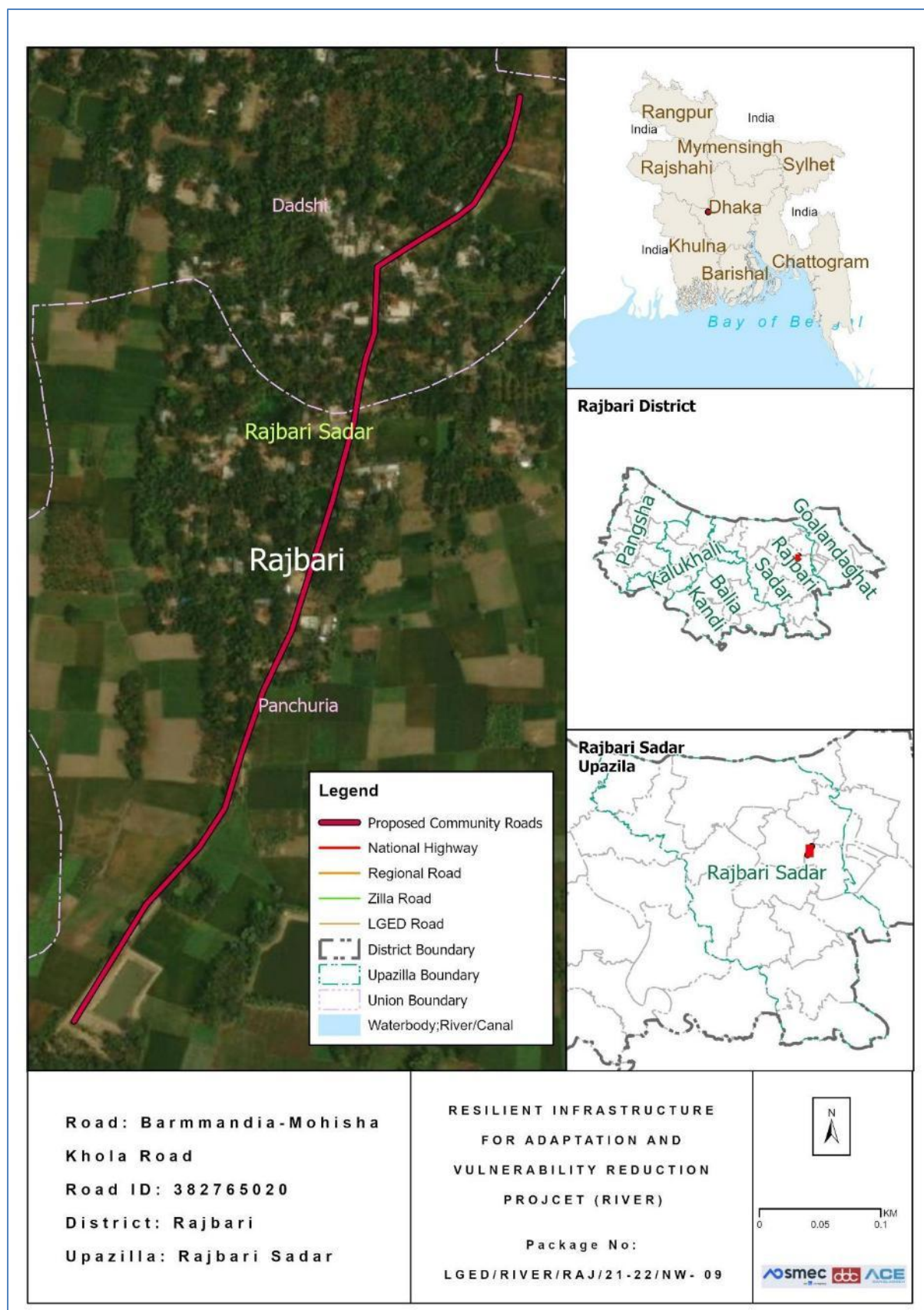
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 Barmmandia-Mohisha Khola Road is a 1.00 km rural road where the surrounding land use changes from settlement-based areas in the initial section to pond, ditch, and agricultural land-dominated areas in the middle and end sections. In the first 300 m, the road is sensitive mainly because of nearby homesteads, a graveyard, and a small shop located close to the right side of the alignment, while a ditch is present on the left side near Ch. 248 m. The middle section contains a cluster of ponds on the left side at Ch. 375 m, Ch. 412 m, and Ch. 578 m, indicating the need for careful runoff and spoil management. Toward the last section, settlements, agricultural land, a pond, and ditches are found on both sides, particularly near Ch. 615 m to Ch. 1000 m. No archaeological or historical site was identified along this road; however, special care should be taken near the graveyard, ponds, and roadside households to prevent access disruption, accidental encroachment, water pollution, or drainage blockage during construction.



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 **Herringbone Brick Bond (HBB)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 00m to Chainage 1000 m**.

Sub-project Location:

Important Features	
ID	382765020
District	Rajbari
Upazila	Rajbari Sadar
Union	Brammandia, Mohisakhola
Total Chainage	1000m
Proposed Chainage	1000m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.741749 N, 89.694422 E
Road Ending Point Coordinates	23.735041 N, 89.690716 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 Chara Bottola, Shafiq Kazi Bari, Babur Bari.
- 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 environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately 1 km of the project area. In the first 300 m, the road is sensitive mainly because of nearby homesteads, a graveyard, and a small shop located close to the right side of the alignment, while a ditch is present on the left side near Ch. 248 m. The middle section contains a cluster of ponds on the left side at Ch. 375 m, Ch. 412 m, and Ch. 578 m, indicating the need for careful runoff and spoil management. Toward the last section, settlements, agricultural land, a pond, and ditches are found on both sides, particularly near Ch. 615 m to Ch. 1000 m. No archaeological or historical site was identified along this road; however, special care should be taken near the graveyard, ponds, and roadside households to prevent access disruption, accidental encroachment, water pollution, or drainage blockage during construction.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 μ S/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*),

and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 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 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)

Along Barmmandia-Mohisha Kholā Road, drainage-sensitive features include ditches at Ch. 248 m, Ch. 554 m and Ch. 657 m, and several ponds located close to the alignment at Ch. 375 m, Ch. 412 m, Ch. 578 m and Ch. 904 m. The existing culvert at Ch. 8 m and proposed palisading works will require careful construction management to avoid blockage of local drainage and erosion near low-lying areas.

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: Barmmandia-Mohisha Khola Road, ID:382765020

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.	PIU	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		In case of unavoidable circumstances, alternative access will be provided.		
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, stackyards & 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,		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 of 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	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 not be feasible in terms of availability and scope of the project works, noise reduction muffler or	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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.		
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.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU
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.		

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	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	- 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)	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
	disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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. • Awareness training will be given to all personnel involved during the construction phase in order		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 the	• 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, district

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.		XEN.
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting	● 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	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	surrounding water bodies, flora and fauna	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	- 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	Upazila Engineer (UE)	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.	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1000.0m	@ 2.56 BDT	2,560.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report for Community Roads of Rajbari District (GCCR-09)

Sl. no.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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.	<u>Waste disposal facility</u> 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.	<u>Water Test (Drinking Water samples)</u> 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.	<u>Working labour shed:</u> 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.	<u>Environmental and Social management</u> 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 9 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			238,985.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Majbari GC-Arunganj GC Road, ID:382773038**

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

District: Rajbari

Upazila: Kalukhali

Union: Kalikapur

Name of Community/Local Area Boalia, Angina Bridge

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project includes the development of the Majbari GC-Arunganj GC Road (Road ID: 382773038), having a total length of approximately 0.95 km. The existing condition consists of a short Herringbone Brick section from chainage 0+000 to 0+085, followed by an unpaved earthen section up to 0+950. The project will involve upgrading the full stretch with Bituminous Carpeting to improve connectivity and provide a durable road surface. A damaged culvert measuring 1.5 m by 4.0 m is present at chainage 0+465 to 0+466.5, which will be rehabilitated as part of the works to maintain proper water flow. In addition, slope protection measures have been proposed along the right side from chainage 0+673 to 0+950 to stabilize the embankment and reduce erosion risks. These interventions will enhance both structural stability and drainage efficiency while maintaining the existing alignment. 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 3,325 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 950m. 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
00-300	L		Agricultural land (Adjacent)
		R	Mosque 5m away, Madrasa 300 m away
300-600	L		Settlement, Pond (Ch. 425)
		R	Temple, Trees, Settlement
600-950	L		Pond (Ch. 626), Small Canal (Ch. 673)
		R	Small Canal (Ch. 673), Small Canal (Ch. 715), Small Canal (Ch. 810), Settlement



Starting Point of Majbari GC-Arunganj GC 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

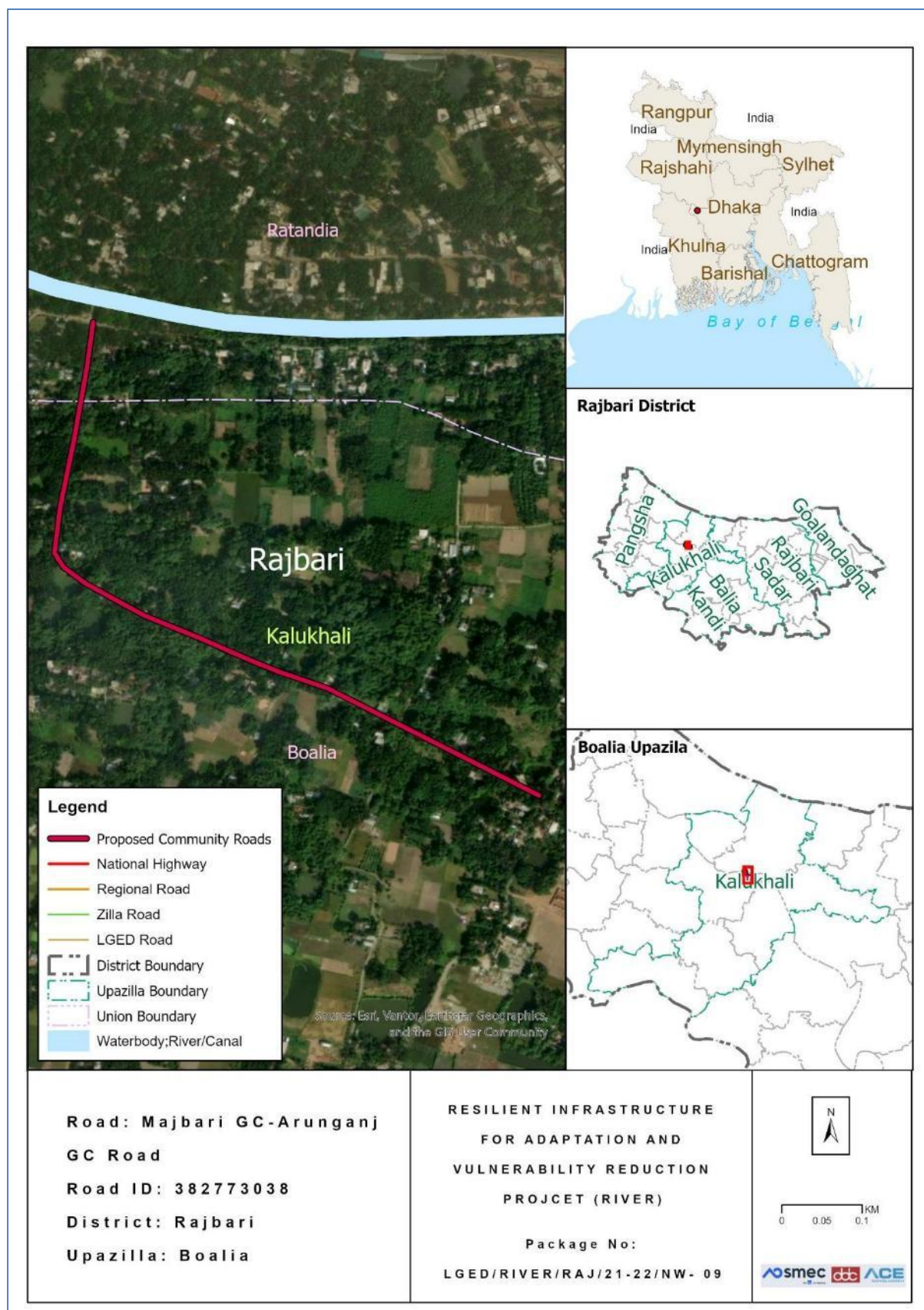
and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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:

Within the influence area of the sub-project, no historical or archaeological sites were identified. The Majbari GC-Arunganj GC Road has a mixed rural and community setting within its 0.95 km length. The first section is influenced by agricultural land on the left side and religious and educational establishments on the right, including a mosque within 5 m and a madrasha at about 300 m. The central portion includes settlements, a pond, a temple, trees, and household areas, making it socially sensitive due to both religious and residential use of the roadside. The last section is more hydrologically sensitive, as ponds and small canals are located on both sides, especially around Ch. 626 m, Ch. 673 m, Ch. 715 m, and Ch. 810 m. Since the road passes near religious institutions and several natural drainage features, construction should avoid blocking canal flows, protect trees where possible, and maintain safe access to the mosque, madrasha, temple, and nearby settlements.



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 categorized as a union road. Based on field survey, this sub-project involves a Herringbone Brick Bond (HBB) and earthen road. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00m to Ch. 950m.

Sub-project Location:

Important Features	
ID	382773038
District	Rajbari
Upazila	Kalukhali
Union	Boalia
Total Chainage	950m
Proposed Chainage	950m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.7587847 N, 89.4848989 E
Road Ending Point Coordinates	23.7642215 N, 89.479922 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 Boalia and Angina Bridge.
- 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:

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. The first section is influenced by agricultural land on the left side and religious and educational establishments on the right, including a mosque within 5 m and a madrasha at about 300 m. The central portion includes settlements, a pond, a temple, trees, and household areas, making it socially sensitive due to both religious and residential use of the roadside. The last section is more hydrologically sensitive, as ponds and small canals are located on both sides, especially around Ch. 626 m, Ch. 673 m, Ch. 715 m, and Ch. 810 m. Since the road passes near religious institutions and several natural drainage features, construction should avoid blocking canal flows, protect trees where possible, and maintain safe access to the mosque, madrasha, temple, and nearby settlements.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 μ S/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*), and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning

riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 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 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 pre - existing drainage channel is found.

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: Majbari GC-Arunganj GC Road, ID:382773038

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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 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 of 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.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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.		
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 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 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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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.)	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Local community will be trained up on traffic management and awareness.		
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 labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
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.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - 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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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	- 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.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	- 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 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		of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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. • 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.	Contractor	Environmental Consultant of PIU/D&SC.

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 latrines and faecal sludge, and solid wastes impacting	• 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	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	surrounding water bodies, flora and fauna	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 Stage	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 due to tiredness of drivers.	- 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.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	1,140. Sq.m	@38.15 Tk. Per sqm	43,491.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	950m	@ 2.56 BDT	2,432.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000

Sl. No.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl. No.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10.	<u>Water Test (Drinking Water samples)</u> 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.	<u>Working labour shed:</u> 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.	<u>Environmental management</u> 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 9 roads]	Each	@ Tk. 35000	35,000
Total amount for this Road				236,568.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Horinbaria Bazar-Dattabari Pacca Road, ID:382774229**

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

District: Rajbari

Upazila: Kalukhali

Union: Kalikapur

Name of Community/Local Area: Thakur Para, Dattabari

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Horinbaria Bazar-Dattabari Pacca Road (Road ID: 382774229) covers approximately 1.85 km and currently consists of a Herringbone Brick section from chainage 0+000 to 0+170, followed by an unpaved earthen section up to 1+850. The proposed intervention includes Bituminous Carpeting along the alignment up to chainage 1+875, aiming to improve road performance and ensure continuous accessibility. Although no major cross-drainage structures were identified along the alignment, slope protection measures have been proposed along the right side between chainages 0+170 and 0+388 to protect the embankment from erosion and maintain stability. The works will be confined within the existing corridor, ensuring minimal environmental disturbance. 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 5,550 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1850m. 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
00-300	L		Shop (Ch. 71m) 2m away
		R	Electric Pole (Ch. 40m) 1m away
300-600	L		Agricultural land 5m away, Garden 5m away, Settlement 3m away
		R	Agricultural land 5m away, Settlement 10m away
600-900	L		Electric Pole (Ch. 850m) 1m away, Electric Pole (Ch. 895m) 1m away
		R	Canal 5m away

Chainage	(Left/Right)		Environmental and Social Impact
900-1200	L		Electric Pole (Ch. 932m), Electric Pole (Ch. 998m), Electric Pole (Ch. 1054m), Electric Pole (Ch. 1117m), Electric Pole (Ch. 1195m)
		R	Canal 5m away
1200-1500	L		Garden 5m away, Settlement 3m away
		R	Canal 5m away
1500-1850	L		Agricultural land 5m away, Garden 5m away, Settlement 3m away
		R	Canal 5m away



Starting Point of Horinbaria Bazar-Dattabari Pacca 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.

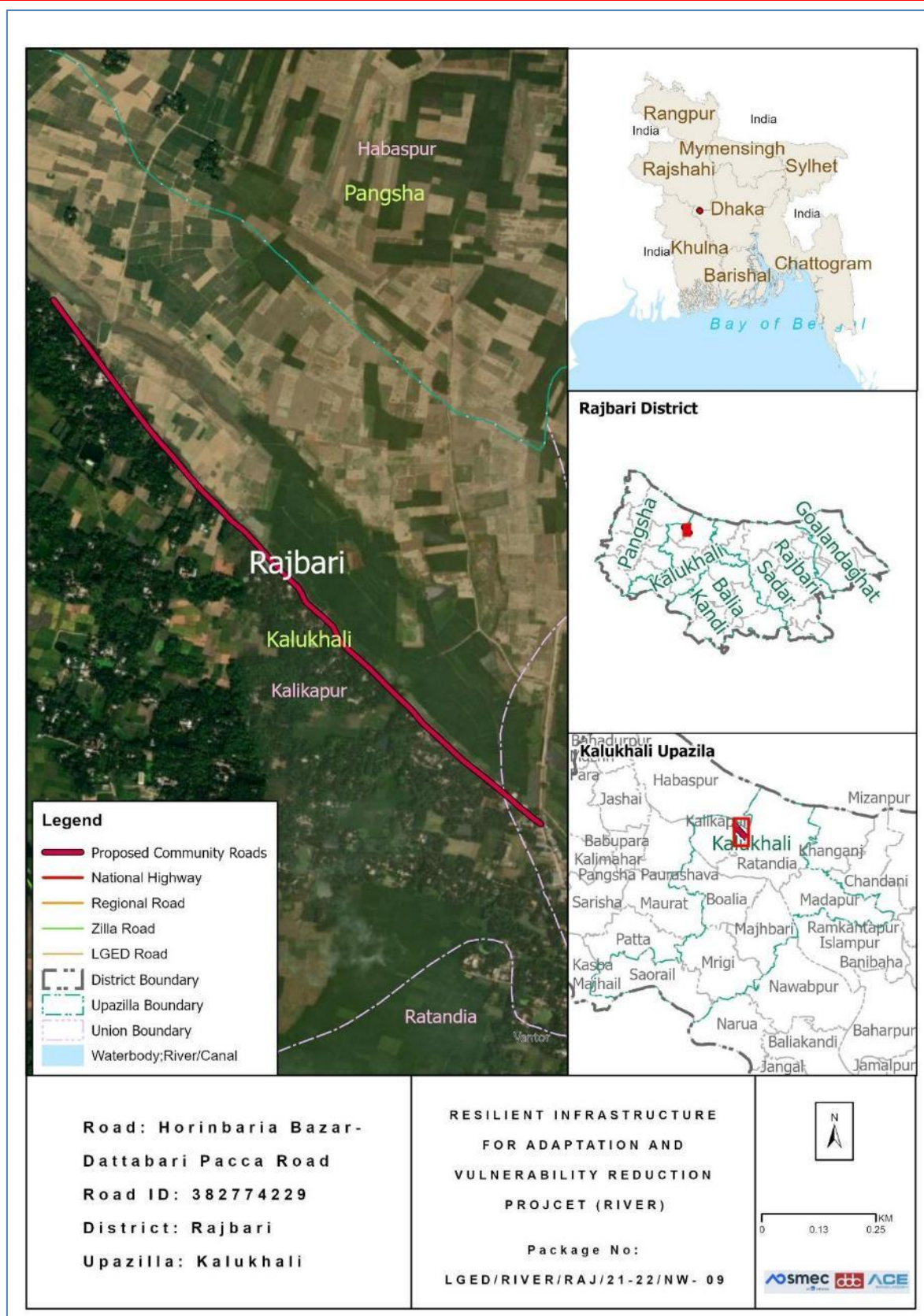
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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:

Within the influence area of the subproject no historical sites were identified. The Horinbaria Bazar-Dattabari Pacca Road is characterized by roadside commercial activity at the beginning, utility constraints in the middle section, and a continuous canal-side environment along much of the right side. A small shop is located only 2 m from the left side near Ch. 71 m, while an electric pole stands very close to the right side near Ch. 40 m. From Ch. 300 m onward, the road passes through agricultural land, gardens, and settlements, with several households located within 3 m to 10 m of the alignment. Between Ch. 600 m and Ch. 1200 m, multiple electric poles are present on the left side, while the canal continues along the right side through several sections up to Ch. 1850 m. This road therefore requires greater attention to utility safety, canal protection, and household access. Construction materials should not be stored beside the canal, and movement of machinery should be controlled near shops, gardens, settlements, and electric poles.



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 categorized as a village road. Based on field survey, this sub-project involves a Herringbone Brick Bond (HBB) and earthen road. According to the design this sub-project will be developed with Bituminous Carpeting (Damaged) from Ch. 00m to Ch. 1850m.

Sub-project Location:

Important Features	
ID	382774229
District	Rajbari
Upazila	Kalukhali
Union	Kalikapur
Total Chainage	1850
Proposed Chainage	1850m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.7918 N, 89.47966 E
Road Ending Point Coordinates	23.8041 N, 89.46797 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 Thakur Para and Dattabarivillages.
- 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. A small shop is located only 2 m from the left side near Ch. 71 m, while an electric pole stands very close to the right side near Ch. 40 m. From Ch. 300 m onward, the road passes through agricultural land, gardens, and settlements, with several households located within 3 m to 10 m of the alignment. Between Ch. 600 m and Ch. 1200 m, multiple electric poles are present on the left side, while the canal continues along the right side through several sections up to Ch. 1850 m. This road therefore requires greater attention to utility safety, canal protection, and household access. Construction materials should not be stored beside the canal, and movement of machinery should be controlled near shops, gardens, settlements, and electric poles.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and

composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 µS/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*), and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 vii) steels viii) 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) Horinbaria Bazar-Dattabari Pacca Road also has drainage sensitivity, as a canal runs along the right side from approximately Ch. 600 m to Ch. 1850 m at about 5 m from the road. Construction beside this canal may cause temporary siltation, runoff obstruction or bank disturbance if adequate protection is not ensured.
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: Horinbaria Bazar-Dattabari Pacca Road, ID:382774229

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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
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	Transportation of construction materials to the site will be carried out by covering the materials as a whole.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	Store the materials in designated places, with proper fencing and coverings.		
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 tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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 students, children, animals, etc.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; 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 of 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 the path at limited level.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 construction works start.	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 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 labor forces. ● Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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	Contractor	Environmental and Social Development Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		proper care and vigilance to avoid or minimize the impacts.		
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 will be trained and drilled to test and ensure the coherence with the plan.	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
		• 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 runoff. 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 Stage	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	Upazila Engineer (UE)	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	2,220 Sq.m	@38.15 Tk. Per sqm	84,693.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1850.0 m	@ 2.56 BDT	4,736.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000

Sl. No.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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.	<u>Motivation training</u> 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

Sl. No.	Description of item	Quantity	Unit price	Total amount
9.	<u>Waste disposal facility</u> Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
10	<u>Tree Plantation</u> For each tree felled, 3 should be planted in it's place.	5 no.	@ Tk 500	7,500.00
11.	<u>Water Test (Drinking Water samples)</u> 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
12.	<u>Working labour shed:</u> 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
13.	<u>Environmental management</u> 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. <u>[One person to be appointed for 9 roads]</u>	Each	@ Tk. 35000	35,000
	Subtotal Bill: Environmental and Social facilities			287,574.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Moukari-Shamlabari Road, ID:382774085**

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

District: Rajbari

Upazila: Kalukhali

Union: Kalikapur

Name of Community/Local Area: Moukari, Shamlabari

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Moukari-Shamlabari Road (Road ID: 382774085), with a total length of approximately 1.00 km, is currently surfaced with Herringbone Brick from chainage 0+000 to 1+000. The proposed sub-project will upgrade the entire road with Bituminous Carpeting to improve durability and traffic conditions. A culvert measuring 12 m by 4.0 m is located between chainages 0+700 and 0+712, which will continue to serve drainage requirements. Additionally, palisading works have been proposed to reinforce sections susceptible to erosion and to maintain embankment integrity. These interventions will significantly enhance the structural reliability and usability of the road. 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 3,000 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1000m. 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
00-300	L		Agricultural land 5m away, Settlement 10m away
		R	Agricultural land 3m away, Settlement 5m away
300-600	L		Agricultural land 3m away, Settlement 5m away
		R	Agricultural land 5m away, Settlement 3m away
600-1000	L		Agricultural land 5m away, Trees 3m away, Settlement 3m away
		R	Agricultural land 3m away, Settlement 5m away



Starting Point of Moukari-Shamlabari 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.

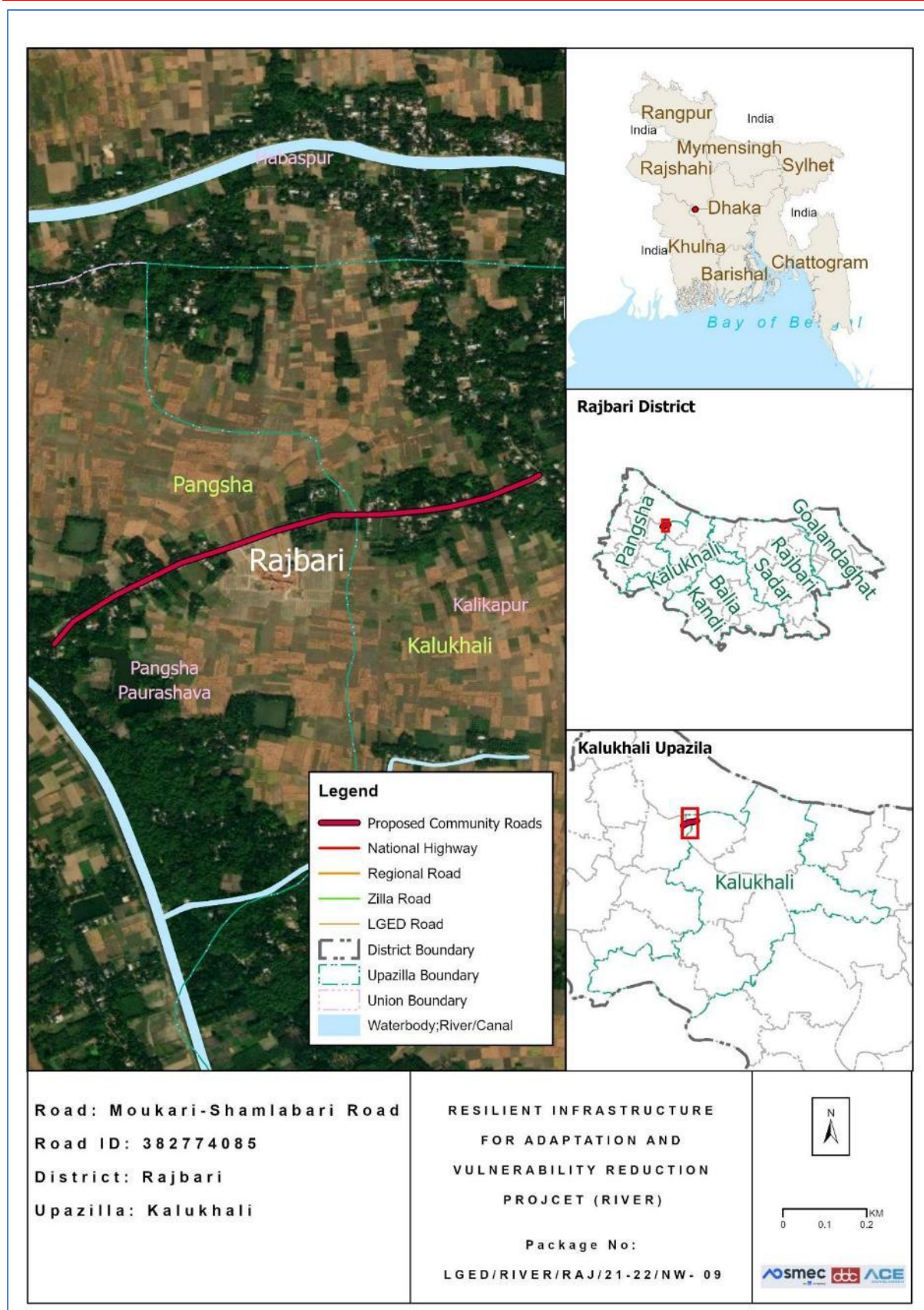
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 direct influence area of the proposed sub-project. The Moukari-Shamlabari Road is mainly an agriculture-settlement corridor with no major public institution or cultural site recorded along the alignment. Throughout the 1.00 km road, agricultural land is present on both sides, generally within 3 m to 5 m of the centerline, while scattered settlements are also located close to the road. In the last section, trees are found near the left side along with nearby households and farmland. The main environmental and social concerns for this road are therefore limited to disturbance to agricultural fields, dust and noise near homesteads, and possible damage to roadside trees. As the road is closely linked with local farming and household access, construction works should be carried out in a compact manner, avoiding unnecessary occupation of farmland and ensuring that residents can continue to move safely during the improvement works.



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 **Herringbone Brick Bond (HBB)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 00 m to Chainage 1000m**.

Sub-project Location:

Important Features	
ID	382774085
District	Rajbari
Upazila	Kalukhali
Union	Kalikapur
Total Chainage	1000m
Proposed Chainage	1000m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.799106 N, 89.433523 E
Road Ending Point Coordinates	23.802736 N, 89.44212 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 Moukari and Shamlabari.
- 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:

Throughout the 1.00 km road, agricultural land is present on both sides, generally within 3 m to 5 m of the centerline, while scattered settlements are also located close to the road. In the last section, trees are found near the left side along with nearby households and farmland. The main environmental and social concerns for this road are therefore limited to disturbance to agricultural fields, dust and noise near homesteads, and possible damage to roadside trees. As the road is closely linked with local farming and household access, construction works should be carried out in a compact manner, avoiding unnecessary occupation of farmland and ensuring that residents can continue to move safely during the improvement works.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 μ S/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*), and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning

riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 (E-I-C).

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 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)

Along Moukari-Shamlabari Road, no major surface water body is recorded adjacent to the alignment, although an existing culvert from Ch. 0+700 to Ch. 0+712 indicates local drainage flow across the road. Therefore, the impact is expected to remain low to medium if the culvert opening is kept functional during construction.

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: Moukari-Shamlabari Road, ID:382774085

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 access will be provided.	PIU	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	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	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 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,	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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 of surface runoff. - Construction facilities including materials are to be placed at least 10m distance from any water body	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be kept 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.		
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 fluorescent 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - Exposure to health events during	- 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.	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
	construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	• 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 the project implementation period	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.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	(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.	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.		
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	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.		
Pre-Construction and Construction Stage	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 due to tiredness of drivers. - Widened road, lack of road safety signage or	- 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.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.			
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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	● Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	1,200 Sq.m	@38.15 Tk. Per sqm	45,780.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1000.0m	@ 2.56 BDT	2,560.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. No.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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

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Sl. No.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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.	<u>Waste disposal facility</u> 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.	<u>Water Test (Drinking Water samples)</u> 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.	<u>Working labour shed:</u> 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.	<u>Environmental management</u> 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 9 roads]	Each	@ Tk. 35000	35000.00
	Subtotal Bill: Environmental and Social facilities			238,985.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Habaspur GC-Arungong GC road, ID:382772012**

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

District: Rajbari

Upazila: Kalukhali

Union: Kalikapur

Name of Community/Local Area: Sonatoni, Raynagar

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Habaspur GC-Arungong GC Road (Road ID: 382772012) spans approximately 2.45 km and is currently entirely unpaved from chainage 0+000 to 2+450. The proposed works include the application of Bituminous Carpeting along the full stretch to provide a stable and durable surface. A damaged culvert measuring 6 m by 3.7 m is located between chainages 1+284 and 1+290, which will be repaired or reconstructed as part of the project to ensure uninterrupted drainage. These improvements will enhance accessibility, reduce travel difficulties, and strengthen overall road performance. 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 8,575 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 2450m. 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)		Environment and Social Impact
00-300	L		Family Graveyard (Ch. 280m)
		R	Crematorium (Ch. 45m)
300-600	L		Family Graveyard (Ch. 565m)
		R	Agricultural Land
600-900	L		Family Graveyard (Ch. 705m), Electric Pole (Ch. 712m), Electric Pole (Ch. 834m), Electric Pole (Ch. 856m), Electric Pole (Ch. 896m)
		R	Electric Pole (Ch. 761m), Electric Pole (Ch. 801m), Shop (Ch. 900m)
900-1200	L		Electric Pole (Ch. 990m), School (Ch. 1130m)

Chainage	(Left/Right)		Environment and Social Impact
		R	Electric Pole (Ch. 1024m), Electric Pole (Ch. 1083m), Electric Pole (Ch. 1182m), Eidgah (Ch. 925m)
1200-1500	L		Electric Pole (Ch. 1372m), Graveyard (Ch. 1410m)
		R	Electric Pole (Ch. 1418m), Electric Pole (Ch. 1513m), Bridge (Ch. 1235m), Culvert (Ch. 1284m)
1500-1800	L		Electric Pole (Ch. 1588m)
		R	Electric Pole (Ch. 1513m), Electric Pole (Ch. 1632m), Electric Pole (Ch. 1775m)
1800-2100	L		Eidgah (Ch. 1908m), Electric Pole (Ch. 2013m)
		R	Mosque (Ch. 1908m)
2100-2450	L		Electric Pole (Ch. 2328m), Grameen Tower (Ch. 2181m)
		R	Electric Pole (Ch. 2315m), Gotompur Bazar (Ch. 2450m)



Starting Point of Habaspur GC-Arungong GC 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.

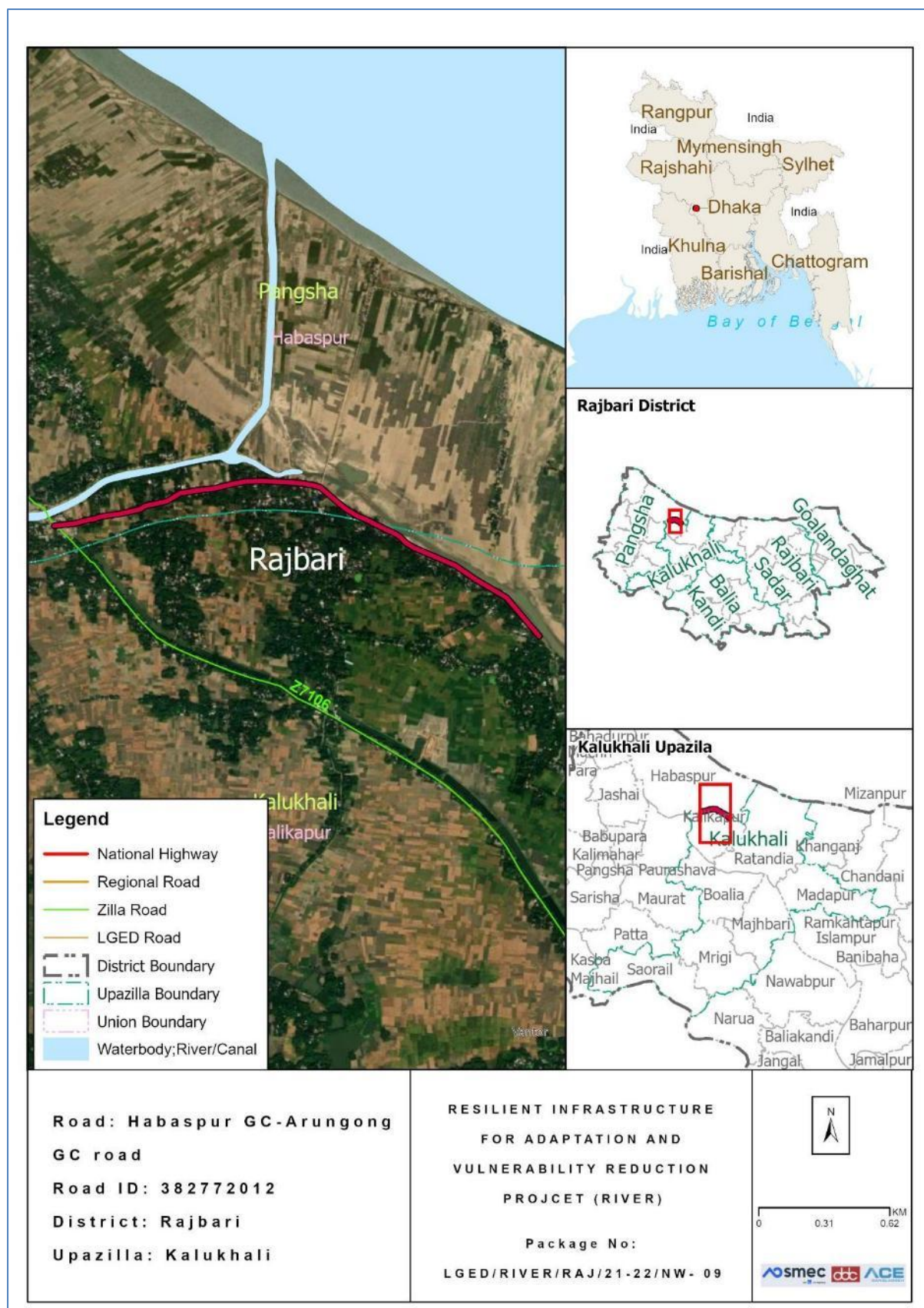
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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:

Within the influence area of the sub-project, no historical or archaeological sites were identified. The Habaspur GC-Arungong GC Road is one of the more socially sensitive alignments because it includes several religious, cultural, educational, commercial, and utility-related features within its 2.45 km length. A crematorium is located near the beginning of the road on the right side at Ch. 45 m, while family graveyards are present on the left side at Ch. 280 m, Ch. 565 m, and Ch. 705 m. The road also passes a school near Ch. 1130 m, Eidgah areas near Ch. 925 m and Ch. 1908 m, a mosque near Ch. 1908 m, and a graveyard near Ch. 1410 m. In addition, shops, Gotompur Bazar, bridge and culvert locations, a Grameen tower, and numerous electric poles are located along the corridor. This road will require more careful construction management than ordinary rural roads because religious and burial sites must remain undisturbed, school access must be kept safe, and market-side movement near Gotompur Bazar should not be blocked. Coordination with the local community and utility agencies will be important before starting works near graveyards, Eidgah, mosque, school, bazar areas, and electric poles.



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 categorized as a upazila road. Based on field survey, this sub-project involves of Earthen Road. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 0+00 to Ch. 2+450.

Sub-project Location:

Important Features	
ID	132304063
District	Rajbari
Upazila	Kalukhali
Union	Kalikapur
Total Chainage	2450m
Proposed Chainage	2450m
Road Type	Upazila Road
Proposed Intervention Type	Bituminous Carpeting
Road Starting Point Coordinates	23.8041 N 89.46797 E
Road Ending Point Coordinates	23.81064 N 89.45592 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 Sonatoni and Raynagar.
- 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:

Fewer community features and assets are situated within approximately 100 meters of the project alignment. A crematorium is located near the beginning of the road on the right side at Ch. 45 m, while family graveyards are present on the left side at Ch. 280 m, Ch. 565 m, and Ch. 705 m. The road also passes a school near Ch. 1130 m, Eidgah areas near Ch. 925 m and Ch. 1908 m, a mosque near Ch. 1908 m, and a graveyard near Ch. 1410 m. In addition, shops, Gotompur Bazar, bridge and culvert locations, a Grameen tower, and numerous electric poles are located along the corridor. This road will require more careful construction management than ordinary rural roads because religious and burial sites must remain undisturbed, school access must be kept safe, and market-side movement near Gotompur Bazar should not be blocked. Coordination with the local community and utility agencies will be important before starting works near graveyards, Eidgah, mosque, school, bazar areas, and electric poles.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 μ S/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*), and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning

riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 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 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)

Habaspur GC-Arungong GC Road includes a bridge near Ch. 1235 m and a damaged culvert at Ch. 1284 m, which will be replaced. Since this road is largely earthen and unpaved, construction activities may temporarily affect drainage around the culvert and bridge location, particularly through sediment runoff and obstruction of water passage.

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 Habaspur GC-Arungong GC road, ID:382772012

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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
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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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 kept 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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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 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.	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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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, 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		

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 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 the project implementation period (including site clearance	• 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	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	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.		
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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction and Construction Stage	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 due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and	- 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.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	sidewalks, and reckless driving may cause road accidents or traffic injuries.			
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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	2940 Sqm	@38.15 Tk. Per sqm	112,161.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	2450m	@ 2.56 BDT	6,272.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000

Sl. No.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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.	<u>Motivation training</u> 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.	<u>Waste disposal facility</u>	LS	@ Tk. 5000	5,000

Sl. No.	Description of item	Quantity	Unit price	Total amount
	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.			
10.	<u>Water Test (Drinking Water samples)</u> 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.	<u>Working labour shed:</u> 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.	<u>Environmental management</u> 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 9 roads]	1 no.	@ Tk. 35000	35,000
	Subtotal Bill: Environmental facilities			309,078.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Kalikapur UP-Kalikapur Bazar Road, ID:382773023**

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

District: Rajbari

Upazila: Kalukhali

Union: Kalikapur

Name of Community/Local Area: Jhaugram

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Kalikapur UP-Kalikapur Bazar Road (Road ID: 382773023) has a total length of approximately 1.47 km. The existing condition includes a Bituminous Carpeting section from chainage 0+000 to 1+250 and an unpaved section from 1+250 to 1+470. The proposed intervention will extend Bituminous Carpeting along the entire length to create a continuous and uniform pavement surface. This will improve riding quality, reduce maintenance requirements, and enhance connectivity for local users. 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 5,145 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1470m. 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
00-300	L		UP office (Ch. 16m), Hospital (Ch. 68m)
		R	Farm (Ch. 267m)
300-600	L		Jhaugram Eidgah (Ch. 445m)
		R	Trees (Ch. 451m), Madrasha, (Ch, 540m)
600-900	L		Mosque (Ch. 767m)
		R	Rail Line (Ch. 690m), Pond (Ch. 747m)
900-1200	L		Household (Ch. 1190m)
		R	BFS Road (Ch. 1190)
1200-1470	L		Kalikapur Bazar (Ch. 1250m)
		R	Riverbank (Ch. 1460m)



Starting Point of Kalikapur UP-Kalikapur 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 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.

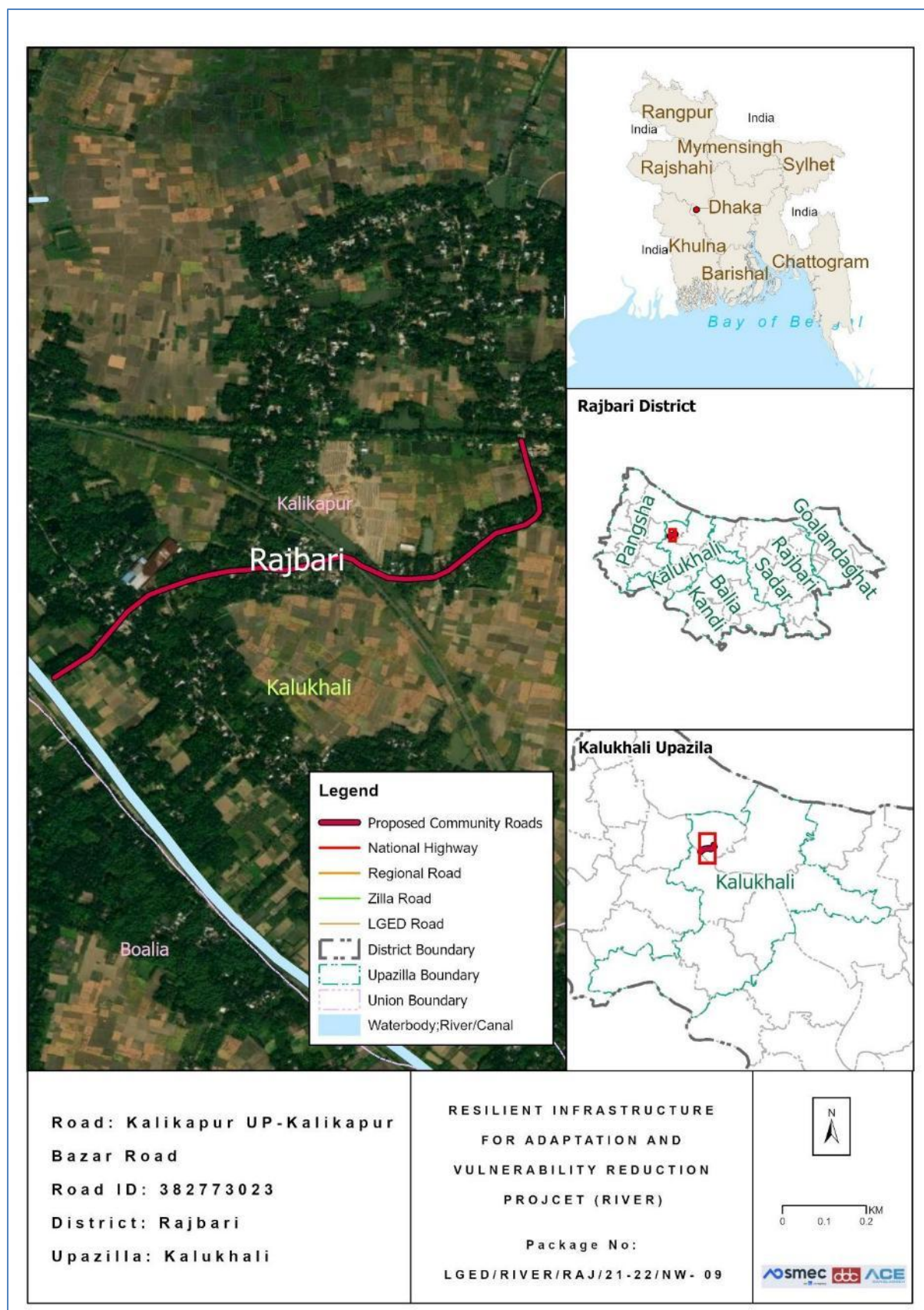
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 Kalikapur UP-Kalikapur Bazar Road serves several important public and community facilities within a relatively short 1.47 km stretch. At the beginning, the road passes close to the Union Parishad office and a hospital on the left side, which makes uninterrupted access particularly important. Further along the road, Jhaugram Eidgah, a madrasha, mosque, households, and Kalikapur Bazar are located near the alignment, indicating strong community dependence on this road. The right side also includes a farm, roadside trees, a rail line near Ch. 690 m, a pond near Ch. 747 m, the BFS road connection, and the riverbank near Ch. 1460 m. This road therefore has both social and environmental sensitivity: access to public services and the bazar must be maintained, while construction near the pond, rail line, and riverbank should be carefully controlled. Particular attention should be given to public safety near the hospital, Union Parishad, religious institutions, bazar area, rail crossing/rail-side section, and riverbank.



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 **union 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 00m to Chainage 1470 m**.

Sub-project Location:

Important Features	
ID	382773023
District	Rajbari
Upazila	Kalukhali
Union	Kalikapur
Total Chainage	1470m
Proposed Chainage	1470m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.7844603 N, 89.4561275 E
Road Ending Point Coordinates	23.7807354 N, 89.4476064 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 Jhaugram.
- 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 environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately 1 km of the project area. At the beginning, the road passes close to the Union Parishad office and a hospital on the left side, which makes uninterrupted access particularly important. Further along the road, Jhaugram Eidgah, a madrasha, mosque, households, and Kalikapur Bazar are located near the alignment, indicating strong community dependence on this road. The right side also includes a farm, roadside trees, a rail line near Ch. 690 m, a pond near Ch. 747 m, the BFS road connection, and the riverbank near Ch. 1460 m. This road therefore has both social and environmental sensitivity: access to public services and the bazar must be maintained, while construction near the pond, rail line, and riverbank should be carefully controlled. Particular attention should be given to public safety near the hospital, Union Parishad, religious institutions, bazar area, rail crossing/rail-side section, and riverbank.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 μ S/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies

support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*), and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 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 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 existing drainage system has been identified along the project alignment. However, several natural drainage features, including ponds, ditches, rivers, and palisades, are present along the route.

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: Kalikapur UP-Kalikapur Bazar Road, ID:382773023

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		● 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 students, children, animals, etc.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; 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 of 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.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • 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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 will be trained and drilled to test and ensure the coherence with the plan.	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
		● 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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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. • 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	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage:	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)	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	- Pollution from waste materials. - Health & Safety risks to workers and local community.	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.		
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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic	- 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.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	1764 Sq.m	@38.15 Tk. Per sqm	67,296.60
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1470.0m	@ 2.56 BDT	3,763.20
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

SI no.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report for Community Roads of Rajbari District (GCCR-09)

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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.	<u>Waste disposal facility</u> 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	<u>Tree Plantation</u> For each tree felled, 3 shall be planted as replacement	3 no.	@ Tk 500	4,500.00
11.	<u>Water Test (Drinking Water samples)</u> 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
12.	<u>Working labour shed:</u> 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
13.	<u>Environmental and Social management</u> 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 9 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			266,205.52



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Shoruperchak Madrasha-Charmowkori Road, ID:382295018**

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

District: Rajbari

Upazila: Goalanda

Union: Chotobakla

Name of Community/Local Area: Shoruperchawk Bazar, Char Moukori, Nobosimuddin Para

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Shoruperchak Madrasha-Charmowkori Road (Road ID: 382295018) extends approximately 1.50 km and currently consists of Herringbone Brick pavement from chainage 0+000 to 0+925 and Brick Flat Soling from 0+925 to 1+500. The proposed works include upgrading the entire stretch with Bituminous Carpeting to improve durability and ensure all-weather usability. A pipe culvert is located at chainage 1+266, which will support drainage along the corridor. In addition, palisading works have been proposed to protect embankment sections and enhance structural stability. These measures will significantly improve road conditions and resilience. 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 4,500 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1500m. 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
00-300	L		Agricultural Land
		R	Pond (Ch. 175m) 5m away
300-600	L		Hasmot Paikpara Private School (Ch. 314m) 5m away
		R	Household (Ch. 314m) 10m away
600-900	L		Mosque (Ch. 609m) 5m away
		R	Agricultural Land
900-1200	L		Agricultural Land

Chainage	(Left/Right)		Environmental and Social Impact
		R	Household (Ch. 923m) 10m away, Ditch (Ch. 942m) 5m away
1200-1500	L		Agricultural Land
		R	Household (Ch. 1500m) 5m away



Starting Point of Shoruperchak Madrasha-Charmowkori 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 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

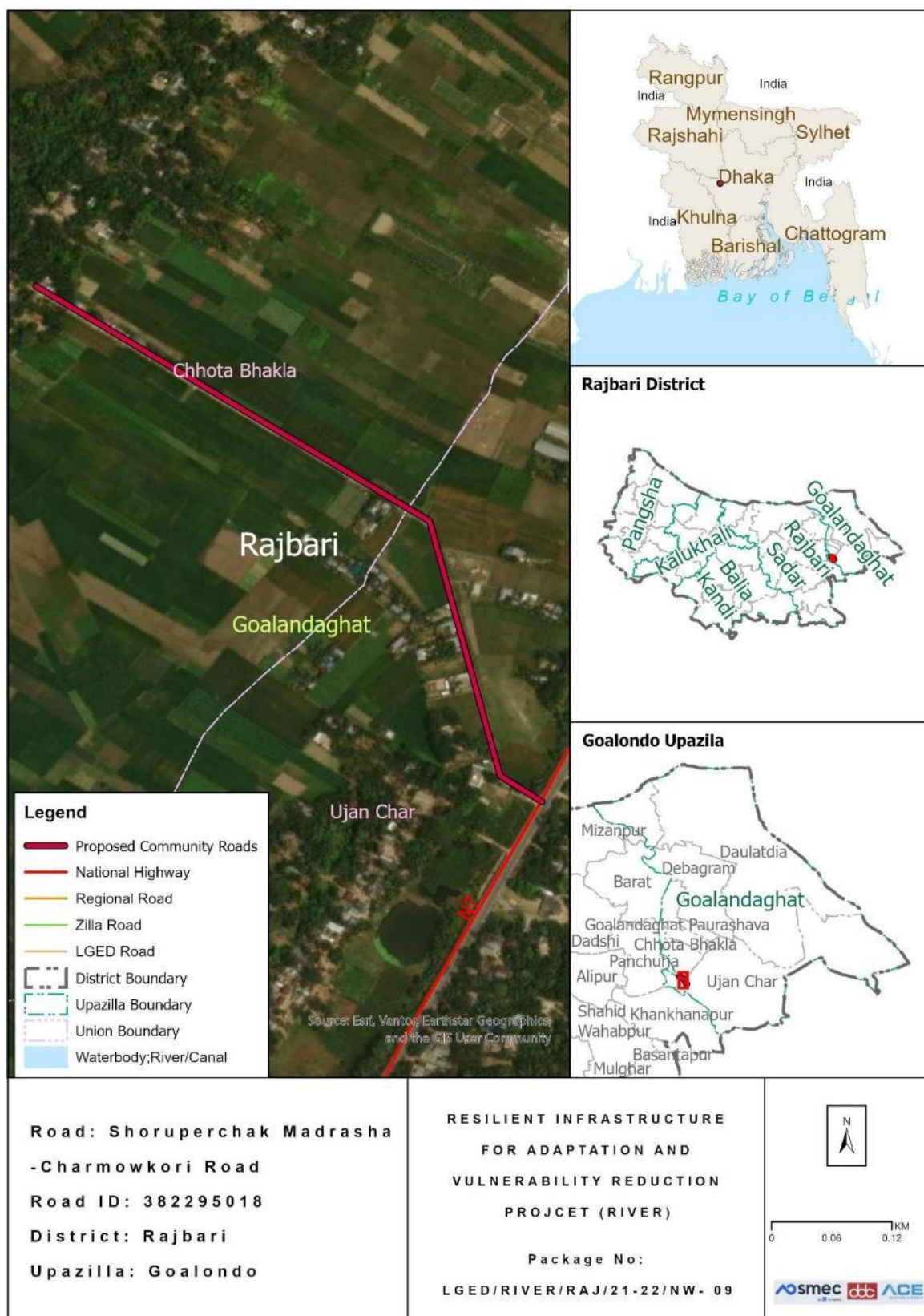
concerning matter during rainy season. The proposed Sub-project area for the construction included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental 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 Shoruperchak Madrasha-Charmowkori Road is surrounded mainly by agricultural land, but several sensitive community features are located close to the alignment. A pond is present on the right side near Ch. 175 m, and Hasmot Paikpara Private School is located only about 5 m from the left side near Ch. 314 m. A mosque is located near Ch. 609 m on the left side, while households and a ditch are found on the right side in the section around Ch. 923 m to Ch. 942 m. The last section again passes through agricultural land with a nearby household at Ch. 1500 m. Although no historical or archaeological site was found, the road improvement works should be managed carefully near the school and mosque to reduce safety risks, noise disturbance, and access problems. Water protection measures will also be needed near the pond and ditch to prevent silt, waste, or construction materials from entering nearby water bodies.



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 HBB and BFS 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 00m to Chainage 1500 m**.

Sub-project Location:

Important Features	
ID	382295018
District	Rajbari
Upazila	Goalanda
Union	Chotobakla
Total Chainage	1500m
Proposed Chainage	1500m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.695901 N, 89.747062 E
Road Ending Point Coordinates	23.707601 N 89.734016 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 Shoruperchawk Bazar, Char Moukori, and Nobosimuddin 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 environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately 1 km of the project area. A pond is present on the right side near Ch. 175 m, and Hasmot Paikpara Private School is located only about 5 m from the left side near Ch. 314 m. A mosque is located near Ch. 609 m on the left side, while households and a ditch are found on the right side in the section around Ch. 923 m to Ch. 942 m. The last section again passes through agricultural land with a nearby household at Ch. 1500 m. Although no historical or archaeological site was found, the road improvement works should be managed carefully near the school and mosque to reduce safety risks, noise disturbance, and access problems. Water protection measures will also be needed near the pond and ditch to prevent silt, waste, or construction materials from entering nearby water bodies.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 µS/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*),

and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 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 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)

Along Shoruperchak Madrasha-Charmowkori Road, a pond at Ch. 175 m and a ditch at Ch. 942 m are located close to the alignment, while an existing pipe culvert is present at Ch. 1266 m. The proposed BC works and palisading may create short-term drainage disturbance if not properly sequenced.

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: Shoruperchak Madrasha-Charmowkori Road, ID:382295018

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		● 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 students, children, animals, etc.		
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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be kept 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.		
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 fluorescent manually and through water pipes. • Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	Contractor	Social Development Specialist and Gender Specialist of PIU
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)		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Exposure to health	• 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
	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,		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.		
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS,	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • 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 latrines	● Preventative maintenance schedule should be followed.	Contractor	Environmental Consultant of

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.		PIU, Union Parishad Member
Pre-Construction and Construction Stage	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	- 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.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	1800 Sq.m	@38.15 Tk. Per sqm	68,670.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1500.0m	@ 2.56 BDT	3,840.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. No.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report for Community Roads of Rajbari District (GCCR-09)

Sl. No.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer and 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.	<u>Waste disposal facility</u> 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.	<u>Water Test (Drinking Water samples)</u> 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.	<u>Working labour shed:</u> 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.	<u>Environmental and Social management</u> 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 9 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			263,155.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for *Paschim Ujanchar RHD-Paschim Ujanchar Road, ID:382294038*

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

District: Rajbari

Upazila: Goalanda

Union: Ujanchar

Name of Community/Local Area: Sobdulkhara, Mridapara, Mridadanga

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Paschim Ujanchar RHD-Paschim Ujanchar Road has a combination of household, religious, agricultural, and waterbody features within its 1.02 km length. Near the starting section, a shop, households, and a graveyard are located on the left side, while a ditch and additional households are present on the right side. This makes the first 300 m socially sensitive, particularly due to the graveyard and close residential use of the roadside. The middle section includes households on the left and agricultural land on the right, while the final section contains agricultural land, Eidgah Maidan near Ch. 910 m, and a pond near Ch. 850 m on the right side. Construction activities along this road should therefore avoid disturbing the graveyard and Eidgah Maidan, keep access open for households and religious use, and prevent runoff or waste disposal into the pond and ditch. Since farmland is also present, temporary use of agricultural land should be minimized.

Estimated footprint / land area for this sub-project is 3,060 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1020m. 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
00-300	L		Shop (Ch. 8m) 5m away, Household (Ch. 115m) 10m away, Graveyard (Ch. 280m) 10m away
		R	Ditch (Ch. 121m) 10m away, Household (Ch. 270m) 5m away
300-600	L		Household (Ch. 600m) 5m away
		R	Agricultural Land
600-1020	L		Agricultural Land, Eidgah Maidan (Ch. 910m) 5m away
		R	Pond (Ch. 850m) 5m away



Starting Point of Paschim Ujanchar RHD-Paschim Ujanchar 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 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.

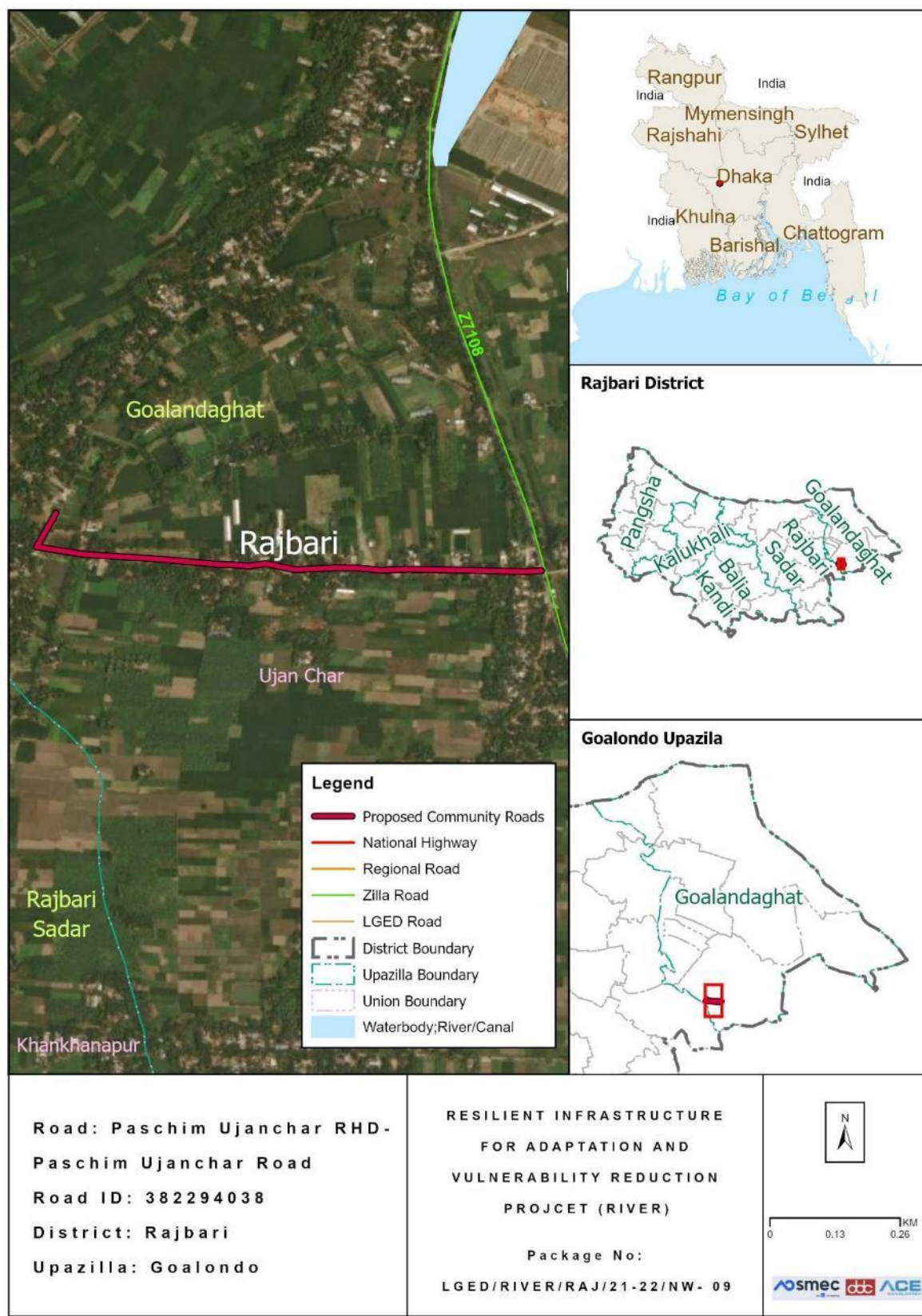
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 Paschim Ujanchar RHD-Paschim Ujanchar Road has a combination of household, religious, agricultural, and waterbody features within its 1.02 km length. Near the starting section, a shop, households, and a graveyard are located on the left side, while a ditch and additional households are present on the right side. This makes the first 300 m socially sensitive, particularly due to the graveyard and close residential use of the roadside. The middle section includes households on the left and agricultural land on the right, while the final section contains agricultural land, Eidgah Maidan near Ch. 910 m, and a pond near Ch. 850 m on the right side. Construction activities along this road should therefore avoid disturbing the graveyard and Eidgah Maidan, keep access open for households and religious use, and prevent runoff or waste disposal into the pond and ditch. Since farmland is also present, temporary use of agricultural land should be minimized.



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 unpaved 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 00m to Chainage 1020 m**.

Sub-project Location:

Important Features	
ID	382294038
District	Rajbari
Upazila	Goalanda
Union	Ujanchar
Total Chainage	1020m
Proposed Chainage	1020m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.694767 N, 89.755543 E
Road Ending Point Coordinates	23.695701 N, 89.747062 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 Sobdulkhara, Mridapara, and Mridadanga.
- 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:

Near the starting section, a shop, households, and a graveyard are located on the left side, while a ditch and additional households are present on the right side. This makes the first 300 m socially sensitive, particularly due to the graveyard and close residential use of the roadside. The middle section includes households on the left and agricultural land on the right, while the final section contains agricultural land, Eidgah Maidan near Ch. 910 m, and a pond near Ch. 850 m on the right side. Construction activities along this road should therefore avoid disturbing the graveyard and Eidgah Maidan, keep access open for households and religious use, and prevent runoff or waste disposal into the pond and ditch. Since farmland is also present, temporary use of agricultural land should be minimized.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 µS/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*), and koi (*Anabas testudineus*), which are important for local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning

riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 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 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)

On Paschim Ujanchar RHD-Paschim Ujanchar Road, a ditch at Ch. 121 m, a pond at Ch. 850 m and an existing U-drain at Ch. 872 m are present. The proposed road improvement and palisading works should therefore maintain the existing drainage path and avoid filling or narrowing the ditch and pond-side areas.

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: Paschim Ujanchar RHD-Paschim Ujanchar Road, ID:382294038

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential	- 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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	accidents to workers/ local people, generating dust and noise)			
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 tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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 students, children, animals, etc.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; 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 of 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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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, schedule, work plan, emergency arrangement, etc. in the TMP.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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	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 labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	A separate grievance mechanism for workers has to be established for the work package.	Contractor	Social Development

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.		Specialist and Gender Specialist of PIU
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. - Ring slab septic tank will be installed before starting construction works in order to provide a	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	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	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.		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	- 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	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
	disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • 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.)	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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 the project implementation period (including site clearance after the construction). The impacts are similar to	• 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	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	those listed in construction stage: ● Pollution from waste materials. ● Health & Safety risks to workers and local community.	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.		
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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction and Construction Stage	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 due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic	- 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.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	1224 Sq. m	@38.15 Tk. Per sqm	46,695.60
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1020.0m	@ 2.56 BDT	2,611.20
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. No.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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

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Sl. No.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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.	<u>Waste disposal facility</u> 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.	<u>Water Test (Drinking Water samples)</u> 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.	<u>Working labour shed:</u> 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.	<u>Environmental and Social management</u> 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 9 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			239,952.52



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Bahadurpur UP-Bagmara via Police Camp Road, ID:382734181**

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

District: Rajbari

Upazila: Pangsha

Union: Bahadurpur

Name of Community/Local Area: Bagmara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Bahadurpur UP-Bagmara via Police Camp Road (Road ID: 382734181) has a total length of approximately 1.20 km and includes mixed pavement conditions, with Herringbone Brick sections at chainages 0+000 to 0+320 and 0+373 to 0+540, along with unpaved sections between 0+320 to 0+373 and 0+540 to 1+090, including a 110 m link road. The proposed works include upgrading the entire road with Bituminous Carpeting to ensure a uniform and durable surface. Existing drainage features include a damaged drain at chainage 0+200, a damaged pipe drain at chainage 0+670, and U-drains at chainages 0+936 and 1+030, which will be improved to ensure proper water flow. Additional U-drain works are proposed at chainages 0+200 and 0+670, along with palisading at chainages 0+037, 0+893, and 1+030 to strengthen the embankment. These combined interventions will improve drainage, enhance road stability, and ensure reliable connectivity. 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 3,600 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: From 00m to 1200m. 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
00-300	L		Dairy Farm 10m away, Bahadurpur Health Complex 62m away
		R	Mosque, Union Parishad
300-600	L		Bahadupur Police Station (Ch. 320m)
		R	Agricultural Land
600-900	L		Agricultural Land

Chainage	(Left/Right)		Environmental and Social Impact
		R	Agricultural Land
900-1200	L		Agricultural Land
		R	63 No. Bilgajaria GPS 250m away



Starting Point of Bahadurpur UP-Bagmara via Police Camp 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 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

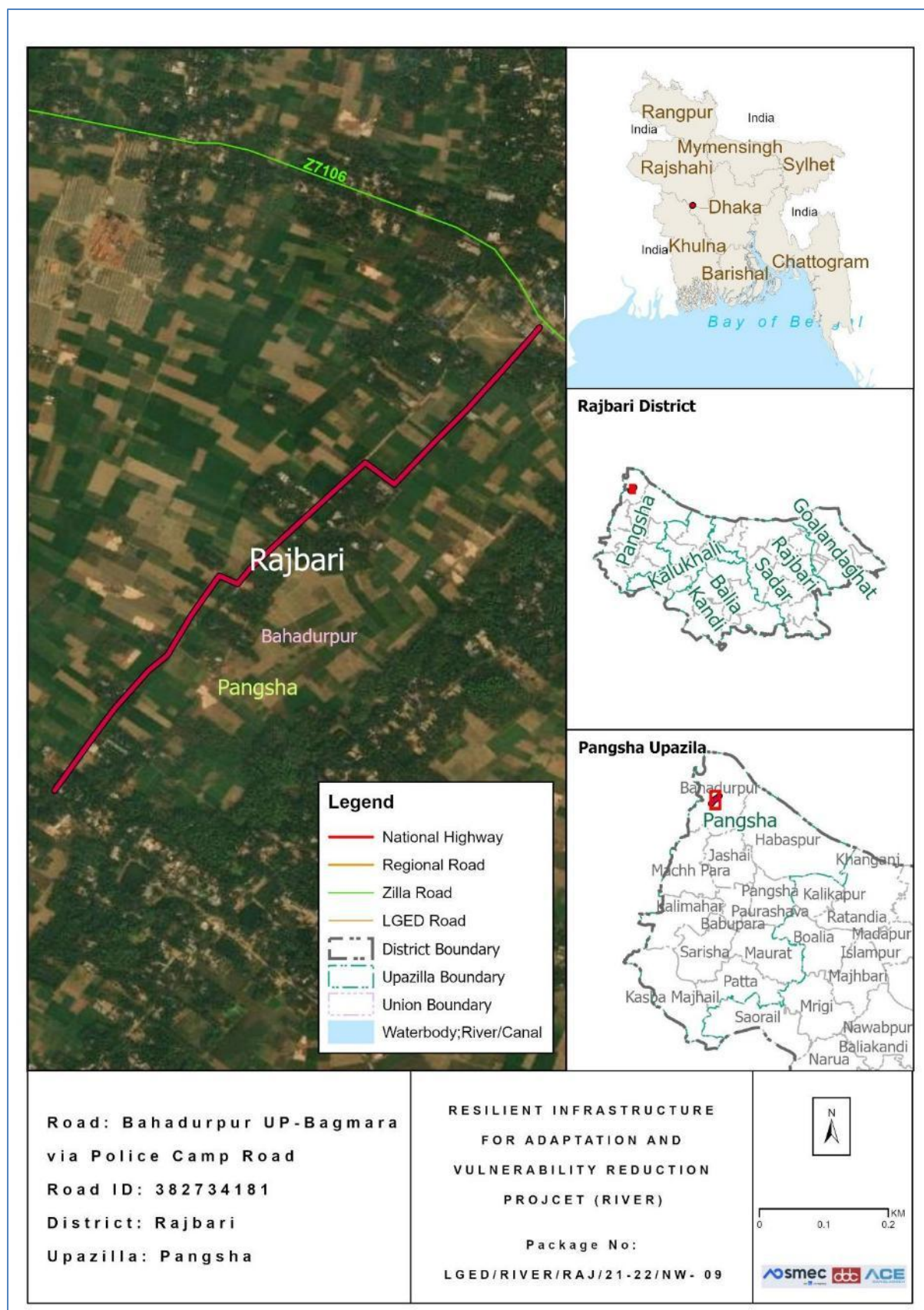
included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural 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 Bahadurpur UP-Bagmara via Police Camp Road is an institution-linked rural road that connects several important public and community facilities. In the first section, a dairy farm and Bahadurpur Health Complex are located on the left side, while a mosque and Union Parishad are located on the right. This makes the starting portion important for public service access, local administration, religious movement, and farm-related activities. Bahadurpur Police Station is located near Ch. 320 m, while the remaining sections mostly pass through agricultural land. Toward the end of the road, 63 No. Bilgajaria Government Primary School is located about 250 m from the right side. For this road, construction planning should give priority to maintaining access to the health complex, Union Parishad, police station, mosque, dairy farm, and school area. Dust control, traffic management, and clear warning signage will be important, especially near public institutions and agricultural sections used by local residents.



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 HBB and unpaved sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Ch.0+00 to Ch.1+200**

Sub-project Location:

Important Features	
ID	382734181
District	Rajbari
Upazila	Pangsha
Union	Bahadurpur
Total Chainage	1200m
Proposed Chainage	1200m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	23.873794 N, 89.377001 E
Road Ending Point Coordinates	23.86727 N, 89.370305 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 Bagmara.
- 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:

Sensitive environmental, cultural, and archaeological features within Rajbari District are generally located at a considerable distance from the proposed subproject site. In the first section, a dairy farm and Bahadurpur Health Complex are located on the left side, while a mosque and Union Parishad are located on the right. This makes the starting portion important for public service access, local administration, religious movement, and farm-related activities. Bahadurpur Police Station is located near Ch. 320 m, while the remaining sections mostly pass through agricultural land. Toward the end of the road, 63 No. Bilgajaria Government Primary School is located about 250 m from the right side. For this road, construction planning should give priority to maintaining access to the health complex, Union Parishad, police station, mosque, dairy farm, and school area. Dust control, traffic management, and clear warning signage will be important, especially near public institutions and agricultural sections used by local residents.

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 in Rajbari District is located within the active floodplain of the Padma River and its associated distributaries, which strongly influence the geomorphology of the region. The soil profile is primarily composed of recent alluvial deposits consisting of sandy loam, silt loam, and clay loam, formed through continuous sedimentation and seasonal flooding processes. Due to the dynamic nature of the Padma river system, soil texture and composition vary across locations, particularly in char and low-lying areas where fresh sediments are frequently deposited. These soils are generally fertile and suitable for intensive agriculture, supporting crops such as paddy, jute, and vegetables. However, the area is also susceptible to riverbank erosion, sediment reworking, and periodic flooding, which affect land stability and agricultural practices in the floodplain environment.

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

Groundwater is the principal source of potable water in the sub-project area of Rajbari District. The local population largely depends on shallow and deep tube wells for drinking and domestic purposes. The groundwater table is generally found at a depth ranging from approximately 120 to 250 feet below ground level, with seasonal variation influenced by monsoon recharge and dry season abstraction. Groundwater quality assessments indicate the presence of iron in many tube wells, often leading to discoloration and taste issues, while arsenic contamination is generally low to moderate in this district compared to highly affected regions. Therefore, appropriate public health measures, including the use of iron removal units, regular monitoring of water quality, and community awareness initiatives, are important to ensure safe drinking water. Deep tube wells tapping confined aquifers are commonly used for drinking purposes where available.

Groundwater quality: pH-6.5 to 8.0, DO-3.0 to 6.0 mg/l, TDS-150 to 400 mg/l, EC-150 to 500 μ S/cm, Fe-0.2 to 4.0 mg/l and As-trace to 0.02 mg/l (Field Study Report, March 2026).

Status of wildlife movement:

The sub-project area in Rajbari District supports a range of common faunal species typical of riverine floodplain and rural agricultural environments. The area provides suitable habitat for commonly observed bird species such as doyel (Oriental Magpie Robin, *Copsychus saularis*), shalik (Common Myna, *Acridotheres tristis*), kak (House Crow, *Corvus splendens*), bok (Cattle Egret, *Bubulcus ibis*), and choro (House Sparrow, *Passer domesticus*), which are frequently found in homesteads, croplands, and along riverbanks. These birds play important roles in insect control, seed dispersal, and maintaining ecological balance. The presence of small wild mammals and reptiles, including shial (Bengal Fox, *Vulpes bengalensis*), beji (mongoose, *Herpestes edwardsii*), and various snake species, reflects the typical biodiversity of the floodplain region and contributes to natural pest control and ecosystem stability. In addition, rivers, canals, and floodplain water bodies support a variety of indigenous fish species such as rui (*Labeo rohita*), katla (*Catla catla*), and koi (*Anabas testudineus*), which are important for

local livelihoods and food security. Overall, the composition of birds, mammals, and aquatic fauna indicates a functioning riverine ecosystem, where conservation of natural habitats and sustainable resource management are essential for maintaining biodiversity and ecological resilience.

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 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 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)

For Bahadurpur UP-Bagmara via Police Camp Road, existing drainage structures include a damaged drain at Ch. 200 m, a damaged pipe drain at Ch. 670 m and U-drains at Ch. 936 m and Ch. 1030 m. As U-drain improvement is proposed at Ch. 200 m and Ch. 670 m, temporary disturbance may occur during construction, but the long-term impact is expected to be positive through improved drainage capacity.

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: Bahadurpur UP-Bagmara via Police Camp Road, ID:382734181

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.	PIU	Social Development Specialist and Gender Specialist of

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		In case of unavoidable circumstances, alternative access will be provided.		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,		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 of 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 not be feasible in terms of availability and scope of the project works, noise reduction muffler or less	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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 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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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.		
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 labor forces. • Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package.	Contractor	Social Development Specialist and

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.		Gender Specialist of PIU
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. - Ring slab septic tank will be installed before starting construction works in order to provide a	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Contractor	Environmental and Social Development Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	chemicals/contaminants, etc. to nearby water bodies	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.		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	- 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	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
	disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	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:	• 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	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	● Pollution from waste materials. ● Health & Safety risks to workers and local community.	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.		
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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction and Construction Stage	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 due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic	- 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.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	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 Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

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.	<u>Grass Turfing</u> 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)	1440 Sq.m	@38.15 Tk. Per sqm	54,936.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	3600.0m	@ 2.56 BDT	3,072.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. No.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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.	<u>Traffic Management</u> 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.	<u>Personal Protection Equipment for Workers</u> 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

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Sl. No.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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.	<u>Waste disposal facility</u> 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	<u>Tree Plantation</u> For each tree felled, 3 shall be planted as replacement.	2 no.	@ Tk 500	3,000.00
11.	<u>Water Test (Drinking Water samples)</u> 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
12.	<u>Working labour shed:</u> 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
13.	<u>Environmental and Social management</u> 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 9 roads]	Each	@ Tk. 35000	35,000.00
Total amount for this Road				251,653.72



Existing Surroundings of the Sub-Project

ANNEXURE 2: ATTENDANCE OF CONSULTATION MEETING

Name of Community Road: Bramandia - Mohisha khotia Road Date: 31/3/26
Road ID: 982765020
Place of Consultation: Shafi'z kazi Bari, Bramandia
Village: Bramandia Ward No.: 1 rd. Ward Union: Pachuria Upazila: Sadar
District: Rajbari

[illegible]

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Behadurpur UP - Bagmara via Police Camp road Date: 29/3/26
Road ID: 38273 4181
Place of Consultation: বাহাদুরপুর ইউনিয়ন
Village: বাহাদুর Ward No.: ১ Union: বাহাদুর Upazila: রাজবাড়ী
District: রাজবাড়ী

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
১	আব্দুল হান্নান	১	৭০	কৃষি	৷		৬
২	ডা. মোহাম্মদ হান্নান	৷	৪২	মাস্টার	বাহাদুর		Rafat
৩	ডা. মোহাম্মদ হান্নান	৷	৪০	কৃষি	৷		৷
৪	ডা. মোহাম্মদ হান্নান	৷	৪৬	কৃষি	৷		৷
৫	আব্দুল হান্নান	৷	৪২	কৃষি	৷		৷
৬	ডা. বাহার	৷	২০	৷	৷		Rahat
৭	ডা. বাহার	৷	২০	৷	৷		Rifat
৮	ডা. বাহার	৷	২৬	৷	৷		৷
৯	ডা. বাহার	৷	৫০	৷	৷		৷
১০	ডা. বাহার	৷	২৫	৷	৷		Kowsar
১১	ডা. বাহার	৷	৫০	৷	৷	০	৷