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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Improvement of Community Infrastructure, Growth Centre, others roads & Connecting
Roads & Landing Stage at Bogura 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 Bogura District has been prepared for the sub-project titled “Improvement of Community Infrastructure, Growth Centre, others roads & Connecting Roads at Bogura 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, seventeen (17) community infrastructures connecting roads in Bogura 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- Gabtoli (6 roads with total length of 8.58 km), Sariakandi (8 roads with total length of 15.105 km), Dhunot (1 road with 0.907 km), and Sonatola (2 roads with active length of 2.841 km) Upazila-which are characterized by rural settlements, agricultural landscapes, and periodic exposure to seasonal flooding.

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

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

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

- (i) For the road from Sheldhobari Amzad Hazi House to Vandara Montaz Master House Road (110404021), bituminous carpeting will be implemented along the stretch from **chainage 5+100 to 6+000**, where the existing pavement condition is predominantly earthen and requires improvement. The road passes through various socio-environmental features such as agricultural land, BADC Pump at **Ch. 0+260**, human settlements, trees, graveyards, Vandara Maddha Para Jame Mosque at **Ch. 1+800m**, ditches, and a Charmatha Bazra at **Ch. 0+890**. In addition to the general road improvement works, side drains and palisading will be constructed at different chainages (e.g., **Ch. 5+238–5+264, 5+377–5+408, and 5+708–5+744**) to ensure slope stability and drainage management.
- (ii) For the road from Sonarai to Jamirbaria (110404048), bituminous carpeting will be carried out along the stretch from **chainage 2+000 to 2+700**, where portions of the road are currently unpaved and partially RCC. The road passes through agricultural lands, human settlements, a local, an Eidgah at **Ch. 00+150** trees, shops, temples, graveyards, Jamirbaria Bazar at **Ch. 0+650** fishponds, and a rice mill. Along with the road improvement works, necessary road safety signage will be installed at sensitive locations, particularly near settlements and activity zones such as markets and religious establishments i.e.
- (iii) For the road from **Jamirbaria to Uzgram Bazar (110404065)**, bituminous carpeting will be implemented from **chainage 0+000 to 1+510**. The road traverse's diverse socio-environmental settings including human settlements, Jamirbaria GPS at Ch. 0+50, agricultural lands, a khal at **Ch. 0+320**, **beel**, fishponds, graveyards, mosques, and shops. Several structural protection measures, including palisading and side drains, will be constructed at multiple chainages (e.g., **Ch. 0+268–0+290, 0+490–0+525, and 1+030–1+050**) to prevent erosion and ensure proper drainage.
- (iv) For the road from **Kazlapara Saburbari to Dhalirchor via Nizkakra (110404117)**, bituminous carpeting will be carried out along the entire stretch from **chainage 0+000 to 1+870**. The road passes through agricultural land, fishponds, ditches, human settlements, trees, shops, and Darus Salam Mosque at **Ch 1+ 150**. In addition to the road improvement works, extensive palisading (**total approximately 485 m at multiple locations**) will be implemented to provide slope protection and prevent erosion along vulnerable sections.
- (v) For the road from **Sukhanpukur Kalurghat to Nizkakra H/O Sadhon (110404116)**, bituminous carpeting will be implemented from **chainage 0+500 to 2+350**. The road passes through agricultural land, human settlements, fishponds, ditches, trees, khal, and a rice mill at **Ch 0+250**, Nij Kakra GPS at **Ch 0+900**. Structural protection measures including palisading at several chainages (e.g., **Ch. 0+540–0+550, 0+730–0+750, and 1+145–1+155**) and U-drain installation will be undertaken to improve drainage and ensure slope stability.

- (vi) For the road from **Nizkakra (H/O Sadhon) Road (110404153)**, bituminous carpeting will be implemented along the stretch from **chainage 0+000 to 1+750**. The road passes through fishponds, agricultural land, human settlements, trees, a local eidgah at **Ch 0+280**, Vangirpara Mosque at **Ch 0+220**, beel, and shops. In addition to road development works, multiple palisading sections and U-drains will be constructed (e.g., **Ch. 0+000–0+022, 0+845–0+860, and 1+410–1+411**) to ensure protection against erosion and improve drainage conditions.
- (vii) For the road from Fulbari GC to Kutubpur GC Road (110812002), bituminous carpeting will be implemented from **chainage 9+900 to 11+700**. The road passes through agricultural land, human settlements, forest areas at **Ch 0+210**, fishponds, Kutubpur Jame mosques at **Ch 0+550**, Kutubpur Eidgah at **Ch 0+1580**, and ditches. Structural measures such as U-drains and palisading (e.g., **Ch. 0+840–0+841 and 1+389–1+470**) will be implemented to enhance drainage and slope stability.
- (viii) For the road from **Fulbari U.P to Shaihata College Hat Road (110813001)**, bituminous carpeting will be implemented from **chainage 2+000 to 5+165**. The road passes through bamboo forests, human settlements, Domkandi GPS at Ch 1+150, Sonatola Jame mosques at **Ch 1+750**, Dr. Kamrul Hasan college at **Ch 0+450**, agricultural land, Sonatola GPS at Ch 3+300, Sonatola College at **Ch. 3+180** and ditches. In addition to road improvement works, extensive palisading (**approximately 406 m at multiple locations**) will be constructed to protect vulnerable sections and ensure slope stability.
- (ix) For the road from New **Sonatola to Beterkandi (110814044)**, bituminous carpeting will be carried out along the stretch from **chainage 0+001 to 1+190**. The road passes through New Sonatola Bazar at **Ch. 0+50**, agricultural land, fishponds, poultry farms, human settlements, and shops. In addition, palisading and RCC U-drains will be constructed at selected chainages (e.g., **Ch. 0+023–0+044 and 0+630–0+631**) to improve drainage and slope protection.
- (x) For the road from **Kalartair - Bashata road (110814062)**, bituminous carpeting will be implemented along the stretch from **chainage 0+950 to 0+1800**. The road passes through agricultural land, human settlements, trees, a local khal at **Ch. 0+200**, and the Jamuna River at **Ch. 0+480** vicinity. In addition to the road improvement works, palisading (e.g., **Ch. 0+132–0+191**) will be constructed to protect embankment sections and reduce erosion risks.
- (xi) For the road from **Diglkandi WAPDA bandth-Digoldandi growin via deluabari (110814030)**, bituminous carpeting will be implemented from **chainage 0+000 to 2+225**. The road passes through brickfields, Digolkandi Jame Mosques at **Ch. 0+550**, graveyards, fishponds, Nobadori GPS at **Ch. 1+920** agricultural lands, shops, and human settlements. Multiple palisading works will be carried out at different chainages (e.g., **Ch. 0+715–0+761, 1+050–1+091**) to ensure slope protection and structural stability.

- (xii) For the road from **Kuptola Moddah Para to Ramnagar GPS (110814076)**, bituminous carpeting will be implemented from **chainage 0+000 to 1+275**. The road passes through agricultural land, fishponds, a local beel at **Ch. 0+780**, shops, human settlements, and trees. In addition to road improvement works, palisading and an RCC culvert (**Ch. 0+708–0+711**) will be constructed to improve drainage and structural stability.
- (xiii) For the road from **Kalartair to Bashata Road (110815079)**, bituminous carpeting will be carried out from **chainage 0+000 to 0+750**. The road passes through agricultural land, human settlements, Eidgah, mosques, a primary school named Bashata GPS at **Ch. 0+440**, Khal, beel, river, shops, and bamboo forest. Palisading works (e.g., **Ch. 0+174–0+184 and 0+397–0+411**) will be implemented to protect vulnerable sections.
- (xiv) For the road from **Kutubpur GC to Dhunat Upazila HQ Road (110812009)**, bituminous carpeting will be implemented from **chainage 0+000 to 3+870**. The road passes through Kutubpur bazaar at **Ch. 0+80**, Choto Kutubpur Jame Mosques at **Ch. 0+250**, graveyards, agricultural lands, Khal, fishponds, shops, and human settlements. Structural measures including side drains and palisading will be constructed at different chainages to improve drainage and ensure road stability.
- (xv) For the road from **Chalapara UZR – South Paikpara Hat Road (110274057)**, bituminous carpeting will be undertaken from **chainage 0+500 to 1+407**. The road passes through human settlements, agricultural land, fish ponds, a local khal at **Ch. 1+150**, trees, and small shops along the alignment. The existing structures include one bridge (13.0 m) at **Ch. 1+000–1+013** and one box culvert (3.0 m × 3.0 m) at **Ch. 1+360–1+363**. One stretch of palisading (**51.0 m**) is proposed at **Ch. 0+914–0+965** for slope protection. The road corridor includes sensitive features such as fish ponds, khal, and settlement areas; therefore, road safety signage and temporary traffic management measures will be implemented near populated and commercial locations during construction.
- (xvi) For the road from **Padmapara–Nischantapur (110812009)**, bituminous carpeting will be undertaken from **chainage 0+000 to 3+870**. The road passes through a wide range of socio-economic, cultural and environmental features, including Kutubpur Bazar, mosques, Eidgah at **Ch. 0+450**, schools, human settlements, agricultural land, graveyards, ponds, khal, ditches, and roadside vegetation along different chainage sections. The alignment also traverses several sensitive locations such as Padma Para GPS, Nischintapur GPS at **Ch. 1+640**, and multiple mosque areas, along with market and densely populated settlement zones. No major tree cutting or displacement of critical structures is identified at this stage; however, minor clearance of roadside vegetation may be required at isolated locations to ensure construction feasibility and safety.

- (xvii) For the road from **Jorgacha H/O Jinnah Mondol to Guravanga GPS (110954094)**, bituminous carpeting will be carried out from **chainage 0+250 to 1+500**. The road passes through agricultural lands, human settlements, mosques, trees, and shops. In addition, culverts, a medium size khal at **Ch. 1+220** and bridge structures exist, and further structural protection measures may be implemented to ensure stability and drainage efficiency.

The assessment study also reveals that the proposed road improvement works will largely be carried out within the existing Right of Way (ROW), thereby minimizing the need for land acquisition and significantly reducing potential resettlement issues. The existing roads are mainly earthen or partially paved rural roads that require improvement to ensure year-round accessibility, improved drainage, and enhanced structural stability. The project will involve activities such as road widening where necessary and contingent upon the available land within ROW, strengthening of road surfaces, improvement of drainage systems, and installation of small culverts or cross-drainage structures where required. However, the scope of works, including specific safety and environmental measures along with potential impacts that may arise from the proposed interventions, are tabulated hereunder:

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

To address these potential impacts, a comprehensive Environmental and Social Management Plan (ESMP) has been developed as part of this report in **Annexure-1**. The ESMP outlines specific mitigation and management measures that must be implemented during project construction and operation phases. Key environmental mitigation measures include regular water spraying to control dust, proper maintenance of construction equipment to minimize noise and emissions, safe disposal and management of construction 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

Sub-Project Background

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

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

The project area covers four upazilas of Bogura District, namely Gabtoli, Sariakandi, Dhunot and Sonatola 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 Bogura 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 Bogura 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 Bogura 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 Bogura District under the RIVER Project.

2.1 Sub-Project Location

The sub-project covers selected community roads located in Bogura 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 four upazilas:

1. **Sariakandi Upazila** - Sariakandi is a flood-prone upazila of Bogura District located along the Jamuna River. The area is affected by seasonal flooding and riverbank erosion, with many settlements in low-lying and char areas. The proposed roads are important for maintaining access between communities and essential services such as flood shelters, markets, schools, and health facilities, especially during the monsoon.
2. **Gabtolli Upazila** - Gabtolli Upazila is mainly a flat agricultural area within the Jamuna floodplain. The upazila experiences seasonal flooding and waterlogging. The sub-project roads will help improve connectivity between villages and key service centers, including markets, schools, health facilities, and flood shelters, ensuring continued access during the monsoon period.

3. **Dhunat Upazila** - Dhunat Upazila is predominantly a low-lying floodplain area influenced by the Jamuna River system. The upazila is prone to seasonal flooding and waterlogging, which affects road connectivity, especially during the monsoon. The sub-project roads will enhance all-weather access between rural communities and essential service centers, including markets, educational institutions, healthcare facilities, and flood shelters, thereby improving mobility and resilience during flood periods.
4. **Sonatola Upazila** - Sonatola Upazila is largely characterized by flat terrain and agricultural land within the Jamuna floodplain. The area frequently experiences seasonal inundation and drainage congestion during the monsoon. The proposed road improvements will strengthen connectivity among villages and key public service facilities such as markets, schools, health centers, and cyclone/flood shelters, ensuring reliable access and supporting local socio-economic activities throughout the year

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 Bogura District is attached in **Figure 2.1**.

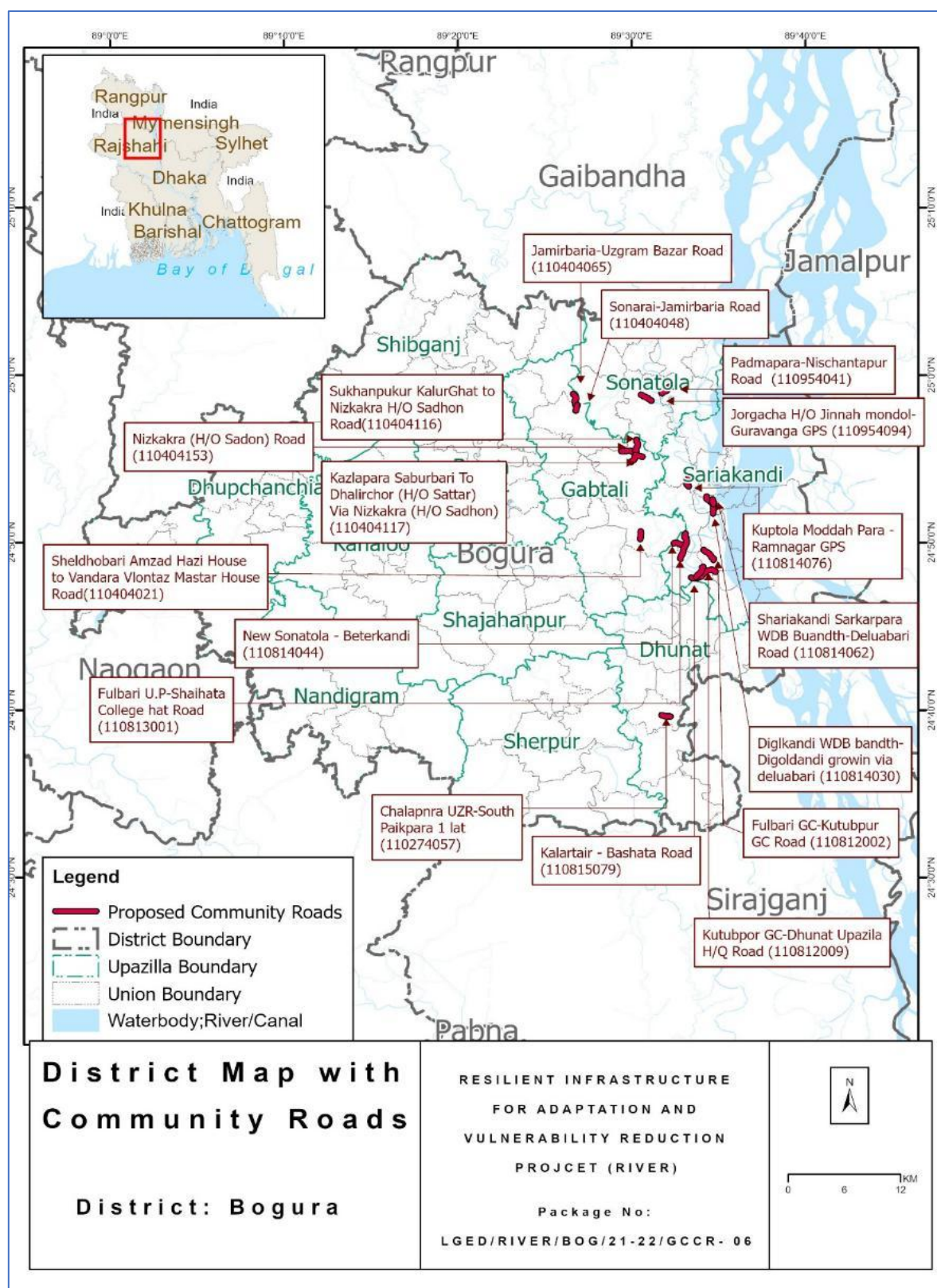


Figure 2.1: Map illustrating Community Roads of Bogura District

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.

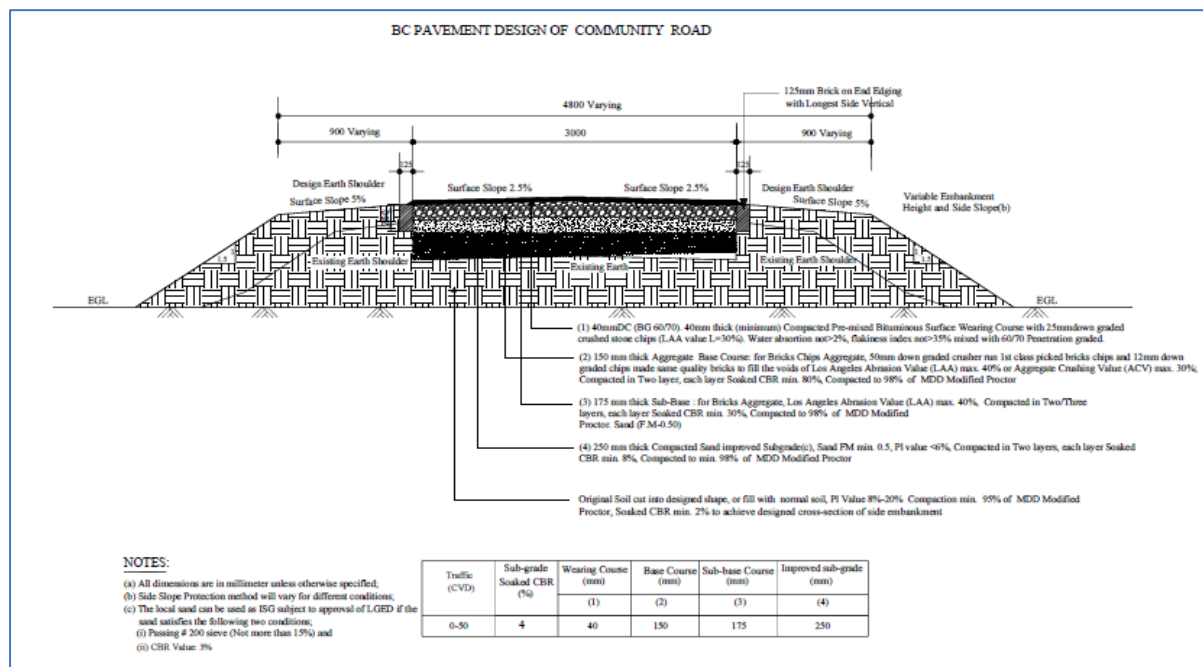


Figure 2.2: Typical Pavement Design of Community Roads

2.5 Elementary information of Community Road in Bogura District

The community road package components in Bogura District, located in the southeastern region of Rangpur Division, have been identified under the RIVER Project to improve rural connectivity and facilitate access to nearby flood shelters and community facilities. The proposed community roads fall within the project influence area of several flood shelter construction sites located in different upazilas such as Gabtoli, Sariakandi, Dhunot and Sonatola Upazila. Each road component has been identified with specific GPS coordinates to define its alignment and location within the respective union parishads such as Fulbari, Ktubpur, Marco, Sariakandi unions 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 (m)
1.	Gabtoli	Fulbari	Sheldhobari Amzad Hazi House to Vandara Montaz Mastar House Road	<u>Strating Point:</u> 24.83098, 89.55133 <u>Ending Point:</u> 24.83255, 89.54054	0.900	Bhandara, Ponipara	Bhandara Ponipara GPS	200
2		Fulbari	Sonarai-Jamirbaria Road	<u>Strating Point:</u> 24.82925, 89.5726 <u>Ending Point:</u> 24.81625, 89.57864	0.700	Sonarai, Jamirbaria	Jamirbaria Burital GPS	150
3.		Kutubpur	Jamirbaria-Uzgram Bazar Road	<u>Strating Point:</u> 24.8259, 89.56877 <u>Ending Point:</u> 24.79507, 89.55404	1.510	Jamirbaria, Uzgram	Jamirbaria Burital GPS	20
4.		Fulbari	Kazlapara Saburbari To Dhalirchor (H/O Sattar) Via Nizkakra (H/O Sadhon)	<u>Strating Point:</u> 24.84238, 89.55176 <u>Ending Point:</u> 24.81726, 89.54695	1.870	Kazlapara, Saburbari, Dhalirchor, Nizkakra	Kajlapara GPS	10

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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 (m)
5.		Narchi	Sukhanpukur KalurGhat to Nizkakra H/O Sadhon Road	<u>Strating Point:</u> 24.89702, 89.55412 <u>Ending Point:</u> 24.88928, 89.55459	1.850	Sukhanpukur, Kalurghat, Nizkakra	Kajlapara GPS	1110
6.		Sariakandi	Nizkakra (H/O Sadon) Road	<u>Strating Point:</u> 24.87923, 89.57195 <u>Ending Point:</u> 24.26287, 89.57807	1.750	Nizkakra	Kajlapara GPS	1130
7.	Sariakandi	Sariakandi	Fulbari GC- Kutubpur GC Road	<u>Strating Point:</u> 24.87637, 89.57761 <u>Ending Point:</u> 24.87156, 89.57847	1.800	Fulbari, Kutubpur	Char Domkandi GPS	160
8.		Sariakandi	Fulbari U.P- Shaihata College hat Rd	<u>Strating Point:</u> 24.913472, 89.49926 <u>Ending Point:</u> 24.91884, 89.5104	3.165	Fulbari, Shaihata	Domkandi GPS	60
9.		Sariakandi	New Sonatola- Beterkandi	<u>Strating Point:</u> 24.833307, 89.47171	1.190	Beterkandi, Sonatola	Domkandi GPS	950

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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 (m)
				Ending Point: 24.81899, 89.47327				
10.		Sariakandi	Shariakandi Sarkarpara WAPDA Bandh-Deluabari Road	Strating Point: 24.87156, 89.57847 Ending Point: 24.87156, 89.57847	0.850	Sarkarpara, Deluabari	Dighalkandi GPS	220
11.		Sariakandi	Diglkandi WAPDA Bandh-Digoldandi Growin via Deluabari	Strating Point: 24.87923, 89.57195 Ending Point: 24.86227, 89.57807	2.225	Digalkandi, Deluabari	Dighalkandi GPS	230
12.		Sariakandi	Kuptola Moddah Para - Ramnagar GPS	Strating Point: 24.89702, 89.55412 Ending Point: 24.88928, 89.55459	1.275	Kuptola, Ramnagar	Ramnagar GPS	20
13.		Sariakandi	Kalartair - Bashata Road	Strating Point: 24.82590, 89.56877 Ending Point: 24.79507, 89.55404	0.750	Kalartair, Bashata	Solartair GPS	350

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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 (m)
14.		Sariakandi	Kutubpur GC-Dhunat Upazila H/Q Rd. (Shariakandi part)	<u>Strating Point:</u> 24.80758, 89.58438 <u>Ending Point:</u> 24.80552, 89.57246	3.870	Kutubpur, Dhunat corridor	Solartair GPS	80
15.	Dhunot	Sariakandi	Chalapara UZR-South Paikpara Hat	<u>Strating Point:</u> 24.66169, 89.52879 <u>Ending Point:</u> 24.66036, 89.53723	0.907	Chalapara, Paikpara	Chalapara GPS	30
16.	Sonatola	Sariakandi	Padmapara-Nischantapur Road	<u>Strating Point:</u> 24.98863, 89.53761 <u>Ending Point:</u> 24.98240, 89.52887	1.564	Padmapara, Nischantapur	Padmapara GPS	10
17.		Sariakandi	Jorgacha H/O Jinnah Mondol-Guravanga GPS	<u>Strating Point:</u> 24.98057, 89.50900 <u>Ending Point:</u> 24.97458, 89.51904	1.336	Jorgacha, Guravanga	Guravanga GPS	10

(*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 subproject 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 Bogura 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 Sariakandi, Dhunot and Sonatola upazila.

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

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

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

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

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

Overall, the baseline conditions highlight the need for targeted interventions to enhance road safety, connectivity, and resilience, while the proposed structural improvements and safeguard features are designed to address environmental and social risks, improve access to flood shelters, and support the sustainable development of the rural road network in Bogura 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 Type)	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Proposed Road Interventions	Safeguard Features
1	Sheldhobari Amzad Hazi House to Vandara Montaz Mastar House Road (Village-A)	110404021	0.900	Damaged/broken Paved- 5+100- to 6+000	Culvert (2.0 m × 2.0 m) at Ch. 5+900	BC- 5+100- to 6+000 Side-Drain (26 m) at Ch. 5+238-5+264, Side-Drain (26 m) at Ch. 5+238-5+264, Side-Drain (10 m) at Ch. 5+348-5+358, Palisading (19 m) at Ch. 5+377-5+396, Palisading (33 m) at Ch. 5+375-5+408, Side-Drain (45 m) at Ch. 5+408-5+453, Side-Drain (13 m) at Ch. 5+513-5+526, Side-Drain (20 m) at Ch. 5+523-5+543, Palisading (36 m) at Ch. 5+708-5+744	Not available in site
2	Sonarai– Jamirbaria Road (Village-A)	110404048	0.700	Damaged/broken Paved- 2+000 to 2+700 Unpaved/Earthen- 2+000 to 2+200	-----	BC- Ch. 2+000 to 2+700	Not available in site
3	Jamirbaria– Uzgram Bazar Road (Village-A)	110404065	1.510	Unpaved/Earthen- 0+200 to 1+510	Bridge (32m) at Ch. 0+523-0+555, Box Culvert (1mX1m)- Ch.2+552-2+553, Box Culvert (1.5mx1.5m)-Ch. 0+960	BC- Ch. 0+000 to 1+510 Palisading (22 m) at Ch. 0+268-0+290, Palisading (35 m) at Ch. 0+490- 0+525, Palisading (10 m) at Ch. 0+555-0+565, Palisading (20 m) at Ch. 0+555-0+575, Palisading (20	Not available in site

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Sl. No.	Road Name (Road Type)	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Proposed Road Interventions	Safeguard Features
						m) at Ch. 0+800-0+820, Palisading (24 m) at Ch. 1+016-1+040, Side-Drain (20 m) at Ch. 1+030 -1+050, Side-Drain (16 m) at Ch. 1+300-1+316	
4	Kazlapara Saburbari to Dhalirchor via Nizkakra (Village-A)	110404117	1.870	Unpaved/Earthen-0+000 to 1+870	Bridge (11 m) at Ch. 1+788-1+799	BC- 0+000 to 1+870 Palisading (Total 485 m) at 16 points along the road alignment.	Not available in site
5	Sukhanpukur Kalur Ghat to Nizkakra H/O Sadhon Road (Village-B)	110404116	1.850	Damaged/broken Paved- 0+500 to 0+800, 1+900 to 2+000	U-Drain (1.0m X 1.0m)- Ch.0+511-0+512, Bridge (48m)-Ch.1+150-1+198	BC- 0+500-2+350, Palisading (10 m) at Ch. 0+540-0+550, Palisading (20 m) at Ch. 0+730-0+750, Palisading (10 m) at Ch. 1+145-1+155, Palisading (5 m) at Ch. 1+197-1+202, U-Drain at Ch. 0+762	Not available in site
6	Nizkakra (H/O Sadhon) Road (Village-A)	110404153	1.750	Unpaved/Earthen-0+000 to 1+750	Culvert (2.0 m × 2.0 m) at Ch. 0+086-0+088, Bridge (13 m) at Ch. 0+862-0+875, Palisading (10 m) at Ch. 0+910-0+920, Bridge (13 m) at Ch. 0+922-0+935,	BC- 0+000 to 1+750, Palisading (22 m) at Ch. 0+000-0+022, U-Drain (1.0 m × 1.0 m) at Ch. 0+750-0+751, Palisading (15 m) at Ch. 0+845-0+860, Palisading (16 m) at Ch. 0+874-0+890, Palisading (10 m) at Ch. 0+910-0+920, Palisading (10 m) at Ch. 0+935-0+945, U-Drain (1.0 m × 1.0 m) at	Not available in site

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Sl. No.	Road Name (Road Type)	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Proposed Road Interventions	Safeguard Features
					Bridge (10 m) at Ch. 0+976-0+986	Ch. 1+410-1+411	
7	Fulbari GC–Kutubpur GC Road (UZR)	110812002	1.800	Damaged/broken Paved- 1+800	Culvert (14.0 m) at Ch. 1+568 to 1+582.	BC- 9+990 to 11++700, U-Drain (1.0 m × 1.0 m) at Ch. 0+840-0+841, Palisading (26.0 m) at Ch. 1+389-1+415, Palisading (30.0 m) at Ch. 1+440-1+470	Not available in site
8	Fulbari U.P–Shaihata College Hat Road (UNR)	110813001	3.165	Damaged/broken Paved- 2+000 to 5+165	-----	BC- 2+000 to 5+165, Palisading (Total 406 m) at 18 points along the road alignment	Not available in site
9	New Sonatola–Beterkandi Road (Village-A)	110814044	1.190	Damaged/broken Paved- 1+190	-----	BC-1+190, Palisading (21.0 m) at Ch. 0+023-0+044, Palisading (40.0 m, both sides) at Ch. 0+155-0+175, RCC U-Drain (1.0 m × 1.0 m) at Ch. 0+630-0+631	Not available in site
10	Shariakandi Sarkarpara WAPDA Bundh–Deluabari Road (Village-A)	110814062	0.850	Damaged/broken Paved- 0+850	-----	BC-0+850, Palisading (59 m) at Ch. 0+132-0+191	Not available in site
11	Diglkandi WAPDA Bundh–Digoldandi Growin via	110814030	2.225	Damaged/broken Paved- 0+000 to 2+225	Palisading (46 m) at Ch. 0+715 to 0+761.	BC- 0+000 to 2+225, Palisading (46 m) at Ch. 0+715-0+761, Palisading (22 m) at Ch. 0+906-0+928, Palisading (8 m) at Ch. 1+030-1+038,	Not available in site

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Sl. No.	Road Name (Road Type)	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Proposed Road Interventions	Safeguard Features
	Deluabari (Village-A)					Palisading (8 m, both sides) at Ch. 1+038-1+042, Palisading (8 m, both sides) at Ch. 1+046-1+050, Palisading (41 m) at Ch. 1+050-1+09	
12	Kuptola Moddah Para – Ramnagar GPS Road (Village-A)	110814076	1.275	Damaged/broken Paved- 0+000 to 1+275	Palisading (28.0 m) at Ch. 0+540 to 0+568.	BC- 0+000 to 1+275, Palisading (47.0 m) at Ch. 0+298-0+345, Palisading (76.0 m) at Ch. 0+568-0+644, RCC Culvert (3.0 m × 3.0 m) at Ch. 0+708-0+711, Palisading (35.0 m) at Ch. 0+858-0+893, Palisading (45.0 m) at Ch. 0+939-0+984, Palisading (22.0 m) at Ch. 0+988-1+010	Not available in site
13	Kalartair – Bashata Road (Village-B)	110815079	0.750	Damaged/broken Paved- 0+000 to 0+750	-----	BC- 0+000 to 0+750, Palisading (10 m) at Ch. 0+174-0+184, Palisading (14 m) at Ch. 0+397-0+41	Not available in site
14	Kutubpur GC– Dhunat Upazila H/Q Road (UZR)	110812009	3.870	Damaged/broken Paved- 0+000 to 3+870	Bridge (40 m) at Ch. 0+010-0+050, Bridge (7 m) at Ch. 2+240-2+247, Box Culvert (1.0 m × 1.0 m) at Ch. 2+552-2+553, Box Culvert (1.5 m × 1.5 m) at Ch. 2+967-2+969, Box Culvert (26 m) at Ch. 3+400-3+426	BC- 0+000 to 3+850, Side-Drain (20 m) at Ch. 0+430-0+450, Side-Drain (15 m) at Ch. 0+500-0+515, Side-Drain (15 m) at Ch. 0+545-0+560, Side-Drain (6 m) at Ch. 1+575-1+581, Side-Drain (17 m) at Ch. 3+083-3+100	Not available in site

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Sl. No.	Road Name (Road Type)	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Proposed Road Interventions	Safeguard Features
15	Chalapara UZR – South Paikpara Hat Road (Village-A)	110274057	0.907	Unpaved/Earthen Ch. 500m-1407m	Bridge (13.0 m) at Ch. 1000 m–1013 m, Box Culvert (3.0 m × 3.0 m) at Ch. 1360 m–1363 m	BC- Ch. 500m to 1407m Palisading (51.0 m) at Ch. 914 m–965 m, and repair of damaged infrastructures.	Not available in site
16	Padmapara – Nischantapur Road (Village-A)	110954041	1.564	Damaged/broken Paved- 0+000 to 1+564	Bridge (12m) at Ch. 0+667-0+679	BC- 0+000 to 1+564, Palisading (25 m) at Ch. 0+640-0+665	Not available in site
17	Jorgacha H/O Jinnah Mondol – Guravanga GPS Road (Village-A)	110954094	1.336	Unpaved/Earthen 0+250 to 1+586	Box Culvert (0.6 m × 0.6 m) at Ch. 0+320-0+326, Box Culvert (0.3 m × 0.3 m) at Ch. 0+350-0+353, Bridge (10 m) at Ch. 0+772-0+782	BC- 0+250 to 1+586, Palisading (10 m) at Ch. 0+320-0+330, Palisading (65 m) at Ch. 0+325-0+390, U-Drain (0.625 m × 0.600 m) at Ch. 0+523, Palisading (22 m) at Ch. 0+744-0+766, Palisading (16 m) at Ch. 0+750-0+766, U-Drain (0.625 m × 0.600 m) at Ch. 0+920, Palisading (12 m) at Ch. 1+016-1+028, Palisading (70 m) at Ch. 1+130-1+200	Not available in site

3.0 Environmental and Social Survey and Screening

3.1 Survey and Screening Methodology

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

3.2 Important features/establishments around the PIA

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

From an environmental perspective, the surrounding areas of the assessed community roads are predominantly characterized by agricultural landscapes, low-lying floodplains, scattered vegetation, and rural homestead gardens. Small ponds, irrigation canals, and natural drainage channels are also commonly found along or near the road alignments, which play a significant role in local water management and fish cultivation. These natural and semi-natural environmental features contribute to the ecological balance of the area and

therefore require careful consideration during construction activities to avoid unnecessary disturbance, sedimentation, or blockage of drainage paths.

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

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

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

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

Overall, the surrounding features and establishments within the project influence area reflect the typical rural landscape and socio-economic structure of Bogura 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: Rajshahi	District: Bogura	Upazila: Gabtoli	
Name of the Road:	Sheldhobari Amzad Hazi House to Vandara Montaz Mastar House Road (110404021)		
Total Road length (m):	900		
Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
5100-5400	L		Agricultural Land, Human Settlement, Trees, Graveyard, etc.
		R	Agricultural Land, Human Settlement, Trees, BADC Pump, etc.
5400-5700	L		Ditches, Human Settlement, Trees, etc.
		R	Ditches, Human Settlement, Trees, etc.
5700-6000	L		Vandara Moddo Para Jame Mosque, Human Settlement, Graveyard, Charmatha Bazar, etc.
		R	Ditches, Graveyard, Agricultural Land, Human Settlement, Charmatha Bazar, etc.
Name of the Road:	Sonarai-Jamirbaria Road (110404048)		
Total Road length (m):	700		
Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
2000-2300	L		Human Settlement, Trees, Agricultural Land
		R	Human Settlement, Trees, Agricultural Land
2300-2600	L		Agricultural Land, Trees, Human Settlement
		R	Agricultural Land, Trees, Human Settlement
2600-2700	L		Agricultural Land, Trees, Settlement
		R	Agricultural Land, Trees, Settlement
Name of the Road:	Jamirbaria-Uzgram Bazar Road (110404065)		
Total Road length (m):	1510		
Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)

000-300	L		Shop, Zamirbaria GPS, Human Settlement, Trees, Graveyard, etc.
		R	Human Settlement, Trees, Ditches, Beel, Agricultural Land, etc.
300-600	L		Khal, Beel, Agricultural Land, Human Settlement, Trees, etc.
		R	Khal, Beel, Agricultural Land, Human Settlement, Trees, etc.
600-900	L		Human Settlement, Ditches, Trees, Agricultural Land, etc.
		R	Human Settlement, Ditches, Agricultural Land, Trees, etc.
900-1200	L		Beel, Human Settlement, Agricultural Land, Trees, etc.
		R	Beel, Agricultural Land, Human Settlement, Trees, etc.
1200-1500	L		Human Settlement, Trees, Agricultural Land, Mosque, etc.
		R	Fishpond, Human Settlement, Agricultural Land, Trees, etc.
1500-1510	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.
Name of the Road:	Kazlapara Saburbari to Dhalirchor Via Nizkakra (110404117)		
Total Road length (m):	1870		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
000-300	L		Human Settlement, Fishpond, Trees, Ditches, etc.
		R	Agricultural Land, Human Settlement, Fishpond, Trees, Pond, etc.
300-600	L		Agricultural Land, Human Settlement, Trees, Ditches, Pond, etc.
		R	Human Settlement, Ditches, Pond, Agricultural Land, Trees, etc.
600-900	L		Human Settlement, Fishpond, Trees, Pond, Agricultural Land, etc.
		R	Human Settlement, Agricultural Land, Trees, Fishpond etc.
900-1200	L		Human Settlement, Ditches, Agricultural Land, Trees, Shops, etc.
		R	Human Settlement, Shops, Agricultural Land, Trees, Mosque, etc.
1200-1500	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
1500-1800	L		Human Settlement, Trees, Khal, Ditches, Fishpond, etc.
		R	Human Settlement, Trees, Khal, Ditches, Fishpond, etc.
1800-1870	L		Agricultural Land, Human Settlement, Shops, Trees, etc.
		R	Agricultural Land, Human Settlement, Shops, Trees, etc.
Name of the Road:	Sukhanpukur Kalur Ghat to Nizkakra H/O Sadhon Road (110404116)		
Total Road length (m):	1850		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
500-800	L		Ditches, Agricultural Land, Trees, Fishpond, etc.
		R	Human Settlement, Rice Mill, Trees, Agricultural Land, etc.
800-1100	L		Agricultural land, Khal, Human Settlement, Trees, etc.

		R	Human Settlement, Trees, Agricultural Land, Khal, etc.
1100-1400	L		Human Settlement, Ditches, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Ditches, Nij Kakra GPS, etc.
1400-1700	L		Human Settlement, Agricultural Land, Ditches, Trees, etc.
		R	Agricultural Land, Human Settlement, Trees, Ditches, etc.
1700-2000	L		Human Settlement, Trees, Agricultural Land, Ditches, etc.
		R	Human Settlement, Agricultural Land, Ditches, Trees, etc.
2000-2300	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.
2300-2350	L		Human Settlement, Trees, Agricultural Land, Ditches, etc.
		R	Human Settlement, Trees, Agricultural Land, Ditches, Shop, etc.
Name of the Road:	Nizkakra (H/O Sadhon) Road (110404153)		
Total Road length (m):	1750		
Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
000-300	L		Fishpond, Agricultural Land, Human Settlement, Trees, Mosque
		R	Fishpond, Agricultural Land, Eid Gah, Human Settlement, etc.
300-600	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Ditches, Trees, Agricultural Land, etc.
600-900	L		Agricultural Land, Beel, Trees, etc.
		R	Agricultural Land, Beel, Trees, etc.
900-1200	L		Beel, Trees, Agricultural Land, etc.
		R	Beel, Trees, Agricultural Land, Human Settlement, etc.
1200-1500	L		Human Settlement, Trees, Agricultural Land, Shop, etc.
		R	Agricultural Land, Trees, etc.
1500-1750	L		Agricultural Land, Ditches, Trees, Human Settlement, etc.
		R	Agricultural Land, Human Settlement, Trees, Ditches, etc.
Division: Rajshahi	District: Bogura		Upazila: Sariakandi
Name of the Road:	Fulbari GC–Kutubpur GC Road (110812002)		
Total Road length (m):	1800		
Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
9900-10200	L		Human Settlement, Agricultural Land etc.
		R	Agricultural Land, Forest, Human Settlement etc.
10200-10500	L		Human Settlement, Agricultural Land, etc.
		R	Human Settlement, Agricultural Land, Kutubpur New Jame Mosque etc.

10500-10800	L		Human Settlement, Agricultural Land, etc.
		R	Human Settlement, Agricultural Land etc.
10800-11100	L		Human Settlement, Ditches, Trees, Agricultural Land etc.
		R	Human Settlement, Ditches, Trees, Agricultural Land etc.
11100-11400	L		Human Settlement, Agricultural Land, Fishpond etc.
		R	Human Settlement, Agricultural Land, Trees etc.
11400-11700	L		Pakuria Para GPS, Human Settlement, Agricultural Land, Kutubpur Eid Gah etc.
		R	Agricultural Land, Trees etc.
Name of the Road:	Fulbari U.P–Shaihata College Hat Road (110813001)		
Total Road length (m):	3165		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
2000-2300	L		Sub Station, Shop, Kindergarten School, Home
		R	Patgram Govt. Degree College, Home
2300-2600	L		Mohila Madrasa, Ditch, Palisading, Agricultural Land, Home
		R	Shop, Ikra Madrasa, Agricultural Land, Home
2600-2900	L		Home, Ditch/Palisading, Mirja Forkani Madrasa
		R	Home, Agricultural land
2900-3200	L		Shop, Home
		R	Mosque, Home
3200-3500	L		Home, Ditch/Palisading
		R	Home
3500-3800	L		Home, F. Rahman School
		R	Graveyard, Home, Shop, Ditch/ Palisading
3800-4100	L		Ditch/Palisading, Graveyard, Pond, Home, Agricultural land
		R	Mosque, Agricultural land, Home
4100-4400	L		Lolitarhat High School, Shop, Home
		R	Graveyard, Home
4400-4700	L		Home, Agricultural land, Nolitar Hat Bazar
		R	Home, Agricultural land, Kuchlibari Union Parishod, Madrasa, Bazar
4700-5165	L		Bazar, Home, Madrasa, Ditch/Palisading
		R	Home, Bazar, Ditch, Madrasa
Name of the Road:	New Sonatola–Beterkandi (110814044)		
Total Road length (m):	1190		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	

000-300	L		New Sonatola Bazar, Ditches, Fishpond, Agricultural Land, etc.
		R	Bazar, Human Settlement, Agricultural Land etc.
300-600	L		Poultry Farm, Agricultural Land etc.
		R	Agricultural Land etc.
600-900	L		Human Settlement, Shops, Agricultural Land, etc.
		R	Fishpond, Agricultural Land etc.
900-1190	L		Ditches, Agricultural Land etc.
		R	Human Settlement, Agricultural Land, Trees etc.
Name of the Road:	Shariakandi Sarkarpara WAPDA Bundh–Deluabari Road (110814062)		
Total Road length (m):	850		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
950-1250	L		Human Settlement, Agricultural Land, Trees, Khal, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.
1250-1550	L		Human Settlement, Agricultural Land, Jamuna River, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
1550-1800	L		Agricultural Land, Human Settlement, Trees, Jamuna River, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
Name of the Road:	Diglkandi WAPDA Bundh–Digoldandi Growin via Deluabari (110814030)		
Total Road length (m):	2225		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
000-300	L		Fishpond, Human Settlement, Trees, Brickfield, etc.
		R	Human Settlement, Trees, Pond, etc.
300-600	L		Agricultural Land, Human Settlement, Trees, Ditches, Pond, etc.
		R	Human Settlement, Trees, Shops, etc.
600-900	L		Human Settlement, Digolkandi Jama Mosque, Fishpond, Trees, etc.
		R	Human Settlement, Trees, Graveyard, etc.
900-1200	L		Human Settlement, Ditches, Agricultural Land, Trees, Shops, etc.
		R	Human Settlement, Shops, Agricultural Land, Trees, etc.
1200-1500	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Trees, Mosque, Shops, etc.
1500-1800	L		Human Settlement, Trees, etc.
		R	Human Settlement, Trees, etc.
1800-2100	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Trees, Shops, Nobadori GPS, Mosque, etc.

2100-2225	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Shops, Trees, etc.
Name of the Road:	Kuptola Moddah Para – Ramnagar GPS Road (110814076)		
Total Road length (m):	1275		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
000-300	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Human Settlement, Fishpond, Trees, Agricultural Land, etc.
300-600	L		Shops, Human Settlement, Agricultural Land, Fishpond etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
600-900	L		Fishpond, Beel, Agricultural Land, etc.
		R	Fishpond, Agricultural Land etc.
900-1200	L		Fishpond, Ditches, Agricultural Land etc.
		R	Human Settlement, Agricultural Land, Trees etc.
1200-1275	L		Fishpond, Human Settlement, Agricultural Land, etc.
		R	Fishpond, Human Settlement, Agricultural Land, etc.
Name of the Road	Kalartair – Bashata Road (110815079)		
Total Road length (m):	750		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
000-300	L		Human Settlement, Agricultural Land, Solartair Eid gah, Trees, Shops, etc.
		R	Khal, Beel, Agricultural Land, Shops, Trees, etc.
300-600	L		Bambo Forest, Trees, Ditches, etc.
		R	Bashata GPS, Shops, Trees, Bashata Central Jama Mosque, River, Pond, etc.
600-750	L		Agricultural Land, Trees, Human Settlement, etc.
		R	Human Settlement, River, etc.
Name of the Road:	Kutubpur GC–Dhunat Upazila H/Q Road (Shariakandi Part) (110812009)		
Total Road length (m):	3870		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
000-300	L		Kutubpur Bazar, Khal, Trees, Agricultural Land, Human Settlement, etc.
		R	Kutubpur Bazar, Khal, Human Settlement, Trees, Jame Mosque, etc.
300-600	L		Human Settlement, Trees, Agricultural Land, Khal, etc.

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		R	Human Settlement, Graveyard, Trees, etc.
600-900	L		Human Settlement, Trees, Mosque, Agricultural Land, etc.
		R	Agricultural Land, Human Settlement, etc.
900-1200	L		Graveyard, Trees, Human Settlement, Ditches, etc.
		R	Agricultural Land, Shops, Human Settlement, Trees, etc.
1200-1500	L		Human Settlement, Graveyard, Shops, Trees, Bazar, etc.
		R	Human Settlement, Shops, Trees, Pond, Ditches, etc.
1500-1800	L		Human Settlement, Fish Pond, Ditches, etc.
		R	Human Settlement, Ditches, Trees, Mosque, etc.
1800-2100	L		Agricultural Land, Human Settlement, Trees, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
2100-2400	L		Agricultural Land, Human Settlement, Trees, etc.
		R	Agricultural Land, Human Settlement, Ditches, Trees, etc.
2400-2700	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.
2700-3000	L		Mosque, Trees, Human Settlement, etc.
		R	Agricultural Land, Human Settlement, Trees, etc.
3000-3300	L		Human Settlement, Ditches, Trees, Agricultural Land, etc.
		R	Agricultural Land, Human Settlement, Trees, Mosque, etc.
3300-3600	L		Human Settlement, Trees, Agricultural Land, Khal etc.
		R	Human Settlement, Khal, Trees, Agricultural Land, etc.
3600-3870	L		Human Settlement, Trees, School, Mosque, Shops, etc.
		R	Human Settlement, Agricultural Land, Trees, Shops, etc.
Division: Rajshahi	District: Bogura	Upazila: Dhunot	
Name of the Road:	Chalapara UZR – South Paikpara Hat Road (110274057)		
Total Road length (m):	907		
Chainage	Orientation (L/R)	Social/Economic/Cultural/Environmental Features (with distance from centerline)	
500-800	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Human Settlement, Fishpond, Trees, Agricultural Land, etc.
800-1100	L		Shops, Human Settlement, Agricultural Land, Fishpond etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
1100-1407	L		Fishpond, Beel, Agricultural Land, etc.
		R	Fishpond, Agricultural Land etc.
Division: Rajshahi	District: Bogura	Upazila: Sonatola	
Name of the Road:	Padmapara – Nischantapur Road (110812009)		

Total Road length (m):	1564		
Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
000-300	L		Shop, Human Settlement, School, Trees, etc.
		R	Padma Para GPS, Shops, Trees, Ditches, Agricultural Land, etc.
300-600	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Eid Gah, Human Settlement, Agricultural Land, Trees, etc.
600-900	L		Human Settlement, Trees, Agricultural Land, Khal, etc.
		R	Human Settlement, Trees, Agricultural Land, Khal, etc.
900-1200	L		Agricultural Land, Portly Frame, Human Settlement, Trees, etc.
		R	Fish Pond, Agricultural Land, Human Settlement, Trees, etc.
1200-1500	L		Human Settlement, Trees, Graveyard, Shops, etc.
		R	Human Settlement, Agricultural Land, Trees, Shops, etc.
1500-1564	L		Nischantapur GPS, Human Settlement, Trees, Graveyard, etc.
		R	Human Settlement, Trees, Mosque, Shops, Agricultural Land, etc.
Name of the Road:	Jorgacha H/O Jinnah Mondol – Guravanga GPS Road (110954094)		
Total Road length (m):	1336		
Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
250-550	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Khal, Agricultural Land, etc.
550-850	L		Fish Pond, Agricultural Land, Human Settlement, Ditches, etc.
		R	Khal, Agricultural Land, Human Settlement, etc.
850-1150	L		Human Settlement, Ditches, Trees, etc.
		R	Agricultural Land, Ditches, Human Settlement, etc.
1150-1350	L		Human Settlement, Ditches, Trees, etc.
		R	Human Settlement, Fish Pond, Agricultural Land, Trees, Graveyard, etc.
1350-1586	L		Khal, Agricultural Land, Trees, Community Clinic, etc.
		R	Fishpond, Human Settlement, Graveyard, School, Shop, etc.

(*Data Source: Field Survey, April, 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 Bogura 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 Bogura District

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
1	Sheldhobari Amzad Hazi House to Vandara Montaz Mastar House Road	• Generation of dust and particulate matter due to earthworks, excavation, and movement of construction vehicles, potentially affecting nearby homesteads and agricultural land. • Increased noise levels from operation of machinery such as rollers, excavators, and trucks, causing disturbance to residents, particularly during early morning and evening hours. • Temporary obstruction of local access roads, footpaths, and household entry points affecting daily mobility. • Elevated safety risks for pedestrians, children, and elderly due to movement of heavy vehicles within settlement areas.	• Regular water spraying on exposed surfaces, haul roads, and material stockpiles to minimize dust dispersion. • Covering of construction materials during transport and proper storage of aggregates and sand. • Restriction of noisy construction activities to daytime hours with prior community notice. • Deployment of trained flagmen, installation of warning signs, barricades, and controlled vehicle movement within populated areas. • Provision of safe temporary access routes for households and pedestrians.
2	Sonarai-Jamirbaria Road	• Dust emission affecting roadside settlements, schools, and small commercial establishments. • Continuous noise disturbance from construction machinery and vehicular	• Frequent water spraying and dust suppression measures along active construction zones. • Scheduling of high-noise activities during less sensitive hours and maintaining equipment

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		movement. • Interruption of normal traffic flow including pedestrians, rickshaws, and local transport. • Potential blockage of roadside drains leading to localized water stagnation during rainfall events.	in good condition to reduce noise. • Implementation of traffic management plans including signage, diversions, and manual control where necessary. • Regular cleaning and maintenance of drainage channels and culverts to ensure uninterrupted water flow.
3	Jamirbaria-Uzgram Bazar Road	• Noise and vibration impacts affecting nearby households and bazaar areas. • Temporary congestion and disruption of traffic movement, particularly in market zones. • Minor removal of roadside vegetation leading to localized ecological disturbance. • Risk of soil erosion in exposed construction sections. • Safety risks in densely populated market areas.	• Restriction of construction timing near market hours and use of low-noise equipment where possible. • Deployment of traffic marshals and proper signage to manage congestion. • Minimization of vegetation clearance and compensatory plantation after construction. • Stabilization of exposed soil surfaces using compaction, turfing, or bioengineering methods. • Installation of safety barriers and pedestrian management systems in bazaar areas.
4	Kazlapara Saburbari to Dhalirchor via Nizkakra	• Dust emissions affecting residential clusters along the alignment. • Traffic disruption and temporary access limitations to households and agricultural fields.	• Regular dust control through water spraying and controlled movement of construction vehicles. • Maintenance of uninterrupted access to residences and shops through temporary

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		- Increased safety risks due to movement of construction vehicles near settlements. - Disturbance to roadside shops and small businesses affecting income generation.	pathways. - Implementation of safety measures including barricades, reflective signage, and trained traffic personnel. - Proper coordination with local community to minimize business disruption during peak hours.
5	Sukhanpukur KalurGhat to Nizkakra H/O Sadhon Road	- Air pollution due to dust from earthworks and transport activities. - Obstruction of local transport routes affecting mobility of residents. - Blockage of natural drainage systems leading to localized flooding risks. - Generation of construction waste affecting roadside cleanliness. - Temporary livelihood disruption for roadside vendors.	- Dust suppression through regular water spraying and covering of materials. - Ensuring continuous access for pedestrians and local vehicles during construction. - Proper design and maintenance of drainage structures to prevent waterlogging. - Segregation, reuse, and proper disposal of construction waste at designated sites. - Engagement with local vendors to maintain access during construction phases.
6	Nizkakra (H/O Sadhon) Road	- Temporary traffic obstruction and congestion during construction works. - Increased risk of soil erosion in embankment and roadside slopes. - Waterlogging due to inadequate drainage management. - Accumulation of construction debris along	- Preparation and implementation of a detailed traffic management plan with alternative access routes. - Stabilization of slopes using retaining structures, turfing, or geo-fabric materials. - Improvement and regular maintenance of drainage channels and cross-culverts.

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		work zones. Safety hazards for local residents and road users.	- Timely removal and environmentally safe disposal of construction waste. - Installation of warning signs, barricades, and safety lighting in active work areas.
7	Fulbari GC-Kutubpur GC Road	- Dust and noise emissions affecting nearby rural settlements. - Temporary traffic disruption along village access routes. - Soil erosion in embankment and exposed surfaces. - Loss of roadside vegetation and habitat disturbance. - Generation of solid construction waste.	- Implementation of dust suppression and noise reduction measures. - Protection and stabilization of embankments through engineering and bioengineering methods. - Replantation of trees and vegetation restoration along roadside areas. - Proper segregation and disposal of construction waste. - Continuous monitoring of environmental compliance during construction.
8	Fulbari U.P-Shaihata College Hat Road	- Traffic congestion affecting students, commuters, and market users. - Erosion of embankment in vulnerable sections. - Drainage congestion leading to localized flooding. - Safety risks for students, pedestrians, and roadside vendors. - Temporary disturbance to market and	- Implementation of strict traffic management near school and market zones. - Strengthening of embankments with protective structures and vegetation. - Regular cleaning and upgrading of drainage systems. - Installation of safety signage, pedestrian crossings, and barriers. - Coordination with local institutions to

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		educational activities.	minimize disruption during peak hours.
9	New Sonatola-Beterkandi	- Dust and noise pollution affecting nearby homesteads. - Temporary disruption of rural mobility and agricultural access. - Risk of waterlogging due to improper drainage alignment. - Occupational and community safety risks during construction.	- Continuous water spraying and dust control measures. - Maintenance of drainage flow through proper culvert design. - Traffic safety measures including signage, barricades, and flagmen. - Enforcement of PPE use and safe construction practices for workers.
10	Shariakandi Sarkarpara WAPDA Bundh-Deluabari Road	- Dust and noise impacts on embankment-side settlements. - Temporary restriction of access along WAPDA embankment road. - Risk of erosion near embankment structures. - Safety concerns for nearby households.	- Regular dust suppression and equipment maintenance. - Ensuring continuous access along embankment through phased construction. - Protection of embankment slopes using stabilization measures. - Installation of warning signage and safety barricades.
11	Diglkandi WAPDA Bandh-Digoldandi via Deluabari	- Dust emission affecting adjacent rural households. - Noise disturbance from machinery operation. - Soil erosion and instability in embankment areas. - Safety risks due to close proximity of	- Dust control through water spraying and material covering. - Stabilization of slopes and embankments with protective works. - Traffic control and controlled movement of heavy vehicles. - Installation of community safety signage and

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		construction activities.	barriers.
12	Kuptola Moddah Para - Ramnagar GPS	- Dust and noise pollution affecting nearby settlements. - Traffic disruption in rural access roads. - Blockage of drainage systems during construction. - Safety risks for pedestrians and school-going children.	- Regular dust suppression and controlled vehicle movement. - Maintenance of uninterrupted access routes for local users. - Improvement of drainage structures and periodic cleaning. - Installation of safety signs and pedestrian protection measures.
13	Kalartair - Bashata Road	- Dust and air pollution affecting residential areas. - Noise disturbance from construction machinery. - Temporary access disruption to households and farmland. - Erosion risk near water bodies and low-lying areas.	- Water spraying and controlled handling of construction materials. - Maintenance of machinery to reduce noise emissions. - Provision of safe alternative access routes. - Stabilization of erosion-prone areas near water bodies using protective measures.
14	Kutubpur GC-Dhunat Upazila H/Q Road (Sariakandi part)	- Increased traffic load leading to safety risks. - Dust and noise pollution along settlement zones. - Disturbance to nearby residential and institutional areas. - Drainage congestion during rainy periods.	- Traffic control measures including signage and road marshals. - Dust and noise mitigation through water spraying and maintenance. - Upgrading of drainage and culvert capacity. - Community awareness and safety measures in settlement areas.

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
15	Chalapara UZR-South Paikpara Hat	- Dust and noise impacts affecting market activities. - Traffic disruption in busy rural market zones. - Temporary impact on local trade and mobility. - Increased safety risks for pedestrians.	- Maintenance of market access during construction. - Traffic diversion and control during peak hours. - Dust suppression measures throughout construction. - Installation of pedestrian safety signage and barriers.
16	Padmapara-Nischantapur Road	- Dust and noise pollution along rural settlements. - Temporary disruption of transport and agricultural movement. - Soil erosion risks in exposed areas. - Drainage obstruction leading to localized waterlogging.	- Dust control through regular water spraying. - Stabilization of embankments and slopes. - Maintenance of drainage channels and culverts. - Ensuring safe and continuous access for local users.
17	Jorgacha H/O Jinnah Mondol-Guravanga GPS	- Dust and noise impacts affecting nearby households. - Temporary traffic disruption during construction phases. - Safety risks for pedestrians and local commuters. - Minor ecological disturbance in roadside areas.	- Implementation of dust and noise control measures. - Traffic management and access maintenance. - Installation of safety signage, barriers, and flagmen. - Post-construction restoration of affected areas including vegetation.

5.0 Environmental and Social Management Plan (ESMP)

5.1 Purpose of the ESMP

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

Specifically, the ESMP aims to minimize adverse effects on local communities, settlements, flood shelters, agricultural lands, roadside vegetation, water bodies, and sensitive receptors such as schools and religious institutions. It outlines detailed mitigation measures for construction-related impacts such as dust, noise, traffic disruption, soil erosion, and safety hazards, and includes measures for operational sustainability and long-term maintenance of the roads. Furthermore, the ESMP establishes procedures for stakeholder engagement, grievance redress, occupational health and safety, and monitoring and reporting, ensuring that the project delivers its intended 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 in Gabtoli, Sariakandi, Dhunot and Sonatola Upazilas. By integrating environmental and social considerations into every stage of project implementation, the ESMP ensures that the benefits of improved road infrastructure are maximized while negative impacts are systematically prevented, mitigated, and managed.

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

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

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		included in the project GRCs.		
Pre-Construction Stage	Loss of right to access	- Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. - In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employee 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	Site Selection for workers camps, stack yards &	Workers camp, site office and stack yard should be located at a site favorable for the workers and	Contractor	Environmental Consultant of PIU

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
Construction	Dust	• Acceptable range of emission of CO, particulate	Contractor	Environmental

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

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 different times/phases will be oriented about the same.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction	Waste Management:	• Preparation of a waste management plan covering	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	Improper management and handling of hazardous and non-hazardous waste during construction.	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.		Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	- Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. - Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and	- All construction equipment will be properly inspected timely. - The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	vehicles, and electrical shocks. Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	- Proper Signpost at any slippery areas will be ensured in construction site. - Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. - This sub project will have Proper communicative emergency response plan (ERP) with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. - All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. - Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. - All safety equipment will be available in sub-project		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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.		
Construction Activity	Demobilization of structures, facilities and equipment	• Provision to proper measures of mitigation and monitoring to minimize or reduce the	Contractor	Environmental Consultant of

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		designated site is available within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be 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

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;	Weekly during construction	Contractor (monitoring & Implementation);	Site inspection, photographic records

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

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
		jackets)		(verification)	
10.	Worker Safety Training	Records of safety briefings and toolbox meetings	Monthly	Contractor (Safety Officer); PIU/D&SC (verification)	Training records review
11.	Construction Site Safety	Warning signs, barricades, and safe access control at work sites	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Field inspection
12.	Traffic Management	Presence of traffic signs, flagmen, and safe vehicle movement	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Observation, traffic control records
13.	Community Health and Safety	Protection of pedestrians and local residents from construction hazards	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Community consultation, site inspection
14.	Access to Local Facilities	Uninterrupted access to homes, markets, schools, mosques, and agricultural land	Weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field observation
15.	Protection of Roadside Vegetation	Preservation of existing roadside trees and vegetation	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification
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	Monthly	Contractor (monitoring & Implementation);	Field verification

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
		agricultural land		PIU/D&SC (verification)	
18.	Labor Management	Absence of child labor and forced labor; compliance with labor laws	Monthly	Contractor (Implementation); PIU/D&SC (verification)	Labor records review
19.	Worker Welfare Facilities	Availability of safe drinking water, sanitation, and rest areas for workers	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Site inspection
20.	Gender and Social Inclusion	Participation of local community including women in consultations	Quarterly	Contractor (recording); PIU (review)	Consultation meeting records
21.	Grievance Redress Mechanism (GRM)	Number of grievances received and resolved within specified timeframe	Monthly	Contractor (recording); PIU (review)	GRM register review
22.	Community Consultation	Stakeholder engagement and awareness regarding construction activities	Quarterly	Contractor (recording); PIU (review)	Meeting minutes, attendance records
23.	Cultural and Religious Sites Protection	Protection of nearby mosques, graveyards, temples, or cultural structures	As required	Contractor (Implementation); PIU/D&SC (verification)	Field inspection
24.	Compliance with ESMP	Overall implementation status of mitigation measures described in ESMP	Monthly	Contractor (Implementation); PIU (verification)	Monitoring checklist, compliance report
25.	Environmental and Social Reporting	Preparation and submission of ES monitoring reports	Monthly / Quarterly	Contractor (Implementation); PIU/D&SC (verification)	Monitoring reports

5.4 Capacity Development Measures

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

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

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

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

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

5.5 Tree Plantation Plan

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

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

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

According to the prevailing practice in Bangladesh, the 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 5.4**.

Table 5.4: 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	• Watering: needs two times in a day; Prefer especially rainy season for tree plantation if it is in other season then

Plant Selection	Height and Spacing	Planting and Fencing Details	Maintenance
	- As all tree heights are not same, at the time of some specific tree plantation Upazila and Contractor should communicate with Consultant Team; - Tree plantation spacing should be 3m c/c from one tree to another tree	be planted and securely supported using 1800 mm long Borrak bamboo stakes, tied with jute rope, including the 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.	proper watering is needed; - Needs weed out grass and other unnecessary vegetation - 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 seventeen identified community roads across Gabtoli, Sariakandi, Dhunot, and Sonatola Upazilas. The detailed road wise estimate, with tentative cost for implementing the ESMP, is given in **Annexure 1**. These costs are specifically allocated to implement mitigation measures and safeguard activities that address environmental and social risks during construction and operation

phases. Key components included in the BOQ for ES enhancement works comprise dust suppression through regular water spraying,

The BOQ also includes provisions for occupational health and safety (OHS) equipment for workers PPE, First Aid Box, Labor shed, Environmental management, drinking water facility with water tests, Temporary latrine for both male and female as well as waste disposal systems has been accounted for. Ensuring sustainable labor performance in regards to environmental and social considerations motivational training has been taken into account. By integrating these costs into the project BOQ, the sub-project ensures that environmental and social safeguards are systematically implemented without compromising project timelines or quality, while promoting sustainable, safe, and resilient road infrastructure that benefits local communities and maintains safe access to flood shelters.

6.0 PUBLIC CONSULTATION MEETING

6.1 Stakeholder Engagement

Stakeholder engagement is a critical component for ensuring that the perspectives, concerns, and suggestions of affected communities and relevant stakeholders are incorporated into project planning and implementation, a comprehensive series of stakeholder engagement and site-specific consultation meetings were conducted for all proposed shelter sites. These meetings were held from April 04-12, 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 Bogura 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.	Sheldhobari Amzad Hazi House to Vandara Montaz Mastar House Road	12-04-26	Alongside the proposed road	The local individuals, elites, chairman and/or member of respective Union Parishad, farmer, businessmen, religious leaders, women, fishermen etc.	11
2.	Sonarai-Jamirbaria Road	12-04-26	Alongside the proposed road		13
3.	Jamirbaria-Uzgram Bazar Road	12-04-26	Alongside the proposed road		17
4.	Kazlapara Saburbari to Dhalirchor (H/O	04-04-26	Alongside the proposed		10

Sl. No.	Name of Community Road	Date DD-MM-YYYY	Venue	Main Participant Groups	No. of Participants
	Sattar) via Nizkakra (H/O Sadhon)		road		
5.	Sukhanpukur Kalur Ghat to Nizkakra H/O Sadhon Road	12-04-26	Alongside the proposed road		12
6.	Nizkakra (H/O Sadhon) Road	12-04-26	Alongside the proposed road		17
7.	Fulbari GC-Kutubpur GC Road	04-04-26	Alongside the proposed road		08
8.	Fulbari U.P-Shaihata College Hat Road	04-04-26	Alongside the proposed road	The local individuals, elites, chairman and/or member of respective Union Parishad, farmer, businessmen, religious leaders, women, fishermen etc.	10
9.	New Sonatola-Beterkandi	04-04-26	Alongside the proposed road		09
10	Shariakandi Sarkarpara WAPDA Bundh-Deluabari Road	04-04-26	Alongside the proposed road		11
11	Diglkandi WAPDA Bundh-Digoldandi Growin via Deluabari	04-04-26	Alongside the proposed road		10
12	Kuptola Moddah Para - Ramnagar GPS Road	04-04-26	Alongside the proposed road		08
13	Kalartair - Bashata Road	04-04-26	Alongside the proposed road	The local individuals, elites, chairman and/or member of respective Union Parishad, farmer, businessmen, religious leaders, women, fishermen etc.	10
14	Kutubpur GC-Dhunat Upazila H/Q Road (Shariakandi Part)	12-04-26	Alongside the proposed road		10
15	Chalapara UZR - South Paikpara Hat Road	12-04-26	Alongside the proposed road		12
16	Padmapara - Nischantapur Road	12-04-26	Alongside the proposed road		10
17	Jorgacha H/O Jinna	12-04-26	Alongside the proposed road		10



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 Bogura 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	Sheldhobari Amzad Hazi House to Vandara Montaz Mastar House Road	12-04-26 and alongside of the proposed road	• Road becomes muddy during monsoon • Waterlogging in low-lying sections • Limited access to nearby shelters during floods	• Improve road with proper compaction and bituminous surfacing • Raise low-lying sections • Provide adequate drainage to prevent waterlogging • Ensure access to shelters year-round
2	Sonarai-Jamirbaria Road	12-04-26 and alongside of the proposed road	• Dust and noise during construction • Temporary disruption of local movement • Safety concerns during construction	• Apply regular water spraying for dust control • Ensure proper material handling • Maintain temporary access for residents • Install safety signs and barriers
3	Jamirbaria-Uzgram Bazar Road	12-04-26 and alongside of the proposed road	• Traffic congestion in busy areas • Pedestrian safety risks • Concern over possible tree removal	• Prepare traffic management plan • Install pedestrian crossings and warning signs • Minimize tree cutting and ensure compensatory plantation
4	Kazlapara Saburbari to Dhalirchor via Nizkakra	04-04-26 and alongside of the proposed road	• Frequent waterlogging • Disruption to agricultural land access • Safety concerns for workers and locals	• Improve drainage through side drains and culverts • Maintain access to agricultural land • Implement safety measures (barricades, signage, PPE)
5	Sukhanpukur Kalur Ghat	12-04-26 and	• Narrow road width	• Widen road within available ROW where

Sl. No.	Name of Community Roads	Date and Site of Consultation	Issues Raised and Discussed	Recommendations and Comments
	to Nizkakra Road	alongside of the proposed road	• Difficulty in vehicle movement • Dust during dry season	feasible • Apply dust suppression measures (water spraying, covering materials)
6	Nizkakra (H/O Sadhon) Road	12-04-26 and along the side of the proposed road	• Poor road condition during rainy season • Limited access to local markets	• Strengthen road base • Apply durable surfacing for all-weather use
7	Fulbari GC-Kutubpur GC Road	04-04-26 and along the side of the proposed road	• Dust and noise affecting nearby households • Risk to schools and religious places • Roadside erosion issues	• Control dust and noise through proper practices • Install safety signage near sensitive locations • Provide slope protection and erosion control
8	Fulbari U.P-Shaihata College Hat Road	04-04-26 and along the side of the proposed road	• Narrow road sections • Safety risks for students • Improper construction waste disposal	• Improve width within feasible limits • Install speed breakers and safety signage • Ensure proper waste management
9	New Sonatola-Beterkandi	04-04-26 and along the side of the proposed road	• Muddy road condition during monsoon • Flooding in low areas • Poor access to shelters	• Upgrade to all-weather road standard • Improve drainage system • Raise low sections for flood resilience
10	Shariakandi Sarkarpara WAPDA Bundh-Deluabari Road	04-04-26 and along the side of the proposed road	• Risk of erosion along embankment • Temporary traffic disruption	• Provide embankment protection works • Implement traffic management and diversion plans
11	Diglkandi WAPDA Bundh-Digoldandi via	04-04-26 and along the side of the	• Noise disturbance from construction	• Limit construction during sensitive hours • Establish proper waste disposal system

Sl. No.	Name of Community Roads	Date and Site of Consultation	Issues Raised and Discussed	Recommendations and Comments
	Deluabari	proposed road	- Improper waste disposal - Safety concerns near market areas	Install traffic calming measures and signage
12	Kuptola Moddah Para - Ramnagar GPS Road	04-04-26 and along the side of the proposed road	- Waterlogging issues - Dust and noise pollution - Traffic safety concerns	- Construct adequate drainage structures - Apply dust and noise control measures - Implement traffic safety arrangements
13	Kalartair - Bashata Road	04-04-26 and along the side of the proposed road	- Narrow road width - Dust problems - Disruption to agricultural transport	- Widen road where feasible - Apply dust control measures - Ensure access for agricultural activities
14	Kutubpur GC-Dhunat Upazila H/Q Road (Shariakandi Part)	12-04-26 and along the side of the proposed road	- High traffic volume - Increased risk of accidents	- Prepare comprehensive traffic management plan - Install warning signs, barriers, and deploy safety personnel
15	Chalapara UZR - South Paikpara Hat Road	12-04-26 and along the side of the proposed road	- Uneven road surface - Pedestrian safety risks in busy areas	- Improve road surface quality - Provide walkways, signage, and traffic calming measures
16	Padmapara - Nischantapur Road	12-04-26 and along the side of the proposed road	- Flooding in certain sections - Disruption of regular movement	- Raise road elevation in flood-prone areas - Maintain temporary access during construction - Inform community in advance
17	Jorgacha H/O Jinnah Mondol - Guravanga GPS Road	12-04-26 and along the side of the proposed road	- Poor road condition during rainy season - Risks to nearby settlements	- Strengthen pavement and drainage system - Install signage, speed breakers, and safety measures

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the environmental and social assessment conducted for Community Roads at Bogura District under the RIVER Project, it can be concluded that the proposed improvement of seventeen (17) community roads across Gabtoli, Sariakandi, Dhunot and Sonatola Upazila in Bogura 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 Bogura 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 Gabtoli, Sariakandi, Dhunot and Sonatola 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 BOGURA
DISTRICT

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

Name of Sub-Project: Improvement of Community Road for **Sheldhobari Amzad Hazi House to Vandara Vrontaz Mastar House; Road ID: 110404021**

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

District: Bogura

Upazila: Gabtoli

Union: Durgahata

Name of Community/Local Area: Bandara, Durgahata

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

The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The proposed road improvement works will include site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out predominantly within the existing road corridor, to the maximum extent possible, in order to enhance riding quality and ensure all-weather accessibility. The sub-project incorporates several protective and drainage structures to improve road stability and ensure proper water management. These include side-drains of 26 m, 10 m, 45 m, 13 m, and 20 m at chainages 5+238-5+264, 5+348-5+358, 5+408-5+453, 5+513-5+526, and 5+523-5+543, respectively. In addition, palisading works of 19 m, 33 m, and 36 m are proposed at chainages 5+377-5+396, 5+375-5+408, and 5+708-5+744, respectively. These structures are strategically planned to provide slope protection, prevent erosion, and maintain the continuity of natural drainage patterns along the road alignment. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be sourced from approved local suppliers in compliance with relevant environmental and procurement guidelines. The overall project footprint will remain largely confined within the existing road alignment to minimize potential environmental and social impacts. Appropriate road safety measures, along with Environmental and Social Mitigation measures, have been integrated 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 2,700 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 900m. 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
5100-5400	L		Agricultural Land, Human Settlement, Trees, Graveyard, etc.
		R	Agricultural Land, Human Settlement, Trees, BADC Pump, etc.
5400-5700	L		Ditches, Human Settlement, Trees, etc.
		R	Ditches, Human Settlement, Trees, etc.
5700-6000	L		Vandara Moddo Para Jame Mosque, Human Settlement, Graveyard, Charmatha Bazar, etc.
		R	Ditches, Graveyard, Agricultural Land, Human Settlement, Charmatha Bazar, etc.



Starting Point of Sheldhobari Amzad Hazi House to Vandara

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.

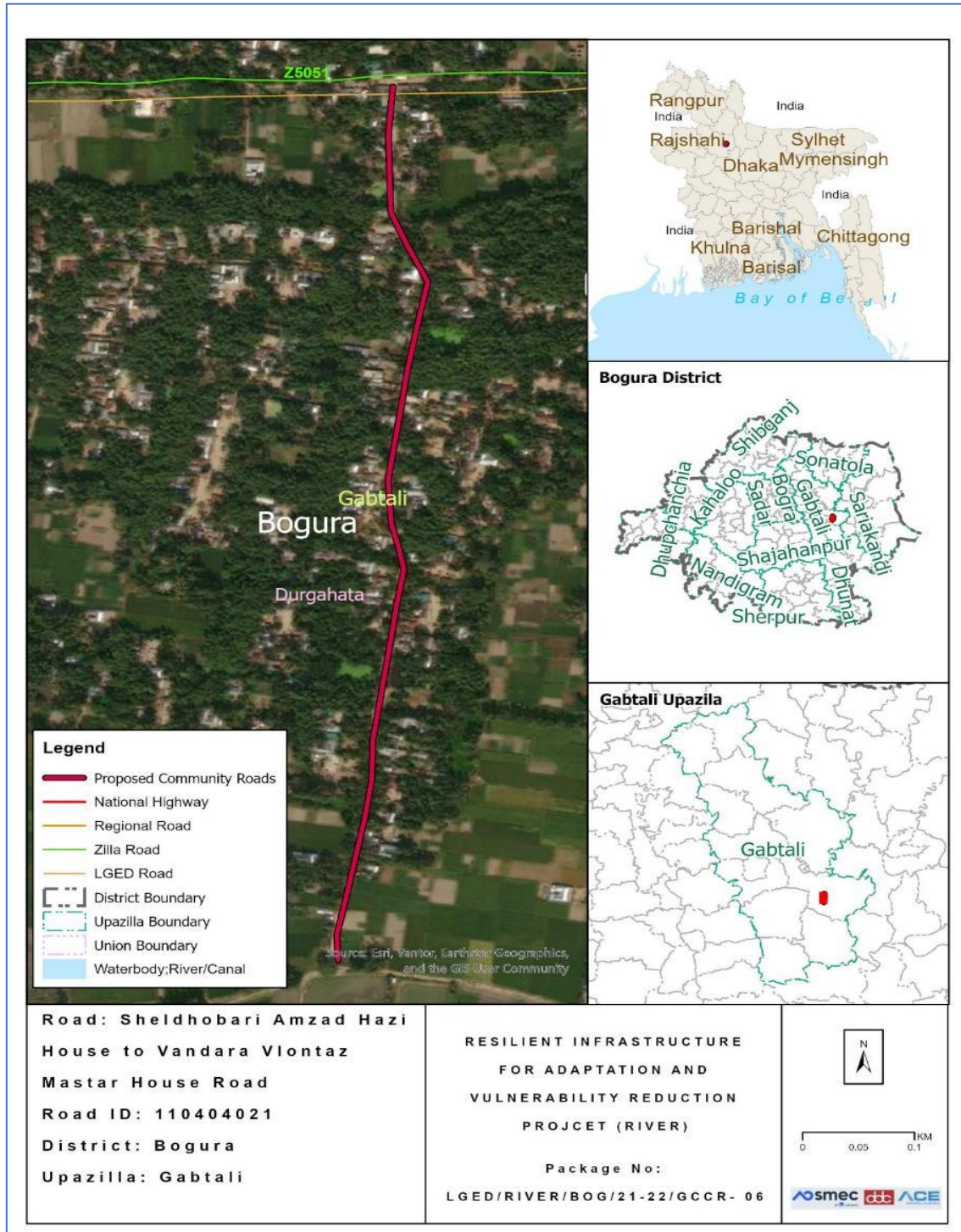
Types of waste to be generated during construction and operation phase:

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 have been identified within the direct influence area of the proposed sub-project; however, several environmentally and socially sensitive features are located in close proximity to the existing road alignment. Within chainage 0+000 to 0+300 m, the left side of the road comprises agricultural land, scattered human settlements, roadside trees, and a graveyard, while the right side includes agricultural land, human settlements, roadside vegetation, and a BADC irrigation pump. From chainage 0+300 to 0+600 m, both sides of the road corridor are characterized by ditches, human settlements, and trees, reflecting a mixed rural setting. The section between chainage 0+600 and 0+900 m is comparatively more sensitive, with the presence of Vandara Moddo Para Jame Mosque, human settlements, a graveyard, and Charmatha Bazar on the left side, and ditches, a graveyard, agricultural land, human settlements, and portions of Charmatha Bazar on the right side; these features are of notable religious, cultural, and socio-economic importance

to the local community. Overall, the road alignment traverses a heterogeneous landscape consisting of agricultural land, settlements, water bodies, and community facilities; however, as the proposed improvement works will be carried out largely within the existing right-of-way, no significant adverse impacts on these sensitive receptors are anticipated, and appropriate environmental and social management measures will be implemented during construction to minimize potential disturbances and ensure adequate protection of nearby features.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 900 m**.

Sub-project Location:

Important Features	
ID	110404021
District	Bogura
Upazila	Gabtolli
Union	Durgahata
Total Chainage	900m
Proposed Chainage	900m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.83683 N Longitude: 89.50828 E
Road Ending Point Coordinates	Latitude: 24.84457 N Longitude: 89.50872 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 Bandara, Durgawati villages.
- ii) No historical sites were found
- iii) Not required to relocate local community.
- iv) Some trees, vegetation and livelihood will be affected.
- v) Very low chance of loss of agricultural land.
- vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmentally and socially sensitive features, including religious establishments, market areas, and community infrastructure, are located within the influence area of the proposed sub-project. Along the left side of the road alignment, within chainage 0+000 to 0+300 m, the area comprises agricultural land, human settlements, roadside trees, and a graveyard, while the right side includes agricultural land, human settlements, trees, and a BADC irrigation pump. Between chainage 0+300 and 0+600 m, both sides of the alignment are characterized by ditches, human settlements, and roadside vegetation, indicating a mixed rural land-use pattern. From chainage 0+600 to 0+900 m, the corridor becomes more sensitive, with the presence of Vandara Moddo Para Jame Mosque, human settlements, a graveyard, and Charmatha Bazar on the left side, and ditches, a graveyard, agricultural land, human settlements, and parts of Charmatha Bazar on the right side. These features, particularly the mosque, graveyards, and market area, are of significant religious, cultural, and socio-economic importance to the local community. As the proposed sub-project activities will be undertaken primarily within the existing road right-of-way, no significant adverse impacts on these nearby sensitive receptors are anticipated; however, appropriate precautionary measures and environmental and social management practices will be implemented during the construction phase to ensure their protection and to minimize any temporary disturbances.

Location of environmental and Social important and sensitive areas:

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

Baseline air quality and noise levels:

Dust:

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

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project

site. However, these impacts are expected to be negative but short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.

Noise:

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

Baseline soil quality:

The sub-project area in Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining

ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No river or canal crossing is identified along the proposed alignment; however, natural drainage features such as an existing culvert, proposed side-drains, ditches, and low-lying agricultural land are present along both sides. On the left side, from Ch. 5+100-5+400 the area includes agricultural land, settlements, trees, and graveyard; from 5+400-5+700 ditches, settlements, and trees; and from 5+700-6+000 mosque, market area, and settlements. On the right side, from Ch. 5+100-5+400 the area includes agricultural land, settlements, trees, and BADC pump; from 5+400-5+700 ditches, settlements, and trees; and from 5+700-6+000 ditches, graveyard, agricultural land, settlements, and market area. Although drainage structures will help maintain flow, construction activities may cause moderate temporary disturbance to nearby ditches and local drainage patterns due to earthworks.

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: Sheldhobari Amzad Hazi House to Vandara Road

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction	Loss of land / and other physical assets	- No land acquisition will be undertaken within or in the vicinity of the sub-project area, nor for any activities associated with the sub-project. Accordingly, no mitigation measures are required in this regard. - In the event that any grievances related to land or physical assets arise during the implementation of the sub-project, the project Grievance Redress Committees (GRCs) will take appropriate actions to address and resolve such issues.	PIU	Social Development Specialist and Gender Specialist of PIU
	Stakeholders Engagement	- All of the project stakeholders should be consulted - 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
	Transportation and Storage of Construction materials (disturbance to	Construction materials will be transported to the site in a fully covered manner to prevent spillage and environmental contamination.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	All materials will be stored in designated areas with appropriate fencing and protective coverings to ensure safety and minimize environmental impacts.		
	Sanitation and water supply	- Adequate sanitation facilities, including separate toilets and wash-basins for male and female workers as well as construction staff, will be provided at the site. - A safe and reliable supply of potable water will be ensured for all workers and employees. Water quality will be tested at a local DPHE laboratory to confirm its potability, and it will be treated using an appropriate filtration system prior to distribution.	Contractor	Environmental Consultant of PIU
	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- The workers' camp, site office, and stack yard will be established at locations convenient for workers, as proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, a compensatory plantation of three (3) trees for	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		every tree removed will be carried out, along with provision for maintenance of the planted trees for at least 12 months. • Sanitary latrines with septic tanks will be constructed for both male and female workers and staff, and regular cleaning and maintenance of these facilities will be ensured. • Provision of waste bins/ cans, where appropriate, • 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. • Stockpiled materials in the yard will be properly covered with tarpaulin or polythene sheets. The exposed ends of reinforced steel bars or iron rods will be fitted with safety caps or covered with cloth/jute sacks to prevent accidental injuries. • Hazardous materials, such as oils, paints, and similar substances, will be stored in designated bunded areas or on raised wooden platforms lined with polythene to prevent leakage and contamination. Proper fencing around the storage area and working site in order to get		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
	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. • After completing the development, the site shall be restored as before. • Sub project intervention must avoid natural disturbance to existing slope 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
Construction Activity	Dust	• Emissions of CO, particulate matter (SPM, PM_{2.5}, PM₁₀), and hydrocarbons will be controlled through good construction practices. • Dust generation from site clearing, leveling, and	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		grading will be minimized through regular water spraying. - Dust from vehicle movement on access roads will be controlled by periodic watering. - Construction materials will be properly covered during transportation to prevent dust dispersion.		
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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	- Here is a concise and professionally paraphrased version: - Water sources for construction will be selected in consultation with the DPHE, considering availability, technical feasibility, and potential impacts on existing users, especially during critical periods. - Groundwater (tube wells) or nearby surface water may be used if the quality meets construction standards. - Prior approval from the relevant authorities will be obtained for any water extraction or installation of bore wells outside designated sources. - Local communities will be consulted prior to the commencement of construction activities.	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.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.	- Waste from temporary labor facilities and routine site activities will be properly collected and managed. - Construction debris will be segregated, stored in a designated area, and disposed of or sold to local recyclers as applicable.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Ring slab septic tanks will be installed before construction to ensure proper sanitation for workers and staff. • The construction site will be kept clean and regularly inspected to prevent accumulation of waste and spills (e.g., oil, chemicals). • Waste bins will be emptied regularly, and waste will be disposed of at approved locations. • Hazardous waste, such as waste oil, will be collected and stored in a safe, covered area and handed over to authorized recyclers. • Workers will be briefed on basic safe handling of fuels/chemicals and immediate spill response procedures. • Applicable Hazardous Waste Management Rules will be followed throughout the project.		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water	• 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	Contractor	Environmental and Social Development Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	bodies	and handling procedure have to be undertaken with 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	- 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. - 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	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
	loss, heat stress, and dermatitis.	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. • Provision to maintain proper PPE wherever		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		necessary and to ensure that there are satisfactory washing and changing facilities.		
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- All precautions to store chemicals/oil/fuel properly so that no chance of spill. - Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage: - Pollution from waste materials. - Health & Safety risks to workers and local community.	- Appropriate mitigation and monitoring measures will be implemented during demobilization to address environmental and social impacts, similar to the construction phase. These include removal of all debris, temporary structures, and leftover materials; proper rehabilitation or compensation of affected structures; inspection and cleanup of any contamination (e.g., oil, paint) at the construction camp site; safe disposal of fecal sludge if required; and restoration of the area through re-vegetation or re-grassing as specified. - The contractor will ensure proper termination of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.
Construction activity	Odors and pollution caused by leaking latrines and fecal sludge, and solid	- A preventive maintenance schedule will be properly followed. - Solid organic waste will be collected in bins/skips	Contractor	Environmental Consultant of PIU, Union Parishad

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	wastes impacting surrounding water bodies, flora and fauna	and regularly disposed of at a designated waste disposal site. Where no such site is available nearby, a properly managed pit may be used, with periodic soil covering to prevent pollution and support gradual composting.		Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to	Road safety issues can be minimized in following ways: - Road safety can be ensured through strict enforcement of speed limits and penalties for traffic violations. - Appropriate traffic signs will be installed to inform road users about speed limits, parking/rest areas, and no-horn zones, along	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	with warning signage at accident-prone locations to discourage over-speeding. Lanes, medians, and sharp bends will be reflectorized to improve visibility and enhance night-time safety.		
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)	1080 Sq.m	@38.15 Tk. Per sqm	41,202.00
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	900m	@ 2.56 BDT	2,304.00
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at c 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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	LS	LS @ Tk. 30,000	30,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	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			
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@Tk. 35000	35,000.00
	Total amount for this Road			234,151.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Sonarai-Jamirbaria Road; Road ID: 110404048**

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

District: Bogura

Upazila: Gabtoli

Union: Sonarai

Name of Community/Local Area: Boulahau, Shantipara Jamirbana

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

The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC), along with the construction and rehabilitation of associated drainage and protection structures. The primary objective is to enhance road durability, ensure safe and reliable transportation, and improve connectivity for surrounding rural communities. The scope of work includes site preparation, earthworks, subgrade and base preparation, and bituminous surfacing, which will be carried out predominantly within the existing road corridor to the maximum extent possible to ensure improved riding quality and all-weather accessibility. The sub-project also includes the installation of side-drains and slope protection measures, including palisading at selected locations along the alignment, to facilitate proper drainage, prevent waterlogging, and protect the road structure from erosion. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be sourced from approved local suppliers in compliance with applicable environmental and procurement guidelines. The overall project footprint will remain largely confined within the existing right-of-way to minimize potential environmental and social impacts. Appropriate road safety measures, along with 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 2,100 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 700m. 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
2000-2300	L		Human Settlement, Trees, Agricultural Land
		R	Human Settlement, Trees, Agricultural Land
2300-2600	L		Agricultural Land, Trees, Human Settlement
		R	Agricultural Land, Trees, Human Settlement
2600-2700	L		Agricultural Land, Trees, Settlement
		R	Agricultural Land, Trees, Settlement



Starting Point of Sonarai-Jamirbaria 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.

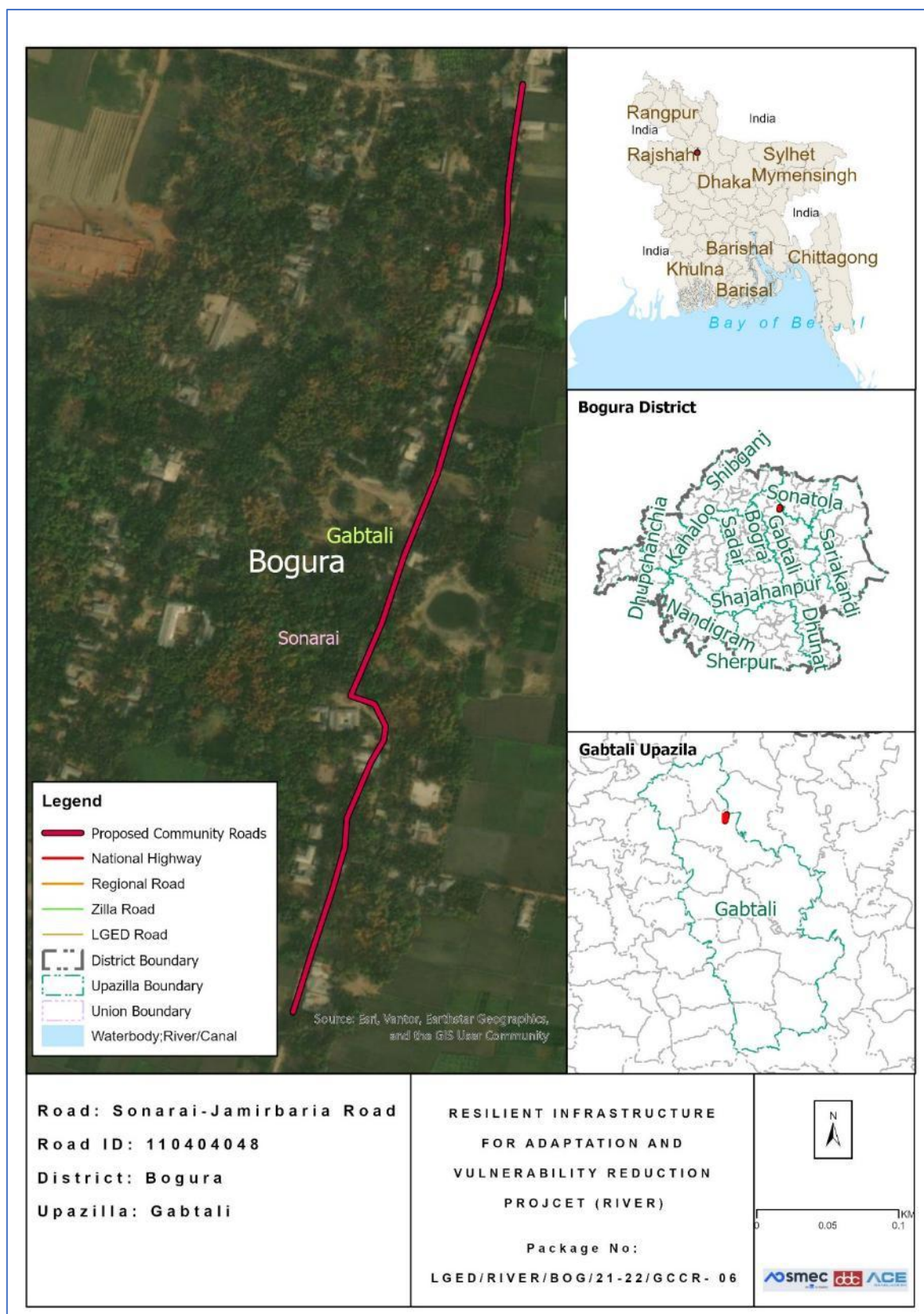
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 sub-project is located within new Boulahau, Shantipara Jamirbana villagess under Sonarai Union, Ward No. 7 of Gabtoli Upazila in Bogura District. Several environmentally and socially sensitive features are located within the influence area of the proposed sub-project. Within chainage 0+000 to 0+300 m, the left side of the road comprises human settlements, agricultural land, trees, shops, and a temple, while the right side includes human settlements, agricultural land, trees, fishponds, an Eidgah, and a graveyard. From chainage 0+300 to 0+600 m, both sides of the alignment are characterized by human settlements, agricultural land, trees, and shops on the left side, and human settlements, agricultural land, trees, and ditches on the right side. Between chainage 0+600 and 0+900 m, the left side includes human settlements, shops, trees, and Zamirbaria Bazar, whereas the right side comprises agricultural land, Zamirbaria Bazar, rice mills, shops, and trees. These features, particularly the temple, Eidgah, graveyard, bazar areas, and rice mills, hold significant religious, cultural, and socio-economic importance for the local community. However, as the proposed sub-project activities will be carried out primarily within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. Nevertheless, appropriate environmental and social management measures will be implemented during the construction phase to minimize potential disturbances and ensure the protection of these locations.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 700 m**.

Sub-project Location:

Important Features	
ID	110404048
District	Bogura
Upazila	Gabtoli
Union	Sonarai
WARD	07
Total Chainage	700m
Proposed Chainage	700m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.96460 N Longitude: 89.44645 E
Road Ending Point Coordinates	Latitude: 24.97030 N Longitude: 89.44786 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 Boulahau, Shantipara Jamirbana villages.
- ii) No historical sites were found
- iii) Not required to relocate local community.
- iv) Some trees, vegetation and livelihood will be affected.
- v) Very low chance of loss of agricultural land.
- vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmentally and socially sensitive features are located within the influence area of the proposed sub-project. Within chainage 0+000 to 0+300 m, the left side of the road comprises human settlements, agricultural land, trees, shops, and a temple, while the right side includes human settlements, agricultural land, trees, fishponds, an Eidgah, and a graveyard. From chainage 0+300 to 0+600 m, both sides of the alignment are characterized by human settlements, agricultural land, trees, and shops on the left side, and human settlements, agricultural land, trees, and ditches on the right side. Between chainage 0+600 to 0+900 m, the left side includes human settlements, shops, trees, and Zamirbaria Bazar, while the right side comprises agricultural land, Zamirbaria Bazar, rice mills, shops, and trees. These features, particularly the temple, Eidgah, graveyard, bazar areas, and rice mills, hold significant religious, cultural, and socio-economic importance for the local community. However, as the proposed sub-project activities will be carried out primarily within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. Nevertheless, appropriate environmental and social management measures will be implemented during the construction phase to minimize potential disturbances and ensure the protection of these locations.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 $\mu\text{S}/\text{cm}$. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026).

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*),

reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No formal river, canal, or drainage structure is identified along the proposed alignment. However, natural drainage features such as ditches and low-lying agricultural land are present along both sides of the road. On the left side, from Chainage (Ch.) 2+000-2+300 the area includes agricultural land, human settlements, and trees; from 2+300-2+500 settlements and agricultural land; and from 2+500-2+700 settlements, small commercial areas, and agricultural land. On the right side, from Ch. 2+000-2+300 the area includes agricultural land, settlements, and trees; from 2+300-2+500 agricultural land and settlements; and from 2+500-2+700 settlements, trees, and small market activities. Although no major water bodies are present, minor disturbance to local drainage patterns may occur due to earthworks and construction activities. Therefore, the overall impact is considered low, and standard drainage management measures will be implemented to maintain natural flow and prevent waterlogging.

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: Sonarai-Jamirbaria Road

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction	Stakeholders Engagement	- All of the project stakeholders should be consulted - 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
	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
	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Construction materials will be transported to the site in a fully covered manner to prevent spillage and environmental contamination. - All materials will be stored in designated areas with appropriate fencing and protective coverings to ensure safety and minimize environmental impacts.	Contractor	Environmental Consultant of PIU
	Sanitation and water	Adequate sanitation facilities, including separate	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	supply	toilets and wash-basins for male and female workers as well as construction staff, will be provided at the site. A safe and reliable supply of potable water will be ensured for all workers and employees. Water quality will be tested at a local DPHE laboratory to confirm its potability, and it will be treated using an appropriate filtration system prior to distribution.		Consultant of PIU
	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- The workers' camp, site office, and stack yard will be established at locations convenient for workers, as proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, a compensatory plantation of three (3) trees for every tree removed will be carried out, along with provision for maintenance of the planted trees for at least 12 months. - Sanitary latrines with septic tanks will be constructed for both male and female workers and staff, and regular cleaning and maintenance	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		of these facilities will be ensured. • Provision of waste bins/ cans, where appropriate, • 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. • Stockpiled materials in the yard will be properly covered with tarpaulin or polythene sheets. The exposed ends of reinforced steel bars or iron rods will be fitted with safety caps or covered with cloth/jute sacks to prevent accidental injuries. • Hazardous materials, such as oils, paints, and similar substances, will be stored in designated bunded areas or on raised wooden platforms lined with polythene to prevent leakage and contamination. 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.		
	Site Preparation: Soil Erosion; Alteration of natural drainage;	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	removal/relocation of utility services	- 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. - After completing the development, the site shall be restored as before. - Sub project intervention must avoid natural disturbance to existing slope 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.		
Construction Activity	Noise from construction works	- Construction activities will generally be completed during daytime hours, preferably by 5:00 PM, with appropriate measures in place to minimize disturbance to surrounding communities. - All required Personal Protective Equipment (PPE) will be made available on-site prior to the commencement of any construction activities. - Noise-generating vehicles and equipment will be regularly maintained to ensure efficient	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		operation and reduced noise levels. As advanced engineering controls (e.g., acoustic curtains or noise barriers) may not be feasible due to project scope and availability, cost-effective alternatives such as noise-reducing mufflers will be utilized during construction.		
Construction Activity	Dust	- Emissions of CO, particulate matter (SPM, PM_{2.5}, PM₁₀), and hydrocarbons will be controlled through good construction practices. - Dust generation from site clearing, leveling, and grading will be minimized through regular water spraying. - Dust from vehicle movement on access roads will be controlled by periodic watering. - Construction materials will be properly covered during transportation to prevent dust dispersion.	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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	- Here is a concise and professionally paraphrased version: - Water sources for construction will be selected in consultation with the DPHE, considering availability, technical feasibility, and potential	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		impacts on existing users, especially during critical periods. • Groundwater (tube wells) or nearby surface water may be used if the quality meets construction standards. • Prior approval from the relevant authorities will be obtained for any water extraction or installation of bore wells outside designated sources. • Local communities will be consulted prior to the commencement of construction activities.		
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.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.	- Waste from temporary labor facilities and routine site activities will be properly collected and managed. - Construction debris will be segregated, stored in a designated area, and disposed of or sold to local recyclers as applicable.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Ring slab septic tanks will be installed before construction to ensure proper sanitation for workers and staff. • The construction site will be kept clean and regularly inspected to prevent accumulation of waste and spills (e.g., oil, chemicals). • Waste bins will be emptied regularly, and waste will be disposed of at approved locations. • Hazardous waste, such as waste oil, will be collected and stored in a safe, covered area and handed over to authorized recyclers. • Workers will be briefed on basic safe handling of fuels/chemicals and immediate spill response procedures. • Applicable Hazardous Waste Management Rules will be followed throughout the project.		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water	• 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	Contractor	Environmental and Social Development Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	bodies	and handling procedure have to be undertaken with 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	- 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. - 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	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
	loss, heat stress, and dermatitis.	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. • Provision to maintain proper PPE wherever		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		necessary and to ensure that there are satisfactory washing and changing facilities.		
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- All precautions to store chemicals/oil/fuel properly so that no chance of spill. - Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage: - Pollution from waste materials. - Health & Safety risks to workers and local community.	- Appropriate mitigation and monitoring measures will be implemented during demobilization to address environmental and social impacts, similar to the construction phase. These include removal of all debris, temporary structures, and leftover materials; proper rehabilitation or compensation of affected structures; inspection and cleanup of any contamination (e.g., oil, paint) at the construction camp site; safe disposal of fecal sludge if required; and restoration of the area through re-vegetation or re-grassing as specified. - The contractor will ensure proper termination of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.
Construction activity	Odors and pollution caused by leaking latrines and fecal sludge, and solid	- A preventive maintenance schedule will be properly followed. - Solid organic waste will be collected in bins/skips	Contractor	Environmental Consultant of PIU, Union Parishad

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	wastes impacting surrounding water bodies, flora and fauna	and regularly disposed of at a designated waste disposal site. Where no such site is available nearby, a properly managed pit may be used, with periodic soil covering to prevent pollution and support gradual composting.		Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to	Road safety issues can be minimized in following ways: - Road safety can be ensured through strict enforcement of speed limits and penalties for traffic violations. - Appropriate traffic signs will be installed to inform road users about speed limits, parking/rest areas, and no-horn zones, along	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	with warning signage at accident-prone locations to discourage over-speeding. Lanes, medians, and sharp bends will be reflectorized to improve visibility and enhance night-time safety.		
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)	840Sq.m	@38.15 Tk. Per sqm	32046
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	700m	@ 2.56 BDT	1792
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	1 no.	LS @5000 Tk. Per box	5,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	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 inc	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
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's	1 no.	LS @ Tk. 10,000	10,000.00

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

Sl. no.	Description of item	Quantity	Unit price	Total amount
	representatives on safety practice and as per direction of the E.I.C.			
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 17 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			224,483.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Jamirbaria-Uzgram Bazar Road;**
Road ID: 110814044

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

District: Bogura

Upazila: Gabtoli

Union: Dokkhin para

Name of Community/Local Area: Jamirbaria, Uzgram

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

The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The proposed road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out predominantly within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes multiple slope protection and drainage structures along the alignment. Palisading works are proposed at several locations, including 22 m at Chainage 0+268-0+290, 35 m at 0+490-0+525, 10 m and 20 m at 0+555-0+565 and 0+555-0+575 respectively, 20 m at 0+800-0+820, and 24 m at 1+016-1+040, to ensure slope stability and protection against erosion. In addition, side drains of 20 m at Chainage 1+030-1+050 and 16 m at Chainage 1+300-1+316 are proposed to facilitate proper drainage and maintain the continuity of natural water flow. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 4530 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1510m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
000-300	L		Shop, Zamirbaria GPS, Human Settlement, Trees, Graveyard, etc.
		R	Human Settlement, Trees, Ditches, Beel, Agricultural Land, etc.
300-600	L		Khal, Beel, Agricultural Land, Human Settlement, Trees, etc.
		R	Khal, Beel, Agricultural Land, Human Settlement, Trees, etc.
600-900	L		Human Settlement, Ditches, Trees, Agricultural Land, etc.
		R	Human Settlement, Ditches, Agricultural Land, Trees, etc.
900-1200	L		Beel, Human Settlement, Agricultural Land, Trees, etc.
		R	Beel, Agricultural Land, Human Settlement, Trees, etc.
1200-1500	L		Human Settlement, Trees, Agricultural Land, Mosque, etc.
		R	Fishpond, Human Settlement, Agricultural Land, Trees, etc.
1500-1510	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.



Starting Point of Jamirbaria-Uzgram 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

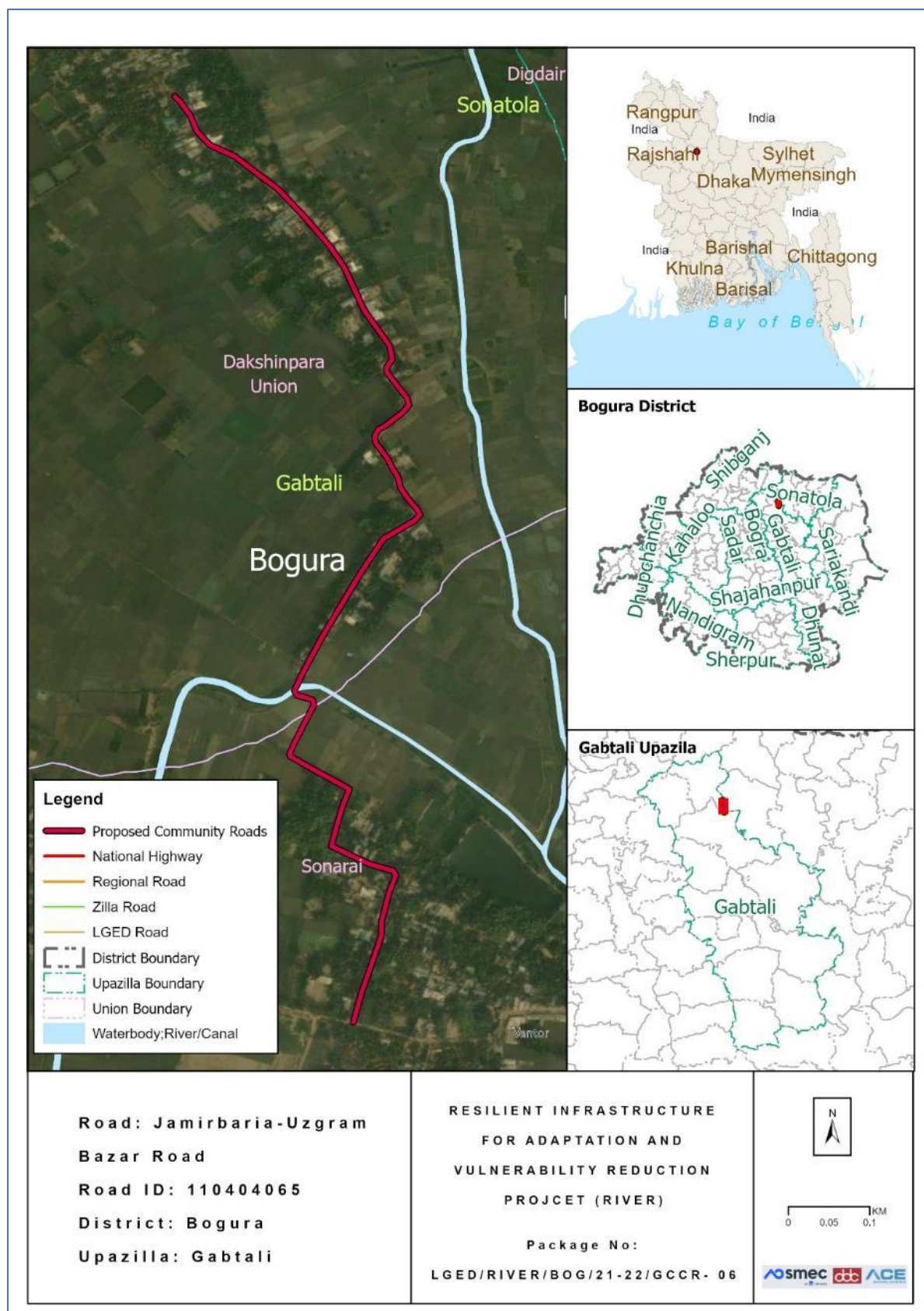
on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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 project is located within Jamirbaria and Uzgram villages under Dakkhin Para Union, Ward No. 7 of Gabtoli Upazila in Bogura District. The road alignment passes through a predominantly rural landscape comprising human settlements, agricultural land, water bodies (khal, beel, fishponds, and ditches), roadside trees (including mature trees in some locations), and community facilities. From chainage 0+000 to 0+300 m, the left side includes a shop, Zamirbaria Government Primary School, human settlements, trees, and a graveyard, while the right side comprises human settlements, trees, ditches, beels, and agricultural land. Between chainage 0+300 to 0+900 m, both sides consist of khal, beel, agricultural land, human settlements, and trees, followed by beels, agricultural land, settlements, and trees from 0+900 to 1+200 m. Within 1+200 to 1+500 m, the left side includes human settlements, agricultural land, trees, and a mosque, while the right side includes fishponds, settlements, agricultural land, and trees, and from 1+500 to 1+800 m both sides are mainly human settlements, agricultural land, and trees. However, as the sub-project works will be carried out within the existing road corridor, no significant adverse impacts on these sensitive environmental and social receptors are anticipated, and appropriate mitigation measures will be implemented 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 **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 1510 m**.

Sub-project Location:

Important Features	
ID	110404065
District	Bogura
Upazila	Gabtoli
Union	Dakkhin Para
WARD	07
Total Chainage	1510m
Proposed Chainage	1510m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.97050 N Longitude: 89.44611E
Road Ending Point Coordinates	Latitude: 24.98123 N Longitude: 89 44404 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 Jamirbaria, Uzgram villages.
- ii) No historical sites were found
- iii) Not required to relocate local community.
- iv) Some trees, vegetation and livelihood will be affected.
- v) Very low chance of loss of agricultural land.
- vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmentally and socially sensitive features are located within the influence area of the proposed sub-project, including water bodies (khal, beel, fishponds, and ditches), agricultural land, human settlements, roadside vegetation including trees (in some locations including mature trees), and scattered community facilities. Within chainage 0+000 to 0+300 m, the left side comprises a shop, Zamirbaria Government Primary School, human settlements, trees, and a graveyard, while the right side includes human settlements, trees, ditches, beel, and agricultural land. From chainage 0+300 to 0+600 m, both sides of the alignment consist of khal, beel, agricultural land, human settlements, and trees, followed by similar features including ditches, agricultural land, and trees from 0+600 to 0+900 m. Between chainage 0+900 to 1+200 m, both sides include beel, agricultural land, human settlements, and trees, while from 1+200 to 1+500 m the left side includes a mosque along with human settlements, agricultural land, and trees, and the right side includes fishponds, human settlements, agricultural land, and trees. From 1+500 to 1+800 m, both sides are predominantly characterized by human settlements, agricultural land, and trees. However, as the proposed sub-project activities will be carried out within the existing road corridor, no significant adverse impacts on these sensitive environmental and social receptors are anticipated, and appropriate mitigation and environmental management measures will be implemented during construction to ensure their protection.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026) .

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choroi (House Sparrow, *Passer domesticus*). These birds play a vital role in

controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. 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): (Low/Medium/High with description)

No historical or archaeological sites were identified within the direct influence area of the Jamirbaria-Uzgram Bazar Road. The alignment passes through a predominantly rural setting consisting of settlements, agricultural land, water bodies, and community facilities. From chainage 0+000 to 0+300 m, the area includes Jamirbaria GPS, shops, human settlements, roadside trees, and a graveyard on the left side, while the right side consists of human settlements, trees, ditches, beels, and agricultural land. Between 0+300 and 0+600 m, both sides are characterized by khal, beel, agricultural land, human settlements, and trees. From 0+600 to 0+900 m, the corridor continues through human settlements, ditches, agricultural land, and roadside trees. Within 0+900 to 1+200 m, the area includes beels, agricultural land, human settlements, and trees. From 1+200 to 1+510 m, the alignment passes through human settlements, agricultural land, and trees, with a mosque near the terminal section. Key structures include a bridge at 0+523-0+555 m and a box culvert at 0+960 m. Overall, the project area is environmentally and socially mixed, but since works will be carried out within the existing road corridor, no significant adverse impacts on surrounding receptors are expected, although standard mitigation measures will be applied during construction to minimize temporary disturbances.

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: Jamirbaria-Uzgram Bazar Road

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	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 local community to avoid any conflicts will be taking place. • Sub project intervention must avoid natural disturbance to existing slop and natural drainage.	PIU & Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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	Traffic Management	Because of the sensitivity of the proposed	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity		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.		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. - 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	Awareness building session will be undertaken about prevention of child abuse, child marriage,	Contractor	Social Development Specialist and Gender

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Hazardous waste viz. waste oil etc. will be	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	- All construction equipment will be properly inspected timely. - The risk assessment will be prepared and communicated prior to the commencement of	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
	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.	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. - All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems.		of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.		
Construction Activity	Pollution of water bodies	- Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. - The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) - The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. - Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. - The overall slope of the work areas and stack	Contractor	Environmental Consultant of PIU/D&SC.

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/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 sidewalks, and reckless driving may cause road accidents or traffic injuries.	Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.	Upazila Engineer (UE)	District Executive Engineer, LGED
Operation & Maintenance	Noise and vibration disturbances to fauna,	Provision to maintain noise and vibration from the operation and maintenance of machinery	UE	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	and Traffic Safety.	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.		
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)	1812Sq.m	@38.15 Tk. Per sqm	69,127.80

Sl. no.	Description of item	Quantity	Unit price	Total amount
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	1510m	@ 2.56 BDT	3865.6
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp 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 full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000.00
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	1 no.	LS @ Tk. 30,000	30,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.			
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
8.	<u>Motivation training</u>	1 no.	LS @ Tk.	10,000.00

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

Sl. no.	Description of item	Quantity	Unit price	Total amount
	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.		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	5,000.00
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 17 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			263,639.12



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Kazlapara Saburbari to Dhalirchor (H/O Sattar) Via Nizkakra (H/O Sadhon); Road ID: 110404117**

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

District: Bogura

Upazila: Gabtoli

Union: Sukhanpukur

Name of Community/Local Area: Kajlapara, Nijkakra, Kajlapara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The sub-project is categorized as a union road with bituminous carpeting. To ensure proper drainage and structural stability along the alignment, necessary protection measures will be implemented. In this regard, slope protection in the form of brick palisading will be constructed at multiple locations, with a total length of approximately 485 m at 16 points along the alignment. These measures are intended to protect the road embankment from erosion and enhance overall stability, particularly during heavy rainfall and surface runoff. In addition, RCC retaining walls will be provided where required. Road safety measures, along with environmental and social mitigation activities, have been incorporated into the project cost estimates. Estimated footprint / land area for this sub-project is 5,610 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1870m. 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	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
000-300	L		Human Settlement, Fishpond, Trees, Ditches, etc.
		R	Agricultural Land, Human Settlement, Fishpond, Trees, Pond, etc.
300-600	L		Agricultural Land, Human Settlement, Trees, Ditches, Pond, etc.
		R	Human Settlement, Ditches, Pond, Agricultural Land, Trees, etc.
600-900	L		Human Settlement, Fishpond, Trees, Pond, Agricultural Land, etc.
		R	Human Settlement, Agricultural Land, Trees, Fishpond etc.
900-1200	L		Human Settlement, Ditches, Agricultural Land, Trees, Shops, etc.
		R	Human Settlement, Shops, Agricultural Land, Trees, Mosque, etc.
1200-1500	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
1500-1800	L		Human Settlement, Trees, Khal, Ditches, Fishpond, etc.
		R	Human Settlement, Trees, Khal, Ditches, Fishpond, etc.

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
1800-1870	L		Agricultural Land, Human Settlement, Shops, Trees, etc.
		R	Agricultural Land, Human Settlement, Shops, Trees, etc.



Starting Point of Kazlapara Saburbari to Dhalirchor (H/O Sattar) Via Nizkakra (H/O Sadhon)

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

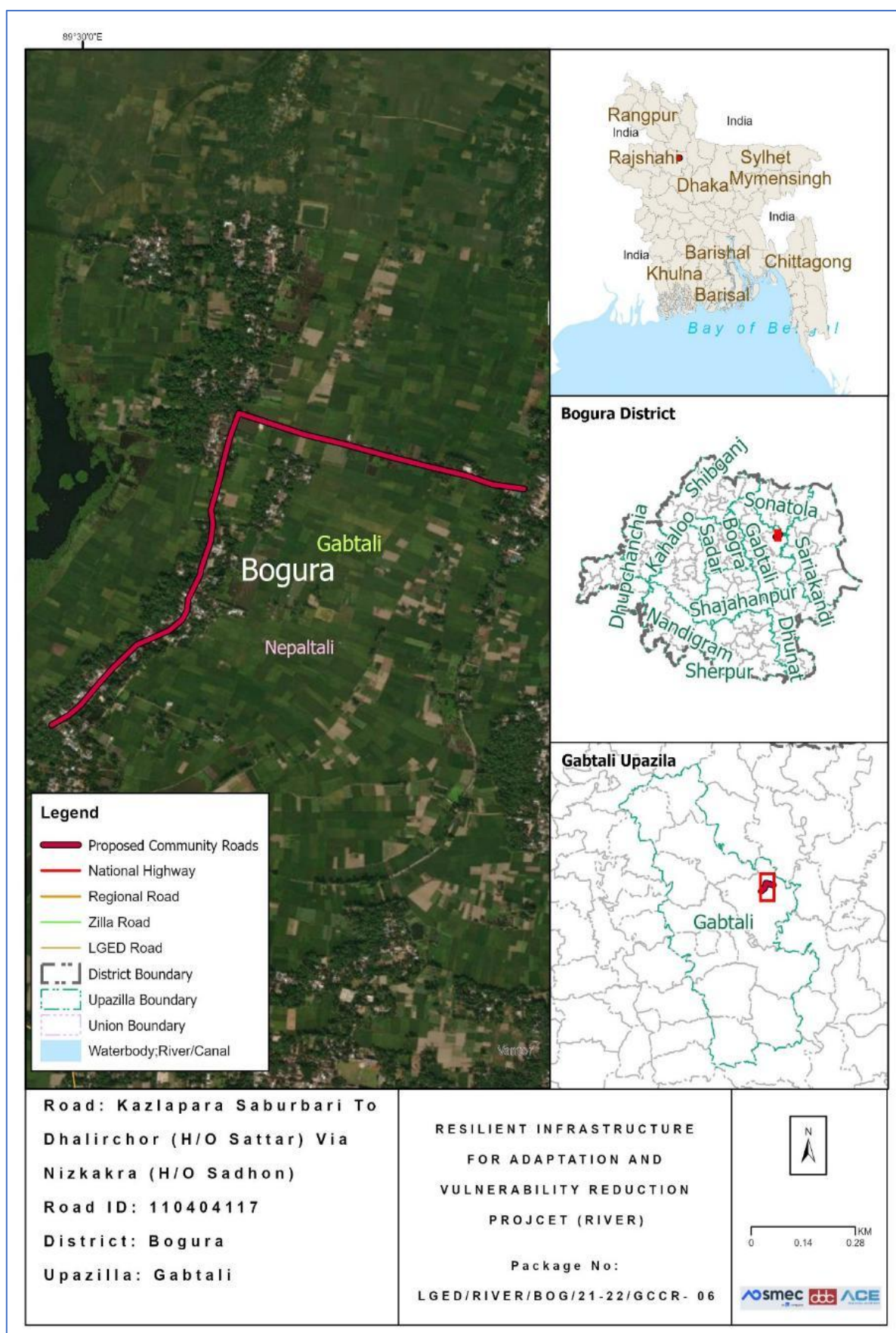
included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural 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 sites have been identified. The sub-project is located within Kalibari, Mohishamuri, and Gangachara villages under Kakina Union, Ward No. 9 of Kaliganj Upazila in Bogura District. The project alignment passes through mixed land use areas consisting of human settlements, agricultural land, fishponds, ponds, trees, ditches, shops, and a mosque. From chainage 00-300 m, both sides include settlements, agricultural land, fishponds, ponds, trees, and ditches. Between chainage 300-600 m, the left side includes agricultural land, settlements, trees, ditches, and ponds, while the right side includes settlements, agricultural land, ponds, trees, and ditches. From chainage 600-900 m, both sides are mainly characterized by settlements, agricultural land, fishponds, ponds, and trees. Within chainage 900-1200 m, the left side includes settlements, agricultural land, trees, shops, ditches, and fishponds, while the right side includes settlements, shops, agricultural land, trees, a mosque, and fishponds. Between chainage 1200-1500 m, both sides consist mainly of settlements, agricultural land, and trees. From chainage 1500-1800 m, both sides include settlements, trees, khal, ditches, fishponds, and agricultural land, while from chainage 1800-2100 m, both sides consist of settlements, agricultural land, shops, and trees. No significant cultural or archaeological sites are present, and the sub-project is not expected to cause adverse social, cultural, or environmental impacts.



Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 2880m.

Sub-project Location:

Important Features	
ID	110404117
District	Bogura
Upazila	Gabtolli
Union	Sukhonpukur
Total Chainage	1870m
Proposed Chainage	1870m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.913472 N Longitude: 89.49926 E
Road Ending Point Coordinates	Latitude: 24.91884 N Longitude: 89.51047 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 Kajlapara, Nijkakra villages Some other villages named Kajlapara, Purba Kajlapara. within one kilometer.
- 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:

The project influence area is characterized by mixed land use comprising human settlements, agricultural land, fishponds, ponds, trees, ditches, shops, a mosque, and a khal along the alignment. From chainage 00-300 m, both sides include human settlements, agricultural land, fishponds, ponds, trees, and ditches. Between chainage 300-600 m, the left side consists of agricultural land, settlements, trees, ditches, and ponds, while the right side includes settlements, agricultural land, ponds, trees, and ditches. From chainage 600-900 m, both sides are mainly dominated by settlements, agricultural land, fishponds, ponds, and trees. Within chainage 900-1200 m, the left side includes settlements, agricultural land, trees, shops, ditches, and fishponds, while the right side includes settlements, shops, agricultural land, trees, a mosque, and fishponds. Between chainage 1200-1500 m, both sides are primarily settlements, agricultural land, and trees. From chainage 1500-1800 m, both sides include settlements, trees, khal, ditches, fishponds, and agricultural land, while from chainage 1800-2100 m, both sides consist of settlements, agricultural land, shops, and trees. No environmentally sensitive, cultural, archaeological, or religious sites have been identified within the project influence area, and the sub-project is not expected to cause any disturbance to the social, cultural, or environmental setting of the locality.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the primary source of potable water in the sub-project area. Residents rely on both shallow and deep tube wells to meet their daily domestic water needs. Deep tube wells in the area typically extend to a depth of approximately 180 feet. Shallow tube wells, however, often fail to provide sufficient water during the dry season. Deep groundwater in the sub-project area is fresh, potable, and free from arsenic. In contrast, water from the shallower aquifers contains high concentrations of iron, limiting its suitability for drinking. The depth of the deep, drinkable groundwater varies between 100 and 180 feet, according to a field survey conducted in 2019. Local residents primarily use water from deep tube wells for drinking and other domestic purposes. It is recommended that additional deep tube wells be installed to extract water from the confined aquifer to ensure a safe and reliable supply of potable water.

Groundwater quality:

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 $\mu\text{S}/\text{cm}$. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible. (Field Study Report, April 2026)

Status of wildlife movement:

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

State of forestation:

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

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.

Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.

Possible location of labor camps:

Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.

Requirement and type of raw materials (e.g. sand, stone, wood, etc.):

i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

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

Location identification for raw material storage:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes.

Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No 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: Kazlapara Saburbari to Dhalirchor (H/O Sattar) Via Nizkakra (H/O Sadhon) ID: 110404117

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.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-	Sanitation and water	Sanitation facilities (male and female toilets,	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Stage	supply	wash-basins, etc.) for workers and constructor's officials/employees will be provided. Potable water supply will be ensured for every workers/employee 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.		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 will be established at suitable locations proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, three (3) trees will be planted for each tree cut, with budget provision for their maintenance for 12 months. - Sanitary latrines with septic tanks will be provided for male and female workers and staff, along with regular cleaning and maintenance. - Adequate waste bins will be placed where necessary, and litter will be collected daily. - Waste bins/skips will be regularly emptied, and waste/debris will be disposed of at approved sites	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		as designated by the Environmental Specialist of the D&SC. • Camps and work areas will be kept clean and well-maintained at all times. • Stockpiled materials will be covered with tarpaulins or polythene sheets, and exposed ends of reinforcement bars will be protected with safety caps or suitable coverings to prevent accidents. • Hazardous materials (e.g., oil, paints) will be stored in bunded areas or on raised wooden platforms lined with polythene. • Proper fencing will be installed around storage and work areas to ensure security, prevent unauthorized access, and protect children, animals, and the public.		
Construction Activity	Noise from construction works	• * Construction activities will generally be completed during daytime, preferably by 5:00 PM, with measures in place to minimize disturbance.	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	• * All required Personal Protective Equipment (PPE) will be made available on-site before commencing any construction work.	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	• Water sources for construction will be selected in consultation with the local DPHE, considering	PIU & Contractor	Social Development Specialist and

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	of resource base.	availability, technical feasibility, and potential impacts on existing users, particularly during critical periods. - Construction water may be sourced from installed tube wells or nearby surface water bodies, provided the water quality meets required standards. - Prior approval from the relevant authorities will be obtained for any groundwater or surface water extraction or for installation of bore wells outside designated sources. - All necessary permits, consent letters, or agreements for water extraction will be properly maintained on site. - Local communities will be consulted prior to the commencement of construction activities.		Gender Specialist of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	Appropriate traffic signage will be installed at key junctions, and any road diversions or closures will be communicated to the local community in advance.	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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	• Waste Management Plan will cover the following key aspects: • Waste from labor accommodation and on-site equipment/vehicle maintenance will be properly collected and managed. • Construction debris from building works and demolition (if any) will be segregated, stored in a designated stack yard, and sold to local recyclers where possible. • Ring slab septic tanks will be installed prior to construction to ensure proper sanitation for workers and staff. Work areas will be kept clean and regularly inspected for spills (e.g., oil, chemicals). • Waste bins/skips will be regularly emptied, and waste will be disposed of at designated sites or approved locations.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Hazardous waste (e.g., waste oil) will be collected, stored in paved and bunded areas, and handed over to authorized recyclers. - Refueling and fluid transfer areas will be properly paved to prevent soil contamination. - Workers will be trained on safe handling of fuels/chemicals and spill response, with spill control equipment available on-site. - All activities will comply with applicable 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	- 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	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
	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.	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. - 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. - 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		

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
Construction Activity	Demobilization of structures, facilities and equipment used during	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during	Contractor	Environmental Consultant of PIU/D&SC, district

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage: • Pollution from waste materials. • Health & Safety risks to workers and local community.	demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i) remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of fecal 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 surrounding water bodies, flora and	• 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-	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	fauna	hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be 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

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

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)	2244Sq.m	@38.15 Tk. Per sqm	85608.6
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	1870.0m	@ 2.56 BDT	4787.2
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at ca 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	1 no.	LS @5000 Tk. Per box	5,000

Sl. no.	Description of item	Quantity	Unit price	Total amount
	situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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

Sl. no.	Description of item	Quantity	Unit price	Total amount
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> 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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@ Tk. 35000	35,000
	Total amount for this Road			281,041.52



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Sukhanpukur KalurGhat to Nizkakra H/O Sadhon Road; ID: 110404116**

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

District: Bogura **Upazila:** Gabtoli **Union:** Sukhanpukur

Name of Community/Local Area: Chakradhika, Hindu Para

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

The proposed sub-project involves the improvement of an existing village road through Bituminous Carpeting (BC) to enhance durability, riding quality, and ensure all-weather accessibility for surrounding rural communities, along with the construction of necessary protection and drainage structures to manage surface runoff and maintain natural drainage continuity along the alignment. All works will be carried out within the existing road corridor to minimize environmental and social impacts and will include site preparation, earthworks, subgrade and base preparation, followed by bituminous carpeting. As part of the design, several protective structures have been incorporated, including palisading of 22 m at chainage 0+000-0+022, 15 m at 0+845-0+860, 16 m at 0+874-0+890, 10 m at 0+910-0+920, and 10 m at 0+935-0+945, as well as U-drains (1.0 m × 1.0 m) at chainage 0+750-0+751 and 1+410-1+411 to ensure effective drainage and prevent waterlogging; these locations have been selected based on site-specific conditions and corresponding geographic coordinates. The construction will require standard materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, to be sourced from approved local suppliers in compliance with environmental and procurement guidelines, while appropriate road safety measures and Environmental and Social Mitigation Measures have been integrated into the design and cost estimates to ensure safe, sustainable, and resilient implementation of the sub-project.

Estimated footprint / land area for this sub-project is 5550 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 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	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
500-800	L		Ditches, Agricultural Land, Trees, Fishpond, etc.
		R	Human Settlement, Rice Mill, Trees, Agricultural Land,

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
			etc.
800-1100	L		Agricultural land, Khal, Human Settlement, Trees, etc.
		R	Human Settlement, Trees, Agricultural Land, Khal, etc.
1100-1400	L		Human Settlement, Ditches, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Ditches, Nij Kakra GPS, etc.
1400-1700	L		Human Settlement, Agricultural Land, Ditches, Trees, etc.
		R	Agricultural Land, Human Settlement, Trees, Ditches, etc.
1700-2000	L		Human Settlement, Trees, Agricultural Land, Ditches, etc.
		R	Human Settlement, Agricultural Land, Ditches, Trees, etc.
2000-2300	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.
2300-2350	L		Human Settlement, Trees, Agricultural Land, Ditches, etc.
		R	Human Settlement, Trees, Agricultural Land, Ditches, Shop, etc.



Starting Point of Sukhanpukur KalurGhat to Nizkakra H/O Sadhon 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 sub-project is located within new Chakradhika, Hindu Para villagess under Gabtoli Upazila in Bogura District. Several environmentally and socially sensitive features are located within the influence area of the proposed sub-project, including agricultural land, water bodies (ditches, khal, and fishponds), settlements, roadside shops, a rice mill, and a government primary school (Nij Kakra GPS), along with scattered trees and cultivated land. From chainage 0+000 to 0+300 m, the left side consists of ditches, agricultural land, trees, and fishponds, while the right side includes human settlements, a rice mill, trees, and agricultural land. Between 0+300 m and 0+600 m, the left side is characterized by agricultural land, khal, human settlements, and trees, while the right side includes human settlements, trees, agricultural land, and khal. From 0+600 m to 0+900 m, both sides are dominated by human settlements, ditches, trees, and agricultural land, with Nij Kakra GPS located on the right side. Within 0+900 m to 1+200 m, the area includes

human settlements, agricultural land, ditches, and trees on both sides. From 1+200 m to 1+500 m, the alignment continues through human settlements, trees, agricultural land, and ditches, while from 1+500 m to 1+800 m, both sides mainly consist of settlements, trees, agricultural land, and scattered ditches. From 1+800 m to 2+100 m, the corridor further passes through human settlements, agricultural land, trees, ditches, and shops on the right side. Overall, the road passes through a mixed land-use environment dominated by settlements, agricultural land, water bodies, and small commercial and institutional facilities. However, as the proposed sub-project will be implemented within the existing road alignment, no significant adverse impacts on these surrounding sensitive receptors are expected. Nevertheless, appropriate environmental and social mitigation measures will be implemented during construction to minimize temporary disturbances and ensure protection of nearby features.

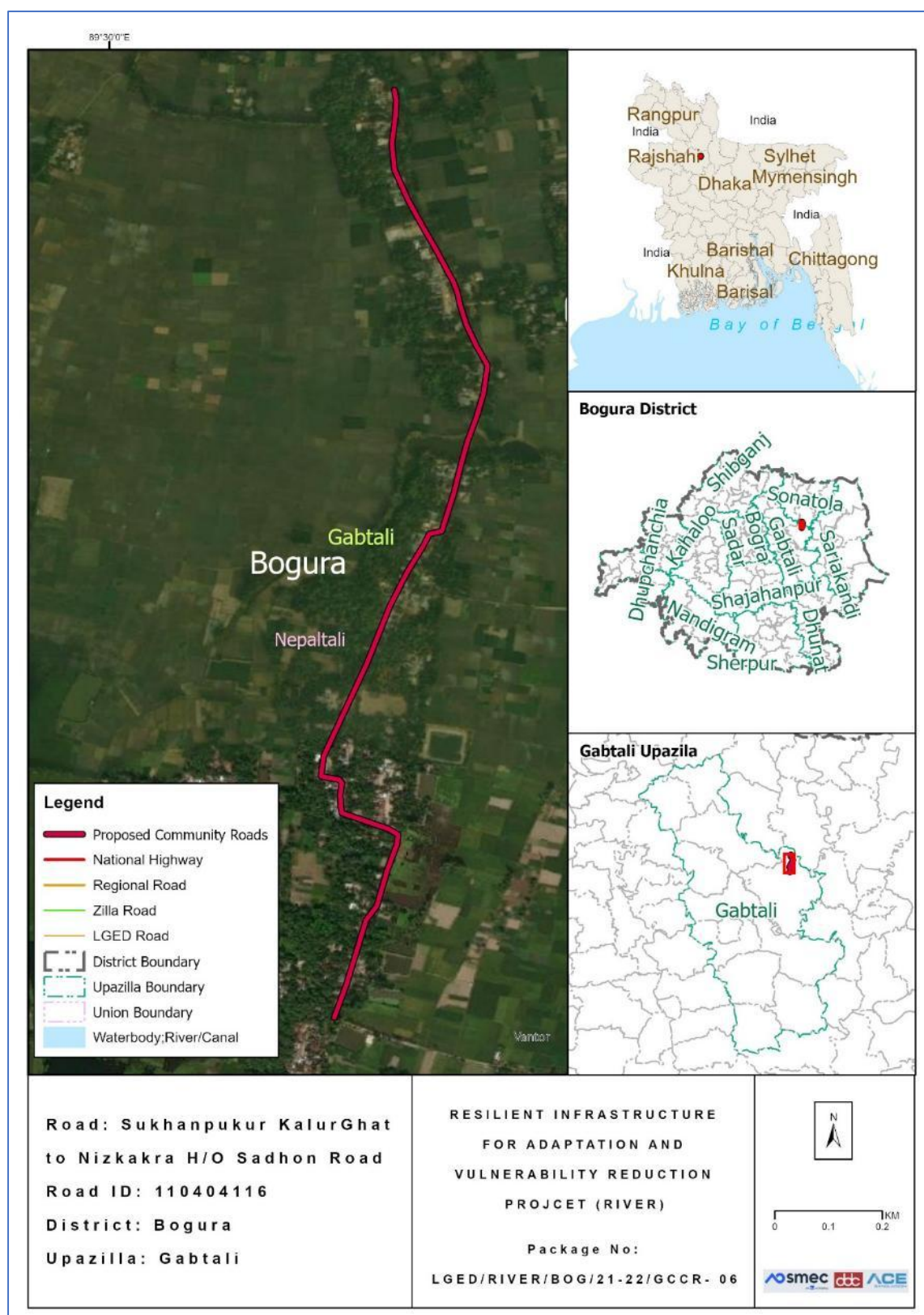


Figure: Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 1850 m**.

Sub-project Location:

Important Features	
ID	110404116
District	Bogura
Upazila	Gabtoli
Union	Shukhonpukur
Total Chainage	1850m
Proposed Chainage	1850m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.93573 N Longitude: 89.50464 E
Road Ending Point Coordinates	Latitude: 24.92063 N Longitude: 89.50366 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 Chakradhika, Hindu Para villages.
- 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:

The road alignment passes through a predominantly rural environment characterized by human settlements, agricultural land, water bodies (ditches, khal, and fishponds), roadside trees, and small commercial and institutional facilities. From chainage 0+000 to 0+300 m, the left side includes ditches, agricultural land, trees, and fishponds, while the right side comprises human settlements, a rice mill, trees, and agricultural land. Between 0+300 m and 0+600 m, both sides are dominated by agricultural land, khal, human settlements, and trees. From 0+600 m to 0+900 m, the corridor includes human settlements, ditches, trees, and agricultural land on both sides, with Nij Kakra GPS located on the right side. Within 0+900 m to 1+200 m, and further up to 2+100 m, the alignment continues through a mix of human settlements, agricultural land, ditches, and trees, with shops appearing along the right side in the later sections. No forests, protected areas, or wildlife corridors (including elephant migration routes) were identified within the project influence area. Although the corridor includes environmentally and socially sensitive features such as water bodies and community establishments, the proposed works will be confined within the existing road alignment; therefore, no significant adverse impacts are anticipated. Appropriate environmental and social mitigation measures will be implemented during construction to minimize temporary disturbances and ensure protection of these sensitive receptors.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining

ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No major river or formal canal crossing is identified along the Sukhanpukur Kalurghat to Nizkakra H/O Sadhon Road alignment. However, natural drainage features such as ditches, khal, fishponds, and low-lying agricultural land are present along both sides of the road throughout the corridor. From chainage 0+000 to 0+600 m, these features include ditches, fishponds, and khal along with agricultural land and settlements. Between 0+600 m and 1+200 m, ditches and khal continue alongside settlements, trees, and agricultural land, with nearby community establishments such as Nij Kakra GPS. From 1+200 m to 2+100 m, the alignment passes through areas with scattered ditches, agricultural land, and human settlements on both sides, along with small roadside shops in some sections. An existing bridge (1+150-1+198 m) and U-drain structures also indicate the presence of natural drainage paths.

Although no significant impact on major water bodies is anticipated, construction activities may moderately affect local drainage patterns, including ditches and low-lying areas. Therefore, proper drainage management measures, including installation of U-drains and slope protection, will be implemented to maintain natural water flow and minimize temporary disturbances 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: Sukhanpukur KalurGhat to Nizkakra H/O Sadhon Road

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of livelihood	- This subproject is not expected to have any adverse impact on the livelihoods of nearby communities or individuals. - Contractors will be encouraged to prioritize the recruitment of local labor, both skilled and unskilled, during construction activities, with special emphasis on providing opportunities for women workers.	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

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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/employee 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 will be established at suitable locations proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, three (3) trees will be planted for each tree cut, with budget provision for their maintenance for 12 months. - Sanitary latrines with septic tanks will be provided for male and female workers and staff, along with regular cleaning and maintenance.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Adequate waste bins will be placed where necessary, and litter will be collected daily. - Waste bins/skips will be regularly emptied, and waste/debris will be disposed of at approved sites as designated by the Environmental Specialist of the D&SC. - Camps and work areas will be kept clean and well-maintained at all times. - Stockpiled materials will be covered with tarpaulins or polythene sheets, and exposed ends of reinforcement bars will be protected with safety caps or suitable coverings to prevent accidents. - Hazardous materials (e.g., oil, paints) will be stored in bunded areas or on raised wooden platforms lined with polythene. - Proper fencing will be installed around storage and work areas to ensure security, prevent unauthorized access, and protect children, animals, and the public.		
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	Dust	• * All required Personal Protective Equipment (PPE) will be made available on-site before commencing any construction work.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	users due to the scarcity of resource base.	consultation with the local DPHE, considering availability, technical feasibility, and potential impacts on existing users, particularly during critical periods. • Construction water may be sourced from installed tube wells or nearby surface water bodies, provided the water quality meets required standards. • Prior approval from the relevant authorities will be obtained for any groundwater or surface water extraction or for installation of bore wells outside designated sources. • All necessary permits, consent letters, or agreements for water extraction will be properly maintained on site. • Local communities will be consulted prior to the commencement of construction activities.		Development Specialist and Gender Specialist of PIU
Construction Activity	Increase in road accidents	• Safety measures will be strictly maintained during the movement of heavy machinery and equipment.	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	• Appropriate traffic signage will be installed at key junctions, and any road diversions or closures will be communicated to the local community in advance.	Contractor	Social Development Specialist and Gender Specialist

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
				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.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	• Waste Management Plan will cover the following key aspects: • Waste from labor accommodation and on-site equipment/vehicle maintenance will be properly collected and managed. • Construction debris from building works and demolition (if any) will be segregated, stored in a designated stack yard, and sold to local recyclers where possible. • Ring slab septic tanks will be installed prior to construction to ensure proper sanitation for workers and staff.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Work areas will be kept clean and regularly inspected for spills (e.g., oil, chemicals). - Waste bins/skips will be regularly emptied, and waste will be disposed of at designated sites or approved locations. - Hazardous waste (e.g., waste oil) will be collected, stored in paved and bunded areas, and handed over to authorized recyclers. - Refueling and fluid transfer areas will be properly paved to prevent soil contamination. - Workers will be trained on safe handling of fuels/chemicals and spill response, with spill control equipment available on-site. - All activities will comply with applicable 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	Health & Safety Risks:	All construction equipment will be properly	Contractor	Environmental

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

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 fecal 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	Odours and pollution	• Preventative maintenance schedule should be	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
activity	caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	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.		Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: • The increased vehicular movement and speed may trigger road safety issues like traffic	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	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	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	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)	2220Sq.m	@38.15 Tk. Per sqm	84693
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	1850m	@ 2.56 BDT	4736
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at c 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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	LS	LS @ Tk. 30,000	30,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	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			
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			280,074.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Nizkakra (H/O Sadon) Road;**
Road ID: 110404153

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

District: Bogura

Upazila: Gabtoli

Union: Shukhonpur

Name of Community/Local Area: Nozra Para, Par Kakra, Nij Kakra

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

The proposed sub-project involves the improvement of an existing village road through Bituminous Carpeting (BC) to enhance durability, riding quality, and ensure all-weather accessibility for surrounding rural communities, along with the construction of necessary protection and drainage structures to manage surface runoff and maintain natural drainage continuity along the alignment. All works will be carried out within the existing road corridor to minimize environmental and social impacts and will include site preparation, earthworks, subgrade and base preparation, followed by bituminous carpeting. As part of the design, several protective structures have been incorporated, including palisading of 22 m at chainage 0+000-0+022, 15 m at 0+845-0+860, 16 m at 0+874-0+890, 10 m at 0+910-0+920, and 10 m at 0+935-0+945, as well as U-drains (1.0 m × 1.0 m) at chainage 0+750-0+751 and 1+410-1+411 to ensure effective drainage and prevent waterlogging; these locations have been selected based on site-specific conditions and corresponding geographic coordinates. The construction will require standard materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, to be sourced from approved local suppliers in compliance with environmental and procurement guidelines, while appropriate road safety measures and Environmental and Social Mitigation Measures have been integrated into the design and cost estimates to ensure safe, sustainable, and resilient implementation of the sub-project.

Estimated footprint / land area for this sub-project is 5,250 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1750m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
000-300	L		Fishpond, Agricultural Land, Human Settlement, Trees, Mosque
		R	Fishpond, Agricultural Land, Eid Gah, Human Settlement,

Chainage	(Left/Right)		Environmental and Social Impact
			etc.
300-600	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Ditches, Trees, Agricultural Land, etc.
600-900	L		Agricultural Land, Beel, Trees, etc.
		R	Agricultural Land, Beel, Trees, etc.
900-1200	L		Beel, Trees, Agricultural Land, etc.
		R	Beel, Trees, Agricultural Land, Human Settlement, etc.
1200-1500	L		Human Settlement, Trees, Agricultural Land, Shop, etc.
		R	Agricultural Land, Trees, etc.
1500-1750	L		Agricultural Land, Ditches, Trees, Human Settlement, etc.
		R	Agricultural Land, Human Settlement, Trees, Ditches, etc.



Starting Point of Nizkakra (H/O Sadon) 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.

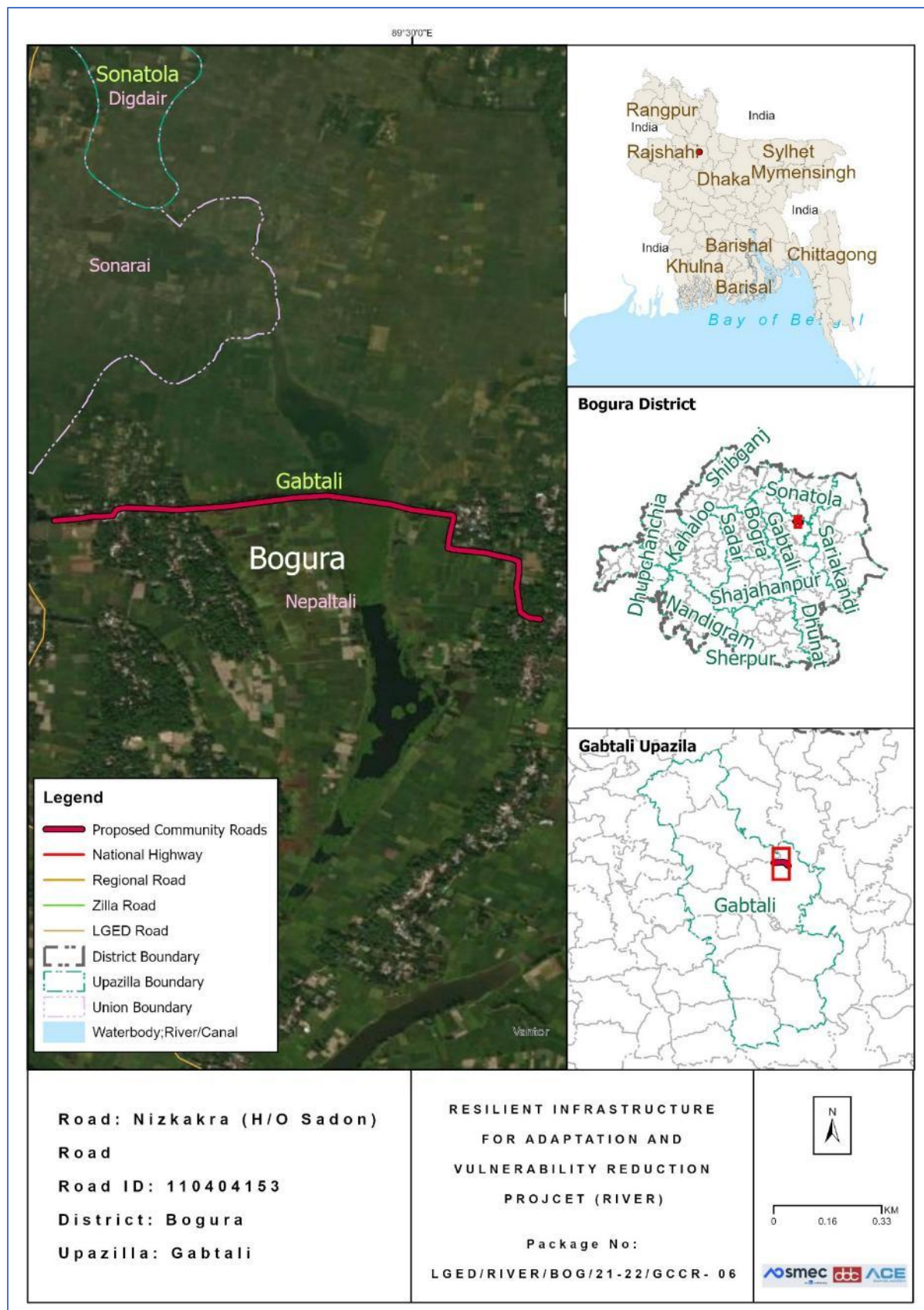
Types of waste to be generated during construction and operation phase:

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, which is located in Nozra Para, Par Kakra, Nij Kakra villages under Shukhonpur Union of Sariakandi Upazila in Bogura District. The road alignment passes through a mixed landscape of agricultural land, water bodies, and human settlements with several socially and environmentally sensitive features along both sides. From chainage 0-300 m, the left side includes fishponds, agricultural land, trees, human settlements, and Vangirpara Mosque, while the right side comprises fishponds, agricultural land, an Eid Gah, and settlements. Between 300-600 m, both sides are characterized by human settlements, trees, and agricultural land, with ditches present on the right side. From 600-900 m, the area is dominated by agricultural land, beels, and trees on both sides, continuing into the 900-1200 m section, with additional human settlements on the right. In the 1200-1500 m stretch, the left side includes settlements, shops, trees, and agricultural land, while the right side remains primarily agricultural with trees. From 1500-1800 m, both sides consist of agricultural land, ditches, trees, and scattered settlements. Overall, the alignment traverses environmentally and socially sensitive features; however, as the proposed works will be confined within the existing road corridor, no significant adverse impacts are anticipated,

and appropriate environmental management and precautionary measures will be implemented during construction to protect these receptors.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 1750 m**.

Sub-project Location:

Important Features	
ID	110404153
District	Bogura
Upazila	Gabtoli
Union	Shukhonpukur
WARD	04
Total Chainage	1750m
Proposed Chainage	1750m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.92418 N Longitude: 89.49034 E
Road Ending Point Coordinates	Latitude: 24.92152 N Longitude: 89.50346 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 Nozra Para, Par Kakra, Nij Kakra villages.
- 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:

No historical or archaeological sites were identified within the direct influence area of the proposed sub-project; however, several environmentally and socially sensitive features, including religious and community establishments, are present within the surrounding catchment area. The road alignment passes through a mixed landscape of agricultural land, water bodies, and settlements. From chainage 0-300 m, the left side includes fishponds, agricultural land, trees, human settlements, and Vangirpara Mosque, while the right side consists of fishponds, agricultural land, an Eid Gah, and settlements. Between 300-600 m, both sides are characterized by human settlements, trees, and agricultural land, with additional ditches on the right side. From 600-900 m, the area is dominated by agricultural land, beels, and trees on both sides, continuing into the 900-1200 m section, with some human settlements present on the right. In the 1200-1500 m stretch, the left side includes human settlements, shops, trees, and agricultural land, while the right side remains primarily agricultural with trees. From 1500-1800 m, both sides consist of agricultural land, ditches, trees, and scattered human settlements. These features, including mosques and Eid Gahs, hold local cultural and religious significance; however, as the proposed sub-project activities will be confined within the existing road alignment, no significant adverse impacts are anticipated. Nevertheless, appropriate precautionary and environmental management measures will be implemented during the construction phase to ensure the protection of these sensitive receptors.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 $\mu\text{S}/\text{cm}$. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in

controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or

other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No formal drainage system, river, or canal crossing is identified along the proposed road alignment. However, natural drainage features such as ditches, fishponds, beels, and low-lying agricultural land are present intermittently along both sides of the road corridor. From chainage 0-300 m, both sides include fishponds, agricultural land, and human settlements, along with trees, a mosque (Vangirpara Mosque) on the left, and an Eid Gah on the right. Between 300-600 m, the alignment is characterized by human settlements, agricultural land, and trees, with additional ditches present on the right side. From 600-900 m, the area consists mainly of agricultural land, beels, and trees on both sides, which continue into the 900-1200 m section, along with some human settlements on the right. In the 1200-1500 m stretch, the left side includes human settlements, shops, trees, and agricultural land, while the right side remains predominantly agricultural with scattered trees. From 1500-1750 m, both sides consist of agricultural land, ditches, trees, and dispersed human settlements. Although no major water bodies or engineered drainage systems will be directly affected, construction activities may have a moderate impact on nearby ponds, beels, ditches, and existing natural drainage patterns; therefore, appropriate drainage management and environmental mitigation measures will be implemented to minimize potential impacts.

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: Nizkakra (H/O Sadon) Road

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	- No land acquisition is allowed in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to	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
	traffic 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/employee 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 will be established at suitable locations proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, three (3) trees will be planted for each tree cut, with budget provision for their maintenance for 12 months.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Sanitary latrines with septic tanks will be provided for male and female workers and staff, along with regular cleaning and maintenance. - Adequate waste bins will be placed where necessary, and litter will be collected daily. - Waste bins/skips will be regularly emptied, and waste/debris will be disposed of at approved sites as designated by the Environmental Specialist of the D&SC. - Camps and work areas will be kept clean and well-maintained at all times. - Stockpiled materials will be covered with tarpaulins or polythene sheets, and exposed ends of reinforcement bars will be protected with safety caps or suitable coverings to prevent accidents. - Hazardous materials (e.g., oil, paints) will be stored in bunded areas or on raised wooden platforms lined with polythene. - Proper fencing will be installed around storage and work areas to ensure security, prevent unauthorized access, and protect children, animals, and the public.		

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	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		for the local residents near the sub project site.		
Construction Activity	Noise from construction works	* Construction activities will generally be completed during daytime, preferably by 5:00 PM, with measures in place to minimize disturbance.	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	* All required Personal Protective Equipment (PPE) will be made available on-site before commencing any construction work.	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. - 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	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources for construction will be selected in consultation with the local DPHE, considering availability, technical feasibility, and potential impacts on existing users, particularly during critical periods. - Construction water may be sourced from installed tube wells or nearby surface water bodies, provided the water quality meets required standards. - Prior approval from the relevant authorities will be obtained for any groundwater or surface water extraction or for installation of bore wells outside designated sources. - All necessary permits, consent letters, or	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		agreements for water extraction will be properly maintained on site. Local communities will be consulted prior to the commencement of construction activities.		
Construction Activity	Increase in road accidents	Safety measures will be strictly maintained during the movement of heavy machinery and equipment.	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	Appropriate traffic signage will be installed at key junctions, and any road diversions or closures will be communicated to the local community in advance.	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.		
Construction	Waste Management:	Waste Management Plan will cover the	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	Improper management and handling of hazardous and non-hazardous waste during construction.	following key aspects: - Waste from labor accommodation and on-site equipment/vehicle maintenance will be properly collected and managed. - Construction debris from building works and demolition (if any) will be segregated, stored in a designated stack yard, and sold to local recyclers where possible. - Ring slab septic tanks will be installed prior to construction to ensure proper sanitation for workers and staff. Work areas will be kept clean and regularly inspected for spills (e.g., oil, chemicals). - Waste bins/skips will be regularly emptied, and waste will be disposed of at designated sites or approved locations. - Hazardous waste (e.g., waste oil) will be collected, stored in paved and bunded areas, and handed over to authorized recyclers. - Refueling and fluid transfer areas will be properly paved to prevent soil contamination. - Workers will be trained on safe handling of fuels/chemicals and spill response, with spill		Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		control equipment available on-site. All activities will comply with applicable 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. - This sub project will have Proper communicative emergency response plan (ERP) with all parties,	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.	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. • 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		

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	construction stage: • Pollution from waste materials. • Health & Safety risks to workers and local community.	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 fecal 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
Pre-	Rigorous Monitoring and	• The Contractor shall appoint (i) ES Manager (ii)	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction and Construction	Report Preparation and Submission	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.		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 sidewalks,	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

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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 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)	2100Sq.m	@38.15 Tk. Per sqm	80,115
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	1750.0m	@ 2.56 BDT	4,480
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at ca 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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	LS	LS @ Tk 30,000	30,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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Sl. no.	Description of item	Quantity	Unit price	Total amount
	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			
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

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			275,240.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Fulbari GC-Kutubpur GC Road;**
Road ID: 110812002

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

District: Bogura

Upazila: Sariakandi

Union: Fulbari

Name of Community/Local Area: CharDomkandi, Boro Kutubpur, Kashiahata

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves improvement of a village road with provision for adequate drainage and slope protection measures to ensure hydraulic continuity and long-term stability of the carriageway. As part of the design, 1 no. U-drain (1.0 m × 1.0 m) has been proposed at Ch. 0+840-0+841 to facilitate effective disposal of local surface runoff. In addition, slope protection works in the form of palisading have been incorporated at two locations: 26.0 m length from Ch. 1+389-1+415 and 30.0 m length from Ch. 1+440-1+470, aimed at protecting vulnerable embankment sections and preventing erosion. These ancillary structures will improve drainage efficiency, safeguard the road body, and maintain environmental and hydraulic balance along the alignment. These structures are designed to ensure unobstructed flow of water through existing canals and natural drainage paths, particularly during the monsoon season, thereby preventing waterlogging and protecting the road embankment. Necessary road safety measures and environmental mitigation provisions have also been incorporated in the project design and cost estimation to minimize potential environmental and social impacts during both construction and operation phases.

Estimated footprint / land area for this sub-project is 5,400 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1800m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
9900-10200	L		Human Settlement, Agricultural Land etc.
		R	Agricultural Land, Forest, Human Settlement etc.
10200-10500	L		Human Settlement, Agricultural Land, etc.
		R	Human Settlement, Agricultural Land, Kutubpur New Jame Mosque etc.
10500-10800	L		Human Settlement, Agricultural Land, etc.
		R	Human Settlement, Agricultural Land etc.

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
10800-11100	L		Human Settlement, Ditches, Trees, Agricultural Land etc.
		R	Human Settlement, Ditches, Trees, Agricultural Land etc.
11100-11400	L		Human Settlement, Agricultural Land, Fishpond etc.
		R	Human Settlement, Agricultural Land, Trees etc.
11400-11700	L		Pakuria Para GPS, Human Settlement, Agricultural Land, Kutubpur Eid Gah etc.
		R	Agricultural Land, Trees etc.



Starting Point of Fulbari GC-Kutubpur 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 sites were identified. This sub-project is situated within the alignment covering several chainages along the project corridor. Some sensitive environmental, cultural, and religious sites near (within 1 km) the site are at the left side agricultural fields and ponds (200-300 m), shops and households (250-350 m), canal and graveyard (450-550 m); at the right side agricultural fields and ponds (200-320 m), residential houses and shops (250-350 m), graveyard at Ch. 0+950 (500 m), Eidgah at Ch. 0+120 (600 m), and mosque with nearby graves (650 m). There is no scope for disturbance by this sub-project, and these features represent important environmental, social, and religious values for the local community.

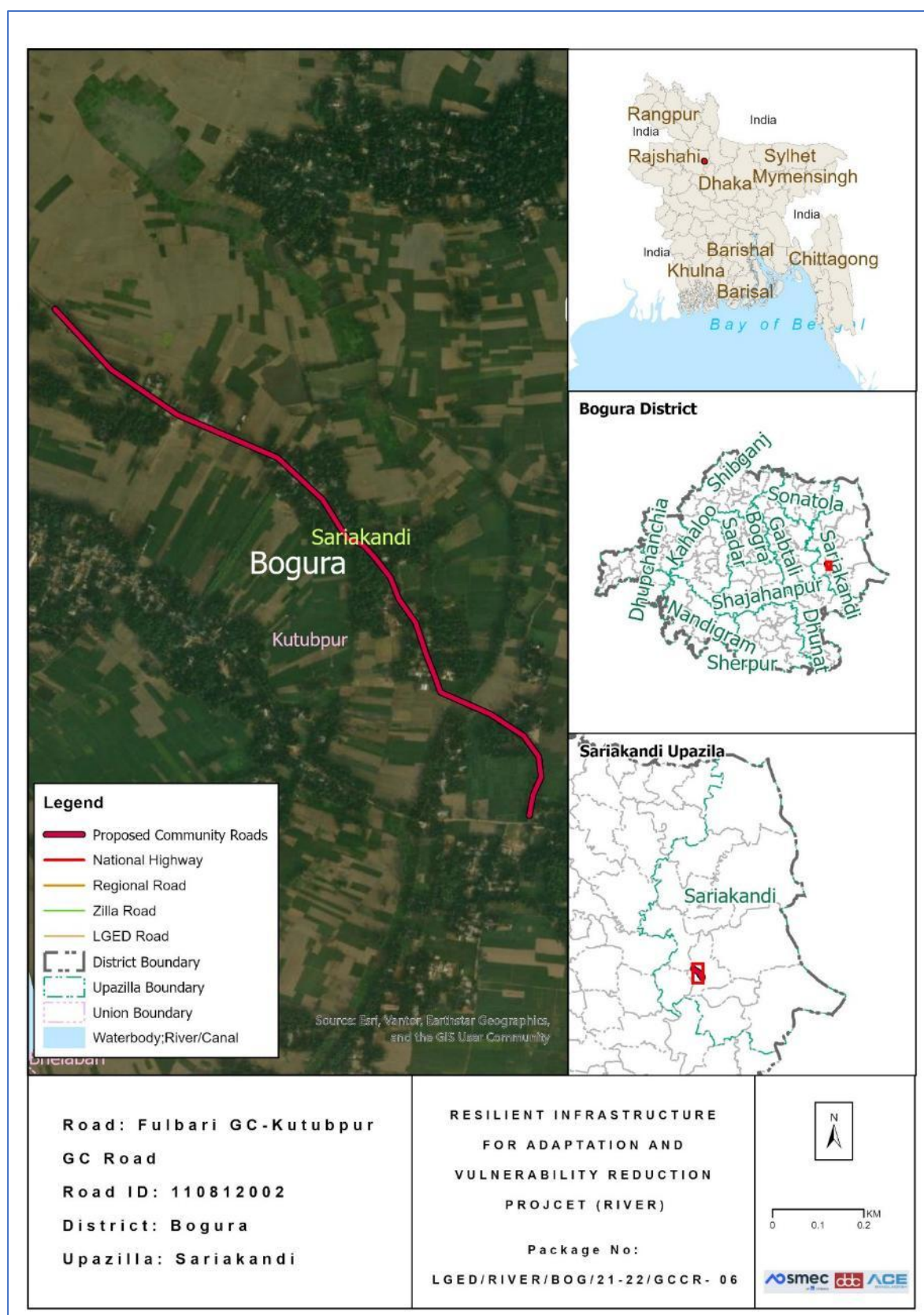


Figure: Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Brick Flat Soiling (BFS) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1800m.

Sub-project Location:

Important Features	
ID	110812002
District	Bogura
Upazila	Sariakandi
Union	Fulbari
Total Chainage	1800m
Proposed Chainage	1800m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.82925 N Longitude: 89.5726N E
Road Ending Point Coordinates	Latitude: 24.81624 N Longitude: 89.57864 E

Land ownership

Land is owned by Government.

Expected construction period: 12 (twelve months approximately)

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

- i) The proposed Sub-project is located within: CharDomkandi, Boro Kutubpur, Kashiahata villages.
- 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:

The sub-project corridor passes through a predominantly rural landscape characterized by agricultural land, scattered human settlements, small water bodies, trees, and local infrastructure along both sides of the alignment. From chainage 0+000 to 0+600, the area is mainly composed of agricultural fields with dispersed settlements, including a mosque (Kutubpur New Jame Mosque) located on the right side within this section. From chainage 0+600 to 0+1200, the surroundings continue as a mix of agricultural land, settlements, ditches, and trees on both sides. Between chainage 0+1200 to 0+1500, the left side includes shops, households, and agricultural land, while the right side contains agricultural fields along with a mosque, graveyard, residential houses, and a pond, representing some localized sensitive receptors. From chainage 0+1500 to 0+1800, both sides are mainly dominated by settlements, agricultural land, fishponds, and scattered trees. Overall, the project area is largely rural in nature, and since all construction activities will remain within the existing road alignment, no significant adverse impact on nearby environmental, cultural, or religious features is anticipated.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 200 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: Groundwater in the sub-project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026).

Status of wildlife movement:

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

State of forestation:

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

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No 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: Fulbari GC-Kutubpur GC Road

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.	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/employee 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 will be established at suitable locations proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, three (3) trees will be planted for each tree cut, with budget provision for their maintenance for 12 months. - Sanitary latrines with septic tanks will be provided for male and female workers and staff, along with regular cleaning and maintenance. - Adequate waste bins will be placed where necessary, and litter will be collected daily. - Waste bins/skips will be regularly emptied, and	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		waste/debris will be disposed of at approved sites as designated by the Environmental Specialist of the D&SC. - Camps and work areas will be kept clean and well-maintained at all times. - Stockpiled materials will be covered with tarpaulins or polythene sheets, and exposed ends of reinforcement bars will be protected with safety caps or suitable coverings to prevent accidents. - Hazardous materials (e.g., oil, paints) will be stored in bunded areas or on raised wooden platforms lined with polythene. - Proper fencing will be installed around storage and work areas to ensure security, prevent unauthorized access, and protect children, animals, and the public.		
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,	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 will generally be completed during daytime, preferably by 5:00 PM, with measures in place to minimize disturbance.	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	• * All required Personal Protective Equipment (PPE) will be made available on-site before commencing any construction work.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	users due to the scarcity of resource base.	consultation with the local DPHE, considering availability, technical feasibility, and potential impacts on existing users, particularly during critical periods. • Construction water may be sourced from installed tube wells or nearby surface water bodies, provided the water quality meets required standards. • Prior approval from the relevant authorities will be obtained for any groundwater or surface water extraction or for installation of bore wells outside designated sources. • All necessary permits, consent letters, or agreements for water extraction will be properly maintained on site. • Local communities will be consulted prior to the commencement of construction activities.		Development Specialist and Gender Specialist of PIU
Construction Activity	Increase in road accidents	• Safety measures will be strictly maintained during the movement of heavy machinery and equipment.	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	• Appropriate traffic signage will be installed at key junctions, and any road diversions or closures will be communicated to the local community in advance.	Contractor	Social Development Specialist and Gender Specialist

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
				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.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	- Waste Management Plan will cover the following key aspects: - Waste from labor accommodation and on-site equipment/vehicle maintenance will be properly collected and managed. - Construction debris from building works and demolition (if any) will be segregated, stored in a designated stack yard, and sold to local recyclers where possible. - Ring slab septic tanks will be installed prior to construction to ensure proper sanitation for workers and staff.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Work areas will be kept clean and regularly inspected for spills (e.g., oil, chemicals). - Waste bins/skips will be regularly emptied, and waste will be disposed of at designated sites or approved locations. - Hazardous waste (e.g., waste oil) will be collected, stored in paved and bunded areas, and handed over to authorized recyclers. - Refueling and fluid transfer areas will be properly paved to prevent soil contamination. - Workers will be trained on safe handling of fuels/chemicals and spill response, with spill control equipment available on-site. - All activities will comply with applicable 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	Health & Safety Risks:	All construction equipment will be properly	Contractor	Environmental

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 fecal 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	Odours and pollution	• Preventative maintenance schedule should be	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
activity	caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	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.		Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. • Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: • The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents	Road safety issues can be minimized in following ways: • By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. • Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed	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.	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 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)	2160 Sq.m	@38.15 Tk. Per sqm	82404
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	1800	@ 2.56 BDT	4608
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp 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	1 no.	LS @5000 Tk. Per box	5,000

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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> 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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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. <u>[One person to be appointed for 17 roads]</u>	Each	@ Tk. 35000	35,000
Total amount for this Road				277,657.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Fulbari U.P-Shaihata College hat Rd; Road ID: 110813001**

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

District: Bogura;

Upazila: Gabtoli;

Union: Fulbari

Name of Community/Local Area: Daho Para, Domkandi, Sonatola, Faringa para

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road improvement with bituminous carpeting options. For ensuring slope stability and protection of the road embankment, palisading works have been incorporated at multiple vulnerable locations along the alignment. A total of 406 m of palisading has been proposed at 18 different points along the road. These protection measures are designed to prevent soil erosion, stabilize the embankment slopes, and enhance the long-term durability and safety of the road under local field conditions. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, all sourced from approved local suppliers. The project footprint will largely remain within the existing road alignment to minimize environmental and social impacts, and provisions for road safety measures and Environmental and Social Mitigation measures have been included in the project cost estimation to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 9495 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 3165m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
2000-2300	L		Sub Station, Shop, Kindergarten School, Home
		R	Patgram Govt. Degree College, Home
2300-2600	L		Mohila Madrasa, Ditch, Palisading, Agricultural Land, Home
		R	Shop, Ikra Madrasa, Agricultural Land, Home
2600-2900	L		Home, Ditch/Palisading, Mirja Forkani Madrasa
		R	Home, Agricultural land

Chainage	(Left/Right)		Environmental and Social Impact
2900-3200	L		Shop, Home
		R	Mosque, Home
3200-3500	L		Home, Ditch/Palisading
		R	Home
3500-3800	L		Home, F. Rahman School
		R	Graveyard, Home, Shop, Ditch/ Palisading
3800-4100	L		Ditch/Palisading, Graveyard, Pond, Home, Agricultural land
		R	Mosque, Agricultural land, Home
4100-4400	L		Lolitarhat High School, Shop, Home
		R	Graveyard, Home
4400-4700	L		Home, Agricultural land, Nolitar Hat Bazar
		R	Home, Agricultural land, Kuchlibari Union Parishod, Madrasa, Bazar
4700-5165	L		Bazar, Home, Madrasa, Ditch/Palisading
		R	Home, Bazar, Ditch, Madrasa



Starting Point of Fulbari U.P-Shaihata College hat Rd

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.

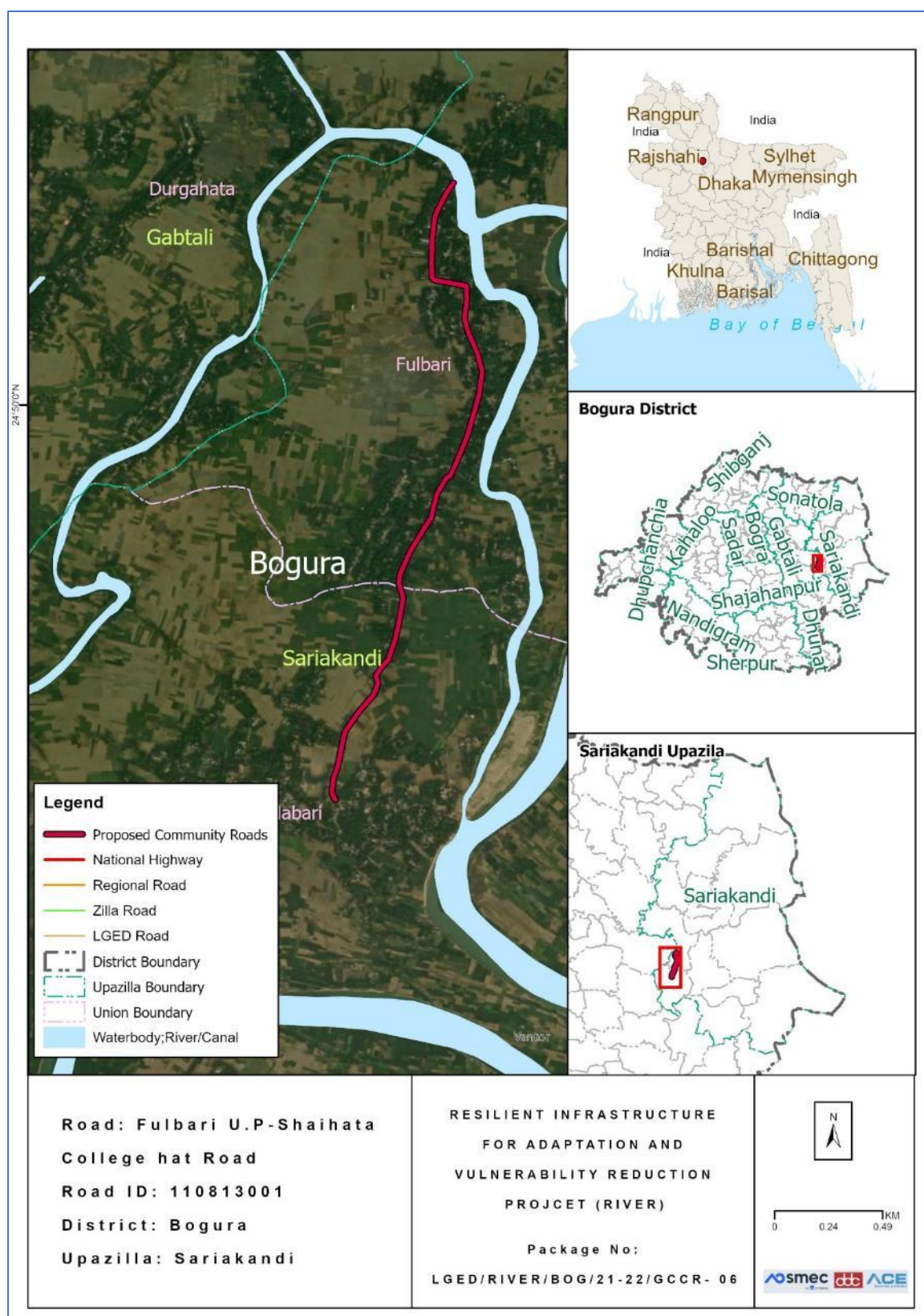
Types of waste to be generated during construction and operation phase:

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 project corridor passes through College Mor, Saniserpur 9 No. Ward, Lolitarhat, and Kuchlibari villages under Kuchlibari Union, Ward No. 8 of Gabtoli Upazila in Bogura District. The alignment predominantly traverses rural settlements, agricultural land, ditches, bamboo forest, fishponds, and scattered vegetation along both sides of the road. From chainage 0+000 to 0+300, the left side is mainly characterized by ditches, human settlements, and bamboo forest, while the right side includes human settlements and Doctor Kamrul Hassan College. Between chainage 0+300 to 0+600, the left side consists of human settlements and agricultural land, while the right side includes shops and settlements. From chainage 0+600 to 0+900, Domkandi GPS, human settlements, and

agricultural land are observed on the left, while Domkandi Jame Mosque, settlements, and mango trees are located on the right. From chainage 0+900 to 0+1200, the left side includes ditches, settlements, Sonatola GPS, trees, and shops, while the right side includes ditches, settlements, big trees, and agricultural land. Between chainage 0+1200 to 0+1500, the left side comprises trees, agricultural land, and ditches, while the right side includes Sonatola Jame Mosque, settlements, big trees, shops, and ditches. From chainage 0+1500 to 0+2100, both sides are mainly dominated by ditches, agricultural land, fishponds, forests, and scattered settlements. From chainage 0+2100 to 0+2700, the corridor continues through mixed agricultural land, settlements, trees, and ditches on both sides. Finally, from chainage 0+2700 to 0+3000, Sonatola Hat, shops, Sonatola College, Sonatola GPS, settlements, and ditches are located on both sides of the alignment. These educational, religious, and socio-economic establishments hold significant importance for the local community; however, since the proposed sub-project activities will remain within the existing road alignment, no significant adverse impact on these sensitive receptors is anticipated. Appropriate mitigation and precautionary measures will be implemented during construction to avoid any temporary disturbance.



Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 m to Chainage 3165 m**.

Sub-project Location:

Important Features	
ID	110813001
District	Bogura
Upazila	Sariakandi
Union	Fulbari
Total Chainage	3165 m
Proposed Chainage	3165 m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.84238 N Longitude: 89.55176 E
Road Ending Point Coordinates	Latitude: 24.81726 N Longitude: 89.54695 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 Fulbari U.P9 No. Ward, Lolitarhat, Kuchlibari villages Some other villages named Daho Para, Domkandi, Sonatola, Faringa para within one kilometer.
- ii) No historical sites were found
- iii) Not required to relocate local community.
- iv) Some trees, vegetation and livelihood will be affected.
- v) Very low chance of loss of agricultural land.
- vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmentally and socially sensitive receptors, including educational, religious, and socio-economic establishments, are located within the influence area of the proposed sub-project corridor. From chainage 0+000 to 0+300, the left side is characterized by ditches, human settlements, and bamboo forest, while the right side includes human settlements and Doctor Kamrul Hassan College. Between chainage 0+300 to 0+600, the left side consists of human settlements and agricultural land, whereas the right side includes shops and settlements. From chainage 0+600 to 0+900, Domkandi GPS, human settlements, and agricultural land are located on the left, while Domkandi Jame Mosque, settlements, and mango trees are present on the right. Between chainage 0+900 to 0+1200, the left side includes ditches, settlements, Sonatola GPS, trees, and shops, while the right side consists of ditches, settlements, big trees, and agricultural land. From chainage 0+1200 to 0+1500, the left side is mainly composed of trees, agricultural land, and ditches, while the right side includes Sonatola Jame Mosque, settlements, big trees, shops, and ditches. From chainage 0+1500 to 0+2100, both sides are dominated by ditches, agricultural land, forest areas, fishponds, and scattered settlements. Between chainage 0+2100 to 0+2700, the corridor continues through mixed agricultural land, settlements, trees, and ditches on both sides. Finally, from chainage 0+2700 to 0+3000, Sonatola Hat, shops, Sonatola College, Sonatola GPS, settlements, and ditches are located on both sides of the alignment. These educational, religious, and community-based institutions hold significant social, cultural, and economic importance for the local population. However, since the proposed sub-project activities will be confined within the existing road alignment, no significant adverse impact on these nearby sensitive receptors is anticipated, and appropriate precautionary measures will be implemented during construction to avoid any temporary disturbance.

Location of environmental and Social important and sensitive areas:

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

Baseline air quality and noise levels:

Dust:

Ambient air quality data 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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 $\mu\text{S}/\text{cm}$. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible

(Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choroi (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No engineered drainage system exists along the 3,165 m project alignment; however, several natural drainage features including ditches, minor channels (palisades), and river crossings are present. On the left side, ditches/palisades are located at Chainage 480-505 m, 800 m, and 2945 m, with river crossings at 1435 m and 1700 m, while on the right side a ditch/palisade occurs at Chainage 1756 m. These features support local stormwater flow, and construction activities may cause moderate disturbance; therefore, the impact is considered Medium, which can be mitigated through proper cross-drainage provisions and protective measures.

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: Fulbari U.P-Shaihata College hat Rd

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.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage;	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	removal/relocation of utility services	- 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.		
Construction Activity	Dust	Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), PM2.5, 10] and Hydrocarbons must be	Contractor	Environmental Consultant of PIU

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

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

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

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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,	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.	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. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated	Contractor	Environmental Consultant of PIU/D&SC.

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

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		preventing pollution and generating nutrient rich compost soil over time.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be 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	Upazila Engineer (UE)	District Executive Engineer, LGED

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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.	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)	3798Sq.m	@38.15 Tk. Per sqm	144893.7
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	3165.0m	@ 2.56 BDT	8102.4
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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 n	1 no.	LS @ Tk. 15,000	15,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
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
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@ Tk. 35000	35000.00
	Total amount for this Road			343,641.82



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **New Sonatola - Beterkandi;**
Road ID: 110814044

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

District: Bogura

Upazila: Sariakandi

Union: Fulbari

Name of Community/Local Area: Beterkandi, Sonatola,

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

The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes Palisading measuring 21.0 m and 40.0 m at Chainage (Ch.) 0+023-0+044 and 0+155-0+175 (both sides) respectively a Rcc U-Drain measuring 1.0m x 1.0m at Ch. 0+630-0+631 m to ensure adequate drainage and maintain the continuity of natural water flow. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 3,570 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1190m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
000-300	L		New Sonatola Bazar, Ditches, Fishpond, Agricultural Land, etc.
		R	Bazar, Human Settlement, Agricultural Land etc.
300-600	L		Poultry Farm, Agricultural Land etc.
		R	Agricultural Land etc.
600-900	L		Human Settlement, Shops, Agricultural Land, etc.
		R	Fishpond, Agricultural Land etc.
900-1190	L		Ditches, Agricultural Land etc.
		R	Human Settlement, Agricultural Land, Trees etc.



Starting Point of New Sonatola Bazar to Beterkandi Bridge

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:

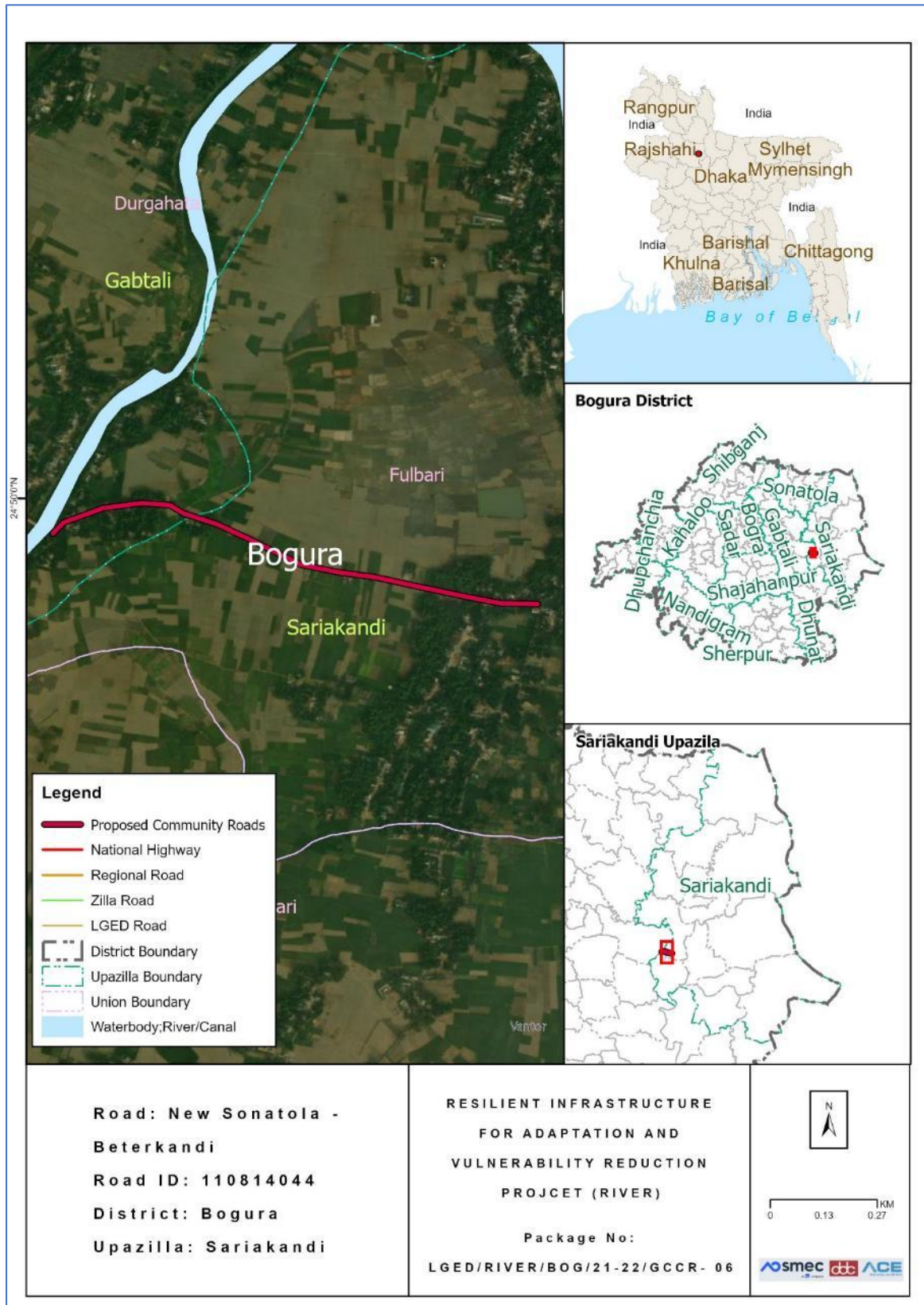
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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 sub-project is located within new sonatola, Fulbari, Domkandi villagess under Fulbari Union of Sariakandi Upazila in Bogura District. Several environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately 1 km of the project area. Along the left side of the proposed road alignment, New Sonatola Bazar is located within the first 300 m, along with ditches, fishponds, and agricultural land. From 300 m to 600 m, there is a poultry farm and more agricultural land. Between 600 m and 900 m, the area includes human settlements, small shops, and agricultural land. Up to 1200 m, ditches and agricultural land continue along the alignment.

On the right side, the first 300 m includes bazar areas, human settlements, and agricultural land. From 300 m to 900 m, the area is mainly agricultural land with some fishponds. From 900 m to 1200 m, there are human settlements, agricultural land, and roadside trees. Overall, the road passes through a mix of settlements, market areas, water bodies, and agricultural land. These institutions hold important religious, cultural, and educational significance for the local community. However, as the proposed sub-project activities will be carried out primarily within the existing road alignment, no significant disturbance or adverse impacts on these nearby institutions are anticipated. Nevertheless, appropriate

precautionary and environmental management measures will be implemented during the construction phase to ensure the protection of these sensitive locations.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 1190 m**.

Sub-project Location:

Important Features	
ID	110814044
District	Bogura
Upazila	Sariakandi
Union	Fulbari
Total Chainage	1190m
Proposed Chainage	1190m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.83098 N Longitude: 89.55133 E
Road Ending Point Coordinates	Latitude: 24.8325 N Longitude: 89.54054 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 new sonatola, Fulbari, Domkandi villages.
- ii) No historical sites were found
- iii) Not required to relocate local community.
- iv) Some trees, vegetation and livelihood will be affected.
- v) Very low chance of loss of agricultural land.
- vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately 1 km of the project area. Along the left side of the road alignment, the area includes New Sonatola Bazar, ditches, fishponds, and agricultural land within approximately 300 m. Within about 600 m, a poultry farm and additional agricultural land are present. Beyond this, up to around 900 m, the alignment passes through areas with human settlements, small shops, and agricultural land. Up to approximately 1.2 km, ditches and agricultural land continue along the corridor.

Along the right side of the alignment, bazar areas, human settlements, and agricultural land are located within approximately 300 m. Within about 900 m, the area is mainly agricultural land with some fishponds. Up to approximately 1.2 km, human settlements, agricultural land, and roadside trees are observed along the alignment. These institutions hold important religious, cultural, and educational significance for the local community. However, as the proposed sub-project activities will be carried out primarily within the existing road alignment, no significant disturbance or adverse impacts on these nearby institutions are anticipated. Nevertheless, appropriate precautionary and environmental management measures will be implemented during the construction phase to ensure the protection of these sensitive locations.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026).

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in

surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be

higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No formal drainage system, river, or canal crossing is identified along the proposed alignment. However, natural drainage features such as ditches, fishponds, and low-lying agricultural land are present along both sides of the road. On the left side, these features are found within approximately 300-900 m, along with New Sonatola Bazar, a poultry farm, human settlements, and shops. On the right side, fishponds, agricultural land, and settlements are located within approximately 300-900 m, with roadside trees and settlements extending up to 1.2 km. Although no direct impact on major water bodies is expected, construction activities may have a moderate influence on nearby ponds, ditches, and local drainage patterns.

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: New Sonatola - Beterkandi

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	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 local community to avoid any conflicts will be taking place. • Sub project intervention must avoid natural disturbance to existing slop and natural drainage.	PIU & Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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	Traffic Management	Because of the sensitivity of the proposed	Contractor	Environmental

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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	Labor Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for	Contractor	Social Development Specialist and Gender Specialist of PIU

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	- Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. - Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: - The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. - Exposure to health events during construction activities such as manual	- All construction equipment will be properly inspected timely. - The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. - Proper Signpost at any slippery areas will be ensured in construction site. - Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. - This sub project will have Proper communicative	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • The earthwork sites where exposed land surface	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be 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	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.	- 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)	1428Sq.m	@38.15 Tk. Per sqm	54478.2
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	1190.0m	@ 2.56 BDT	3046.4
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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	LS	LS @ Tk. 30,000	30,000.00

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

Sl. no.	Description of item	Quantity	Unit price	Total amount
	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			
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

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

Sl. no.	Description of item	Quantity	Unit price	Total amount
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. <u>[One person to be appointed for 17 roads]</u>	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			248,170.32



Existing Condition and the Surroundings of the Proposed Road

Name of Sub-Project: Improvement of Community Road for **Shariakandi Sarkarpara WDB Buandth-Deluabar Road; Road ID: 110814062**

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

District: Bogura

Upazila: Sariakandi

Union: Sariakandi

Name of Community/Local Area: Growin Badh, Digolkandi Purbopara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The sub-project is categorized as a union road with bituminous carpeting. To ensure proper drainage and protection of the road, slope protection measures will be implemented along the alignment. In this regard, brick palisading of approximately 59 m length will be constructed between chainage 0+132 and 0+191. This intervention will help protect the road embankment from erosion and enhance overall stability. Road safety measures, as well as environmental and social mitigation activities, have been incorporated into the project cost estimates.

Estimated footprint / land area for this sub-project is 2550 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 850m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
950-1250	L		Human Settlement, Agricultural Land, Trees, Khal, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.
1250-1550	L		Human Settlement, Agricultural Land, Jamuna River, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
1550-1800	L		Agricultural Land, Human Settlement, Trees, Jamuna River, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.



Starting Point of Shariakandi Sarkarpara WDB Buandth-Deluabari 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.

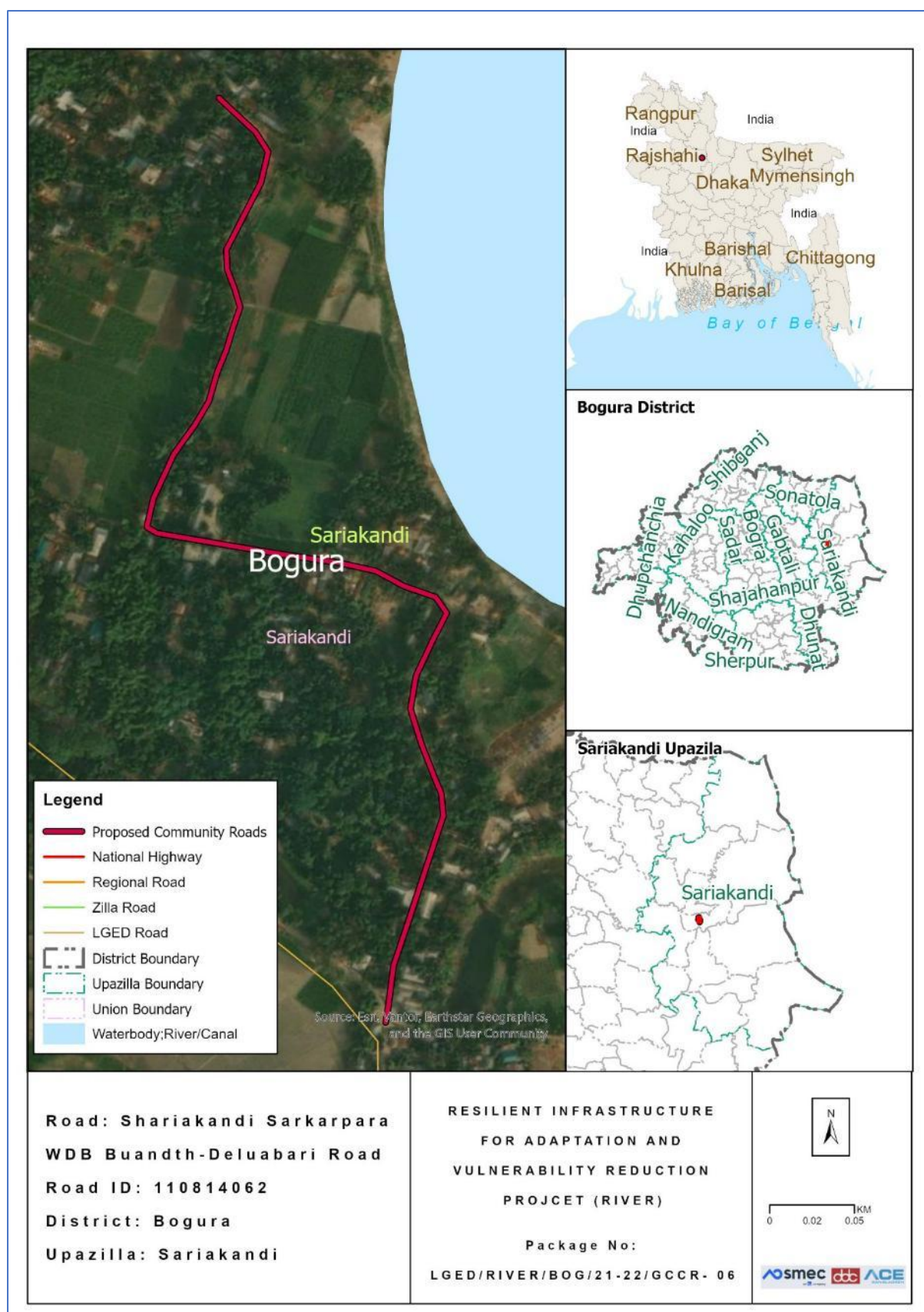
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 subproject, no historical sites were identified. The sub-project is located within Kakina and Rudreshar villages under 08 No. Kakina Union, Ward No. 8 of Kaliganj Upazila in Bogura District. Along the project alignment, the surrounding land use is predominantly characterized by human settlements, agricultural land, and scattered trees. Within chainage 000-300 m, both sides of the road include human settlements, agricultural land, trees, and a khal. Between chainage 300-600 m, the left side is influenced by human settlements, agricultural land, and the Jamuna River, while the right side consists of human settlements, agricultural land, and trees. Similarly, within chainage 600-900 m, the left side includes agricultural land, human settlements, trees, and the Jamuna River, whereas the right side contains human settlements, agricultural land, and trees. No significant religious or cultural heritage sites are located within the immediate influence area, and the proposed sub-project is not expected to disturb the social, cultural, or environmental setting of the locality.



Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a union road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 850m.

Sub-project Location:

Important Features	
ID	110814062
District	Bogura
Upazila	Sariakandi
Union	Sariakandi
Total Chainage	850m
Proposed Chainage	850m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.87637 E Longitude: 89.57761 N
Road Ending Point Coordinates	Latitude: 24.87156 N Longitude: 89.57847 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 Shariakandi Sarkarpara WDB Buandth-Deluabari villages. Some other villages named Growin Badh, Digolkandi Purbopara within one kilometer.
- 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:

No significant cultural, archaeological, or historical properties have been identified within the project influence area. The surrounding environment along the alignment is primarily characterized by human settlements, agricultural land, and scattered trees. Within chainage 000-300 m, both sides of the road include human settlements, agricultural land, trees, and a khal. Between chainage 300-600 m, the left side is influenced by human settlements, agricultural land, and the Jamuna River, while the right side consists of human settlements, agricultural land, and trees. Similarly, within chainage 600-900 m, the left side includes agricultural land, human settlements, trees, and the Jamuna River, whereas the right side contains human settlements, agricultural land, and trees. No protected forests, elephant migration routes, or other environmentally sensitive areas have been identified within the catchment area, and the proposed sub-project is not expected to cause any disturbance to the environmental, cultural, or religious setting of the locality.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne

sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tube well depth is 180 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 100-180ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible. (Field Study Report, April 2026)

Status of wildlife movement:

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

State of forestation:

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

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)
No 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: Shariakandi Sarkarpara WDB Buandth-Deluabari Road, Road ID: 152393017

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction	Loss of land / and other physical assets	- No land acquisition will be undertaken within or in the vicinity of the sub-project area, nor for any activities associated with the sub-project. Accordingly, no mitigation measures are required in this regard. - In the event that any grievances related to land or physical assets arise during the implementation of the sub-project, the project Grievance Redress Committees (GRCs) will take appropriate actions to address and resolve such issues.	PIU	Social Development Specialist and Gender Specialist of PIU
	Stakeholders Engagement	- All of the project stakeholders should be consulted - 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
	Transportation and Storage of Construction materials	Construction materials will be transported to the site in a fully covered manner to prevent spillage	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	(disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	and environmental contamination. All materials will be stored in designated areas with appropriate fencing and protective coverings to ensure safety and minimize environmental impacts.		
	Sanitation and water supply	- Adequate sanitation facilities, including separate toilets and wash-basins for male and female workers as well as construction staff, will be provided at the site. - A safe and reliable supply of potable water will be ensured for all workers and employees. Water quality will be tested at a local DPHE laboratory to confirm its potability, and it will be treated using an appropriate filtration system prior to distribution.	Contractor	Environmental Consultant of PIU
	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- The workers' camp, site office, and stack yard will be established at locations convenient for workers, as proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, a compensatory plantation of three (3) trees for	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		every tree removed will be carried out, along with provision for maintenance of the planted trees for at least 12 months. • Sanitary latrines with septic tanks will be constructed for both male and female workers and staff, and regular cleaning and maintenance of these facilities will be ensured. • Provision of waste bins/ cans, where appropriate, • 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. • Stockpiled materials in the yard will be properly covered with tarpaulin or polythene sheets. The exposed ends of reinforced steel bars or iron rods will be fitted with safety caps or covered with cloth/jute sacks to prevent accidental injuries. • Hazardous materials, such as oils, paints, and similar substances, will be stored in designated bunded areas or on raised wooden platforms lined with polythene to prevent leakage and contamination. Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		safe from access by students, children, animals, etc.		
	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. • After completing the development, the site shall be restored as before. • Sub project intervention must avoid natural disturbance to existing slope 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
Construction Activity	Noise from construction works	• Construction activities will generally be completed during daytime hours, preferably by 5:00 PM, with appropriate measures in place to minimize disturbance to surrounding communities.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• All required Personal Protective Equipment (PPE) will be made available on-site prior to the commencement of any construction activities. • Noise-generating vehicles and equipment will be regularly maintained to ensure efficient operation and reduced noise levels. • As advanced engineering controls (e.g., acoustic curtains or noise barriers) may not be feasible due to project scope and availability, cost-effective alternatives such as noise-reducing mufflers will be utilized during construction.		
Construction Activity	Dust	• Emissions of CO, particulate matter (SPM, PM_{2.5}, PM₁₀), and hydrocarbons will be controlled through good construction practices. • Dust generation from site clearing, leveling, and grading will be minimized through regular water spraying. • Dust from vehicle movement on access roads will be controlled by periodic watering. • Construction materials will be properly covered during transportation to prevent dust dispersion.	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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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	• Here is a concise and professionally paraphrased version:	PIU & Contractor	Social Development

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	resource base.	- Water sources for construction will be selected in consultation with the DPHE, considering availability, technical feasibility, and potential impacts on existing users, especially during critical periods. - Groundwater (tube wells) or nearby surface water may be used if the quality meets construction standards. - Prior approval from the relevant authorities will be obtained for any water extraction or installation of bore wells outside designated sources. - Local communities will be consulted prior to the commencement of construction activities.		Specialist and Gender Specialist 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	Contractor	Social Development Specialist and Gender Specialist of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	- Waste from temporary labor facilities and routine site activities will be properly collected and managed. - Construction debris will be segregated, stored	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		in a designated area, and disposed of or sold to local recyclers as applicable. • Ring slab septic tanks will be installed before construction to ensure proper sanitation for workers and staff. • The construction site will be kept clean and regularly inspected to prevent accumulation of waste and spills (e.g., oil, chemicals). • Waste bins will be emptied regularly, and waste will be disposed of at approved locations. • Hazardous waste, such as waste oil, will be collected and stored in a safe, covered area and handed over to authorized recyclers. • Workers will be briefed on basic safe handling of fuels/chemicals and immediate spill response procedures. • Applicable Hazardous Waste Management Rules will be followed throughout the project.		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of	• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of	Contractor	Environmental and Social Development

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	chemicals/contaminants, etc. to nearby water bodies	the road. Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.		Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: - The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. - Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or	- 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. - 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	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
	permanent hearing loss, heat stress, and dermatitis.	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
		Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.		
Construction Activity	Pollution of water bodies	- Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. - The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) - The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. - Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. - The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- All precautions to store chemicals/oil/fuel properly so that no chance of spill. - Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage: - Pollution from waste materials. - Health & Safety risks to workers and local community.	- Appropriate mitigation and monitoring measures will be implemented during demobilization to address environmental and social impacts, similar to the construction phase. These include removal of all debris, temporary structures, and leftover materials; proper rehabilitation or compensation of affected structures; inspection and cleanup of any contamination (e.g., oil, paint) at the construction camp site; safe disposal of fecal sludge if required; and restoration of the area through re-vegetation or re-grassing as specified. - The contractor will ensure proper termination of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.
Construction activity	Odors and pollution caused by leaking latrines and fecal sludge, and solid wastes impacting	- A preventive maintenance schedule will be properly followed. - Solid organic waste will be collected in bins/skips and regularly disposed of at a designated waste	Contractor	Environmental Consultant of PIU, Union Parishad Member

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	surrounding water bodies, flora and fauna	disposal site. Where no such site is available nearby, a properly managed pit may be used, with periodic soil covering to prevent pollution and support gradual composting.		
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.	Road safety issues can be minimized in following ways: - Road safety can be ensured through strict enforcement of speed limits and penalties for traffic violations. - Appropriate traffic signs will be installed to inform road users about speed limits, parking/rest areas, and no-horn zones, along with warning signage at accident-prone locations	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.	- to discourage over-speeding. - Lanes, medians, and sharp bends will be reflectorized to improve visibility and enhance night-time safety.		
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)	1020Sqm	@38.15 Tk. Per sqm	38913
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	850m	@ 2.56 BDT	2176
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at 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	1 no.	LS @5000 Tk. Per box	5,000

Sl. no.	Description of item	Quantity	Unit price	Total amount
	at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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	LS	LS @ Tk 30,000	30,000

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	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			
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each road	@ Tk. 35000	35000
	Total amount for this Road			231,734.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Diglkandi WDB bandth-Digoldandi growin via deluabari**; **Road ID: 110814030**

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

District: Bogura

Upazila: Sariakandi

Union: Sariakandi

Name of Community/Local Area: WAPDA, Dighalkandi,

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road improvement with bituminous carpeting options. To ensure embankment stability and protect vulnerable sections of the road, slope protection measures in the form of palisading have been incorporated at several locations along the alignment. These include 46 m length at Ch. 0+715-0+761, 22 m at Ch. 0+906-0+928, 8 m at Ch. 1+030-1+038, 8 m at Ch. 1+038-1+042 (both sides), 8 m at Ch. 1+046-1+050 (both sides), and 41 m at Ch. 1+050-1+091. These protective works are designed to prevent erosion, stabilize the embankment slopes, and enhance the overall durability and safety of the road under local environmental conditions.

Estimated footprint / land area for this sub-project is 6675 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 2225m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
000-300	L		Fishpond, Human Settlement, Trees, Brickfield, etc.
		R	Human Settlement, Trees, Pond, etc.
300-600	L		Agricultural Land, Human Settlement, Trees, Ditches, Pond, etc.
		R	Human Settlement, Trees, Shops, etc.
600-900	L		Human Settlement, Digolkandi Jama Mosque, Fishpond, Trees, etc.
		R	Human Settlement, Trees, Graveyard, etc.
900-1200	L		Human Settlement, Ditches, Agricultural Land, Trees, Shops, etc.
		R	Human Settlement, Shops, Agricultural Land, Trees, etc.
1200-1500	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Trees, Mosque, Shops, etc.
1500-1800	L		Human Settlement, Trees, etc.
		R	Human Settlement, Trees, etc.

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
1800-2100	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Trees, Shops, Nobadori GPS, Mosque, etc.
2100-2225	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Shops, Trees, etc.



Starting Point of Airkhamar Bazar to Eidgha 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:

Several environmentally and socially sensitive receptors, including religious, educational, and community establishments, are located within the influence area of the proposed sub-project corridor. From chainage 0+000 to 0+300, the left side includes fishponds, human settlements, trees, and a brickfield, while the right side consists of settlements, trees, and ponds. Between chainage 0+300 to 0+600, the left side is characterized by agricultural land, settlements, trees, ditches, and ponds, whereas the right side includes settlements, trees, and shops. From chainage 0+600 to 0+900, the left side includes human settlements, Digolkandi Jame Mosque, fishponds, and trees, while the right side consists of settlements, trees, and a graveyard, indicating the presence of important cultural and religious features. Between chainage 0+900 to 0+1200, both sides are dominated by settlements, agricultural land, trees, shops, and ditches. From chainage 0+1200 to 0+1500, the left side includes settlements, shops, and trees, while the right side contains settlements, trees, a mosque, and shops. Between chainage 0+1500 to 0+2100, the area continues with human settlements, trees, and shops on both sides, with Nobadori GPS and a mosque located on the right side within the 0+1800 to 0+2100 section. Finally, from chainage 0+2100 to 0+2400, both sides are characterized by settlements, shops, and trees. These features hold social, cultural, and economic importance for the local community; however, as the proposed sub-project activities will be confined within the existing road alignment, no significant adverse impact on these sensitive receptors is anticipated, and appropriate precautionary measures will be implemented during construction to minimize any temporary disturbance.

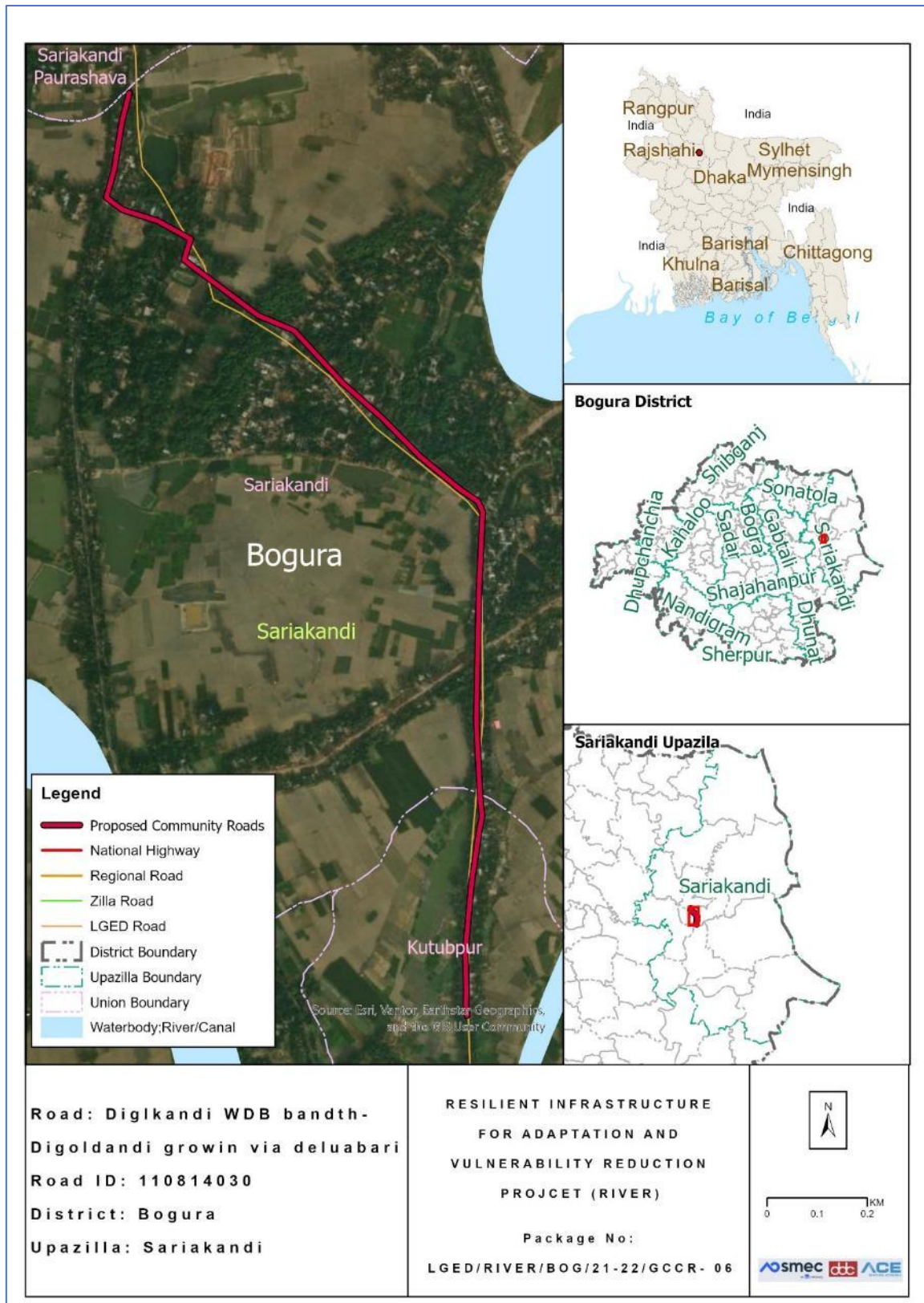


Figure: Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC). According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 2225m.

Sub-project Location:

Important Features	
ID	110814030
District	Bogura
Upazila	Sariakandi
Union	Sariakandi
Total Chainage	2225m
Proposed Chainage	2225m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.87923 N Longitude: 89.57195 E
Road Ending Point Coordinates	Latitude: 24.86227N Longitude: 89.535698 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 WAPDA, Dighalkandi villages Some other villages Sariakandi, Purbo Para within one kilometer.
- 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:

No archaeological or historically significant cultural properties were identified within the direct influence area of the sub-project; however, several environmentally and socially sensitive features, including religious and educational institutions, are located along the road corridor. The alignment passes through a typical rural setting characterized by human settlements, agricultural land, fishponds, ponds, ditches, trees, and small roadside shops on both sides. Notable community features include Digolkandi Jame Mosque and a nearby graveyard within the 0+600 to 0+900 section, and Nobadori Government Primary School along with another mosque within the 0+1800 to 0+2100 section on the right side. Throughout the alignment, especially from 0+000 to 0+2400, the area remains dominated by mixed land use comprising settlements, water bodies, vegetation, and local economic activities. No elephant migration routes or significant forest areas were identified, although scattered trees and vegetation are present. As the proposed sub-project activities will be confined within the existing road alignment, no significant adverse impact on these environmental, cultural, or religious features is anticipated, and appropriate precautionary measures will be implemented during construction to avoid any temporary disturbance.

Location of environmental and Social important and sensitive areas:

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

Baseline air quality and noise levels:

Dust:

Ambient air quality data 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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations...

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

Groundwater serves as the primary source of potable water in the Sub-project area. The local population relies predominantly on both shallow and deep tube wells to meet their daily domestic water requirements. Deep tube wells in the area typically range in depth from 30 to 350 feet. During the dry season, however, shallow tube wells often fail to provide a reliable water supply. Investigations indicate that deep groundwater in the Sub-project area is generally fresh, potable, and free from arsenic contamination. In contrast, water from the shallow aquifers contains elevated concentrations of iron, limiting its suitability for domestic consumption. The depth to the deep, drinkable groundwater table ranges from approximately 30 to 350 feet (Field Survey, 2019). Consequently, the local population predominantly relies on deep tube well water for drinking and other domestic purposes. It is recommended that deep tube wells be installed to extract water from the confined aquifer, ensuring a consistent and safe supply of potable water for the community.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026).

Status of wildlife movement:

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

State of forestation:

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

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.

Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.

Possible location of labor camps:

Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.

Requirement and type of raw materials (e.g. sand, stone, wood, etc.):

i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

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

Location identification for raw material storage:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility of stagnant water bodies in borrow pits, quarries, and similar construction areas is assessed as Medium. Although the project area generally has effective natural drainage and is not prone to waterlogging, temporary excavations during the 2026-27 construction period may retain rainwater, particularly in the monsoon season, creating short-term stagnant conditions. However, field observations and community feedback indicate no existing significant issues with water stagnation or mosquito breeding, and any borrow areas are expected to be temporary and will be backfilled or properly rehabilitated after use, reducing long-term risks.
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: Diglkandi WDB bandth-Digoldandi growin via deluabari road, Road ID: 110814030

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	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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.		
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. - 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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Tubewell location wherever required to install, within the construction site is not near to any	PIU & Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - Contractors will maintain proper route for traffic	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - Any type of consent letter or agreement for	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		withdrawing water from either surface or underground sources will be kept on site. Local community must be consulted before any construction works start.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement of heavy machinery and equipment. - Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. - Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) - Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	- Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. - Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. - Adequate facilities ensuring sanitation for labor	Contractor	Social Development Specialist and Gender Specialist of PIU

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

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

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 filling with soil layer for preventing pollution and	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		generating nutrient rich compost soil over time.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at	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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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)	2670 Sq.m	@38.15 Tk. Per sqm	101,860.5
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	2225 m	@ 2.56 BDT	5,696
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at 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	1 no.	LS @5000 Tk. Per box	5,000

Sl. no.	Description of item	Quantity	Unit price	Total amount
	at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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

Sl. no.	Description of item	Quantity	Unit price	Total amount
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> 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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@ Tk. 35000	35,000
	Total amount for this Road			298,202.22

4



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Kuptola Moddah Para - Ramnagar GPS., Road ID: 110814076**

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

District: Bogura

Upazila: Gabtoli

Union: Narchi

Name of Community/Local Area: Kuptola, Kuptola Dokhin Para

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road improvement with bituminous carpeting options. The proposed road alignment starts from Kuptola More at Ch. 0+001 and passes through Kuptola Moddah Para (Ch. 0+170), Kuptola Dokhin Para (Ch. 0+568), and Ramnagar Beel Para (Ch. 1+040), before terminating at Ramnagar GPS at Ch. 1+275. The alignment primarily traverses rural settlements, agricultural land, and low-lying areas, providing improved connectivity between local communities and essential service centers. The road improvement works are expected to enhance transportation efficiency, ensure better accessibility, and support socio-economic activities in the project area while maintaining the existing alignment.

Estimated footprint / land area for this sub-project is 3825 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1275m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
000-300	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Human Settlement, Fishpond, Trees, Agricultural Land, etc.
300-600	L		Shops, Human Settlement, Agricultural Land, Fishpond etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
600-900	L		Fishpond, Beel, Agricultural Land, etc.
		R	Fishpond, Agricultural Land etc.
900-1200	L		Fishpond, Ditches, Agricultural Land etc.
		R	Human Settlement, Agricultural Land, Trees etc.
1200-1275	L		Fishpond, Human Settlement, Agricultural Land, etc.
		R	Fishpond, Human Settlement, Agricultural Land, etc.



Starting Point of Kuptola More at Kabarstan hat to Ramnagar GPS 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.

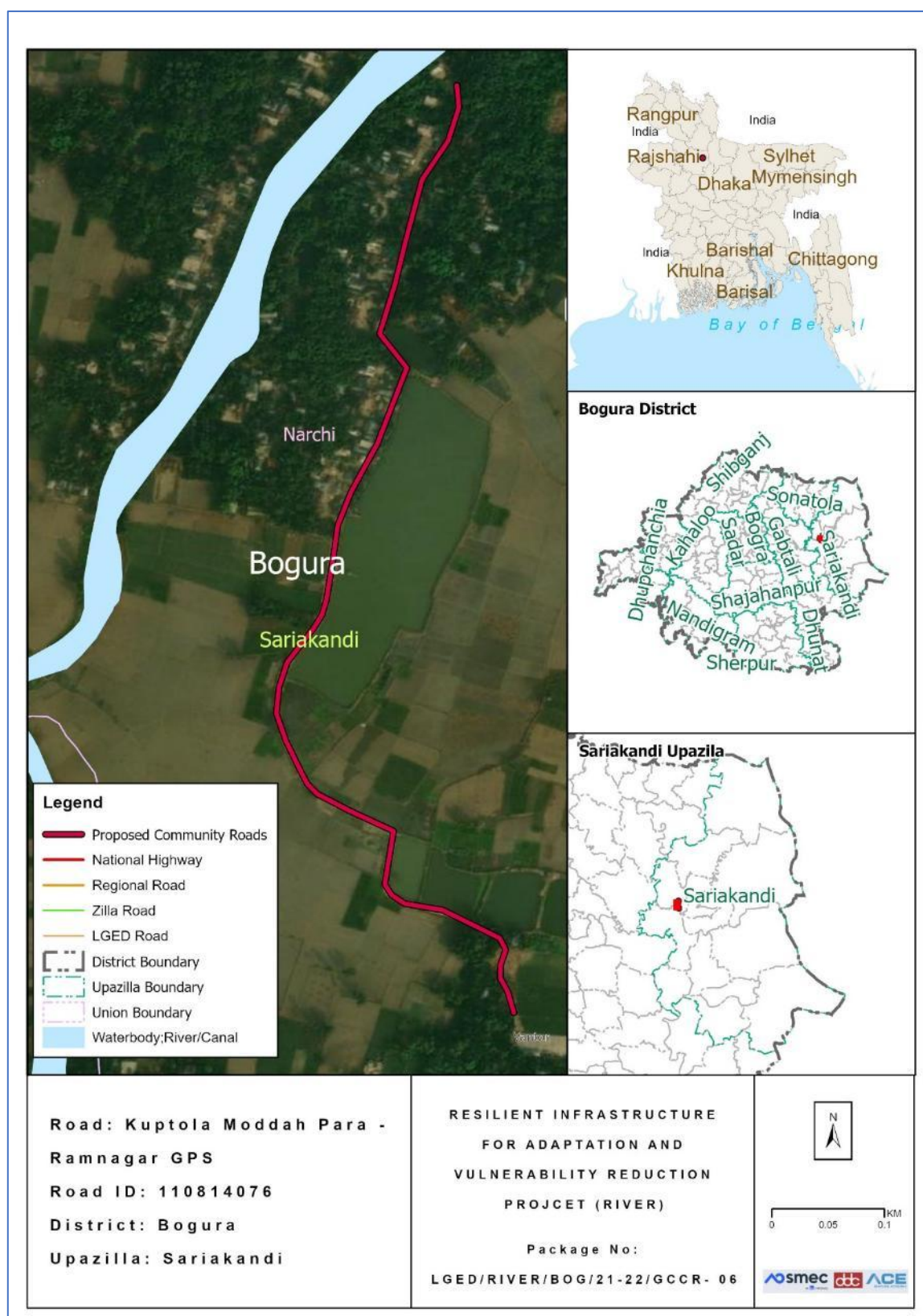
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 subproject no historical sites were identified. The sub-project is located within Kuptola village under Narchi Union of Sariakandi Upazila in Bogura District. Several community features and assets are situated within approximately 100 meters of the project alignment. On the left side of the road, the surrounding land uses include electric poles, shops, agricultural land, and homesteads. Similarly, the right side of the road consists of shops, homesteads, three electric poles, agricultural land, a mosque, and a graveyard. No significant religious or cultural heritage sites will be affected by the proposed sub-project. The project activities are not expected to cause any disturbance to the religious or cultural values of the local community.



Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a union road. Based on field survey, this sub-project involves of Bituminous Carpeting (BC) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1275m.

Sub-project Location:

Important Features	
ID	110814076
District	Bogura
Upazila	Sariakandi
Union	Narchi
Total Chainage	1275m
Proposed Chainage	1275m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.89702 N Longitude: 89.55412 E
Road Ending Point Coordinates	Latitude: 24.88928 N Longitude: 89.55459 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 Kuptola village.
- ii) No historical sites were found
- iii) Not required to relocate local community.
- iv) Some trees, vegetation and livelihood will be affected.
- v) Very low chance of loss of agricultural land.
- vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmental and social features are located within close proximity of the project corridor. Along both sides of the road alignment, the surrounding land use is predominantly characterized by human settlements, shops, agricultural land, trees, ditches, fishponds, and scattered vegetation. In addition, key community structures such as educational institutions (e.g., local primary schools and college), religious establishments (mosques and Eidgah), and local market areas (hat/bazar) are present at different sections along the alignment. These features reflect the typical rural setting and socio-economic activities of the area. However, as the proposed sub-project activities will be confined within the existing road alignment, no significant adverse impact on these environmental, cultural, or religious features is anticipated. Appropriate precautionary measures will be implemented during construction to avoid any temporary disturbance to the surrounding community and environment.

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 of Bogura District is located mainly in alluvial, silty, sandy soil

formations. The soils of this area have developed primarily from recent alluvial deposits carried by rivers such as the Teesta River and the Dharla River. The soils developing from these riverine deposits tend to be sandy loam to silty clay loams, which are generally fertile and suitable for agricultural activities.

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

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tube well depth is 180 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 100-180ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

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

State of forestation:

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

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No 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 (Kuptola Moddah Para - Ramnagar GPS Road, Road ID: 110814076), the effect on terrestrial or aquatic ecosystems and endangered species is very low. The project alignment passes through predominantly agricultural land, human settlements, fishponds, and beel areas, with no identified critical habitats or endangered species presence. Although scattered natural features such as trees, fishponds, and wetlands exist along the route (notably within Chainage 600-1200 m), these are part of a modified rural environment and no significant disruption to the life cycle or movement of fauna (i.e., insects, birds, reptiles, and aquatic organisms) is expected. Therefore, the potential for ecological disturbance due to the proposed intervention is considered minimal.

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: Kuptola Moddah Para - Ramnagar GPS, Road ID: 110814076

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	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 local community to avoid any conflicts will be taking place. • Sub project intervention must avoid natural disturbance to existing slop and natural drainage.	PIU & Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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	Traffic Management	Because of the sensitivity of the proposed	Contractor	Environmental

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• 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	Labor Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for	Contractor	Social Development Specialist and Gender Specialist of PIU

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	- Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. - Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: - The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks. - Exposure to health events during construction activities such as manual	- All construction equipment will be properly inspected timely. - The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. - Proper Signpost at any slippery areas will be ensured in construction site. - Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. - This sub project will have Proper communicative	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • The earthwork sites where exposed land surface	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be 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	Upazila Engineer (UE)	District Executive Engineer, LGED

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

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.	- 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 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)	1530Sqm	@38.15 Tk. Per sqm	58369.5
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	1275m	@ 2.56 BDT	3264
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at ca 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	1 no.	LS @5000 Tk. Per box	5,000

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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

Sl. no.	Description of item	Quantity	Unit price	Total amount
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> 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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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.	Environmental management Environmental management costs of the Environment & Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport (Net payment excluding Tax & VAT). And as per direction of the E.I.C. [One person to be appointed for 17 roads]	1 no.	@ Tk. 35000	35,000
	Total amount for this Road			252,279.22



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Kalartair - Bashata Road; Road ID: 110815079**

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

District: Bogura

Upazila: Sariakandi

Union: Kutubpur

Name of Community/Local Area: Kutubpur, Bashata, Sonartair

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

The Sub-Project is categorized as a village road improvement with bituminous carpeting options. For ensuring slope stability and protecting the road embankment, palisading works have been incorporated at vulnerable locations along the alignment. These include 10 m length of palisading at Ch. 0+174-0+184 and 14 m length of palisading at Ch. 0+397-0+411. The proposed protection measures are intended to prevent erosion, enhance embankment stability, and ensure the long-term durability and safety of the road infrastructure under local field conditions. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 2250 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 750m. Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
000-300	L		Fishpond, Human Settlement, Trees, Brickfield, etc.
		R	Human Settlement, Trees, Pond, etc.
300-600	L		Agricultural Land, Human Settlement, Trees, Ditches, Pond, etc.
		R	Human Settlement, Trees, Shops, etc.
600-900	L		Human Settlement, Digolkandi Jama Mosque, Fishpond, Trees, etc.
		R	Human Settlement, Trees, Graveyard, etc.

Chainage	Orientation (L/R)		Social/Economic/Cultural/Environmental Features (with distance from centerline)
900-1200	L		Human Settlement, Ditches, Agricultural Land, Trees, Shops, etc.
		R	Human Settlement, Shops, Agricultural Land, Trees, etc.
1200-1500	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Trees, Mosque, Shops, etc.
1500-1800	L		Human Settlement, Trees, etc.
		R	Human Settlement, Trees, etc.
1800-2100	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Trees, Shops, Nobadori GPS, Mosque, etc.
2100-2225	L		Human Settlement, Shops, Trees, etc.
		R	Human Settlement, Shops, Trees, etc.



Starting Point of Kalartair - Bashata Bangali River

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.

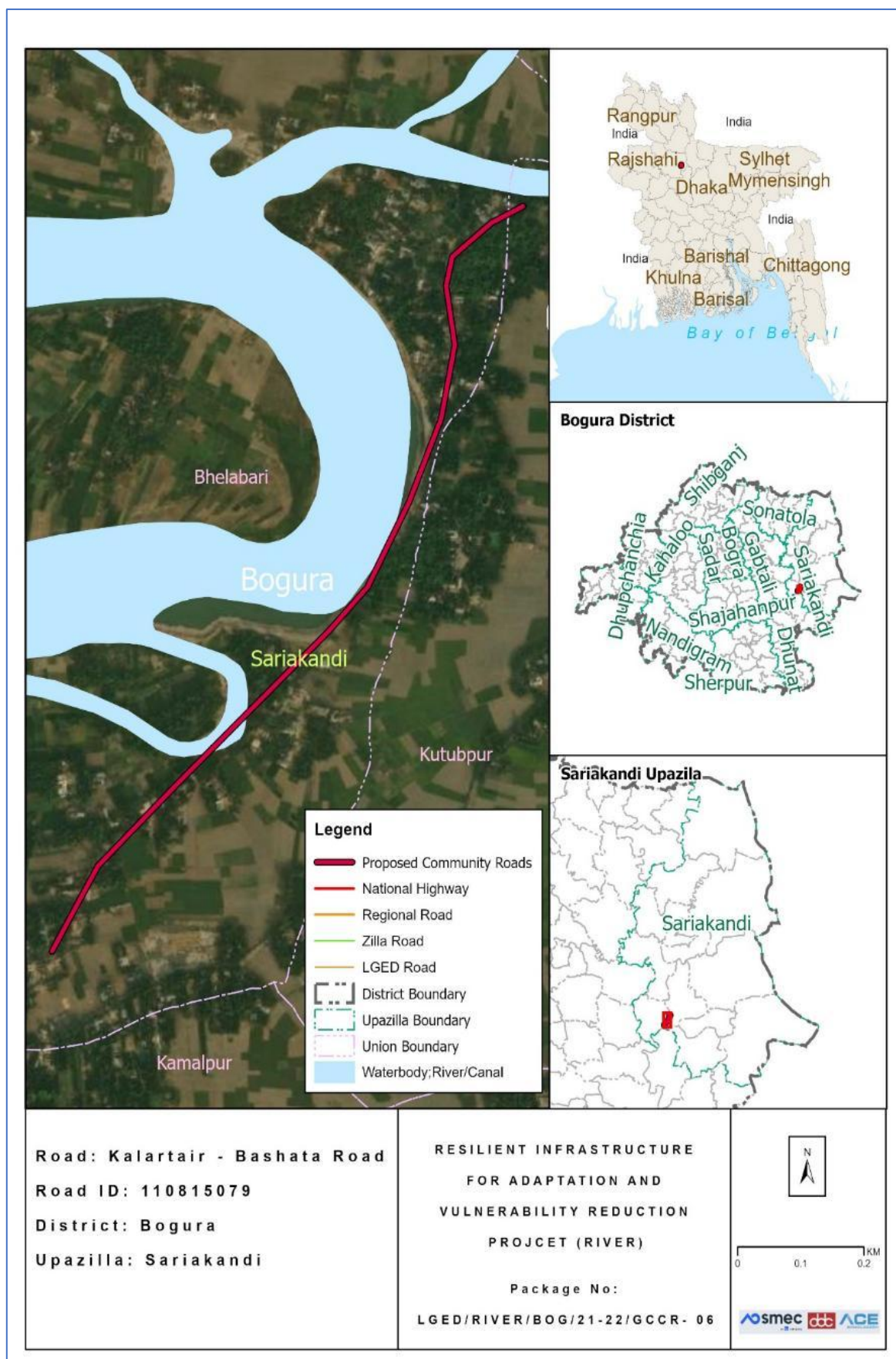
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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. Agricultural land and settlements are consistently present within approximately 20 m to 50 m. These features indicate significant environmental and social value; however, as the project activities will remain within the existing alignment, no major adverse impacts are expected.



Location Map of the proposed Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Brick Flat Soiling (BFS) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (Damaged) from Ch. 00 to Ch. 750m.

Sub-project Location:

Important Features	
ID	110815079
District	Bogura
Upazila	Sariakandi
Union	Kutubpur
Total Chainage	750
Proposed Chainage	750m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.8259 N Longitude: 89.56877 E
Road Ending Point Coordinates	Latitude 24.79507 N Longitude: 89.55404 E

Land ownership

Land is owned by Government.

Expected construction period: 12 (twelve months approximately)

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

- i) The proposed Sub-project is located within Kutubpur, Bashata, Sonartair villages. Some other village named Uttar Haldi Bari within one kilometer.
- ii) No historical sites were found.
- iii) Some trees, vegetation and livelihood will be affected.
- iv) Very low chance of loss of agricultural land.
- v) 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 receptors, including educational, religious, and community facilities, are located within the influence area of the sub-project corridor. From chainage 0+000 to 0+300, the left side is characterized by human settlements, agricultural land, Solartair Eidgah, trees, and small shops, while the right side includes a khal, beel, agricultural land, shops, trees, and other natural features. Between chainage 0+300 to 0+600, the left side consists mainly of bamboo forest, trees, and ditches, whereas the right side includes Bashata GPS, shops, trees, Bashata Central Jame Mosque, river, pond, and nearby human settlements, indicating the presence of key social and cultural receptors in this section. From chainage 0+600 to 0+900, the left side is dominated by agricultural land, trees, and scattered settlements, while the right side consists mainly of human settlements and a river. These institutions and environmental features hold important social, cultural, and ecological value for the local community. However, since the proposed sub-project activities will be confined within the existing road alignment, no significant adverse impacts on these nearby sensitive receptors are anticipated. Nevertheless, appropriate precautionary and environmental management measures will be implemented during the construction phase to avoid any temporary disturbance.

Location of environmental and Social important and sensitive areas:

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

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

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

Noise:

Noise level also very low in the site area. Noise is originating from the commotion of locals.

During construction period a rise in noise pollution may occur due to the transportation of equipment.

Baseline soil quality:

The sub-project area in Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 50 feet and deep tubewell depth is 120 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 $\mu\text{S}/\text{cm}$. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

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

State of forestation:

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

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable):

Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.

Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction:

Toilet and water supply facilities will be ensured by the contractor in the vicinity of the

construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates vi) steels vii) Bitumen are the most common type of road materials used in construction.
Identification of access road for transportation (Yes/No): Yes. The Paved Road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, dust from bricks, steel wires, during construction which can be identified as solid wastes. Also, sludge will be produced from labor camp latrines and kitchen waste mostly composing of organic matters as fiber, starch, carbohydrates and proteins. 10% of the kitchen waste may be classified as plastics or non-biodegradables.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for

mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No 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: Kalartair - Bashata Road, Road ID: 110815079

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction	Stakeholders Engagement	- All of the project stakeholders should be consulted - 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
	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Construction materials will be transported to the site in a fully covered manner to prevent spillage and environmental contamination. - All materials will be stored in designated areas with appropriate fencing and protective coverings to ensure safety and minimize environmental impacts.	Contractor	Environmental Consultant of PIU
	Sanitation and water supply	- Adequate sanitation facilities, including separate toilets and wash-basins for male and female workers as well as construction staff, will be provided at the site. - A safe and reliable supply of potable water will be ensured for all workers and employees. Water quality will be tested at a local DPHE laboratory to	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		confirm its potability, and it will be treated using an appropriate filtration system prior to distribution.		
	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- The workers' camp, site office, and stack yard will be established at locations convenient for workers, as proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, a compensatory plantation of three (3) trees for every tree removed will be carried out, along with provision for maintenance of the planted trees for at least 12 months. - Sanitary latrines with septic tanks will be constructed for both male and female workers and staff, and regular cleaning and maintenance of these facilities will be ensured. - Provision of waste bins/ cans, where appropriate, - 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. - Stockpiled materials in the yard will be properly covered with tarpaulin or polythene sheets. The	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		exposed ends of reinforced steel bars or iron rods will be fitted with safety caps or covered with cloth/jute sacks to prevent accidental injuries. Hazardous materials, such as oils, paints, and similar substances, will be stored in designated bunded areas or on raised wooden platforms lined with polythene to prevent leakage and contamination. 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.		
	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. - After completing the development, the site shall be restored as before. - Sub project intervention must avoid natural disturbance to existing slope and natural drainage. - Existing utility services must be relocated or adjusted where they obstruct the works or pose a	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		risk of damage, in close cooperation with the appropriate authority. .		
Construction Activity	Dust	- Emissions of CO, particulate matter (SPM, PM_{2.5}, PM₁₀), and hydrocarbons will be controlled through good construction practices. - Dust generation from site clearing, leveling, and grading will be minimized through regular water spraying. - Dust from vehicle movement on access roads will be controlled by periodic watering. - Construction materials will be properly covered during transportation to prevent dust dispersion.	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. - Records of every training must be kept at site. - All kinds of Child labour are completely prohibited in every site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	- Here is a concise and professionally paraphrased version: - Water sources for construction will be selected in consultation with the DPHE, considering availability, technical feasibility, and potential impacts on existing users, especially during critical periods. - Groundwater (tube wells) or nearby surface water may be used if the quality meets construction standards. - Prior approval from the relevant authorities will be obtained for any water extraction or installation of	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		bore wells outside designated sources. Local communities will be consulted prior to the commencement of construction activities.		
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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	• Waste from temporary labor facilities and routine site activities will be properly collected and managed. • Construction debris will be segregated, stored in a designated area, and disposed of or sold to local recyclers as applicable. • Ring slab septic tanks will be installed before construction to ensure proper sanitation for workers and staff. • The construction site will be kept clean and regularly inspected to prevent accumulation of waste and spills (e.g., oil, chemicals). • Waste bins will be emptied regularly, and waste will be disposed of at approved locations. • Hazardous waste, such as waste oil, will be collected and stored in a safe, covered area and handed over to authorized recyclers.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Workers will be briefed on basic safe handling of fuels/chemicals and immediate spill response procedures. - Applicable Hazardous Waste Management Rules will be followed throughout the project.		
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	- 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. - Fire extinguishers will be located at identified fire points around the site. The extinguishers must be	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
	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.	appropriate to the nature of the potential fire. - This sub project will have Proper communicative emergency response plan (ERP) with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. - All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. - Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. - All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Awareness training will be given to all personnel involved during the construction phase in order to highlight the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site. - Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.		
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	Contractor	Environmental Consultant of PIU/D&SC.

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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: - Pollution from waste materials. - Health & Safety risks to workers	- Appropriate mitigation and monitoring measures will be implemented during demobilization to address environmental and social impacts, similar to the construction phase. These include removal of all debris, temporary structures, and leftover materials; proper rehabilitation or compensation of affected structures; inspection and cleanup of any contamination (e.g., oil, paint) at the construction camp site; safe disposal of fecal sludge if required; and restoration of the area through re-vegetation or re-grassing as specified. - The contractor will ensure proper termination of	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	and local community.	all temporary services.		
Construction activity	Odors and pollution caused by leaking latrines and fecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	- A preventive maintenance schedule will be properly followed. - Solid organic waste will be collected in bins/skips and regularly disposed of at a designated waste disposal site. Where no such site is available nearby, a properly managed pit may be used, with periodic soil covering to prevent pollution and support gradual composting.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger	Road safety issues can be minimized in following ways: - Road safety can be ensured through strict enforcement of speed limits and penalties for traffic violations. - Appropriate traffic signs will be installed to inform	Upazila Engineer (UE)	District Executive Engineer, LGED

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	road users about speed limits, parking/rest areas, and no-horn zones, along with warning signage at accident-prone locations to discourage over-speeding. Lanes, medians, and sharp bends will be reflectorized to improve visibility and enhance night-time safety.		
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)	900Sq.m	@38.15 Tk. Per sqm	34335
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	750.0 m	@ 2.56 BDT	1920
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at c 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	1 no.	LS @5000 Tk. Per box	5,000

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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> 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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@ Tk. 35000	35,000
	Total amount for this Road			226,900.72



Figure: Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Kutubpor GC-Dhunat Upazila H/Q Rd (Shariakandi part); ID: 110812009**

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

District: Bogura

Upazila: Sariakandi

Union: Kutubpur

Name of Community/Local Area: Kulubpur Bazar, Choto Kutubpur, Jorogaca, Sonapur

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

The proposed sub-project involves the improvement of an existing village road through Bituminous Carpeting (BC) to enhance durability, safety, and all-weather accessibility, along with the rehabilitation and construction of drainage and protection structures to ensure proper floodwater drainage and maintain natural water flow. The works will include site preparation, earthworks, subgrade and base preparation, followed by bituminous carpeting, and will be carried out largely within the existing road corridor to minimize environmental and social impacts. The project includes side drains at chainage 0+430-0+450 (20 m), 0+500-0+515 (15 m), 0+545-0+560 (15 m), 1+575-1+581 (6 m), and 3+083-3+100 (17 m), designed to ensure effective drainage continuity along the alignment. Construction will require standard materials such as sand, aggregates, cement, bitumen, bricks, steel, and water sourced from approved suppliers in compliance with environmental and procurement guidelines, while appropriate road safety and Environmental and Social Mitigation Measures have been incorporated into the design to ensure safe, sustainable, and resilient implementation of the sub-project.

Estimated footprint / land area for this sub-project is 11,610 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 3870m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
000-300	L		Kutubpur Bazar, Khal, Trees, Agricultural Land, Human Settlement, etc.
		R	Kutubpur Bazar, Khal, Human Settlement, Trees, Jame Mosque, etc.

Chainage	(Left/Right)		Environmental and Social Impact
300-600	L		Human Settlement, Trees, Agricultural Land, Khal, etc.
		R	Human Settlement, Graveyard, Trees, etc.
600-900	L		Human Settlement, Trees, Mosque, Agricultural Land, etc.
		R	Agricultural Land, Human Settlement, etc.
900-1200	L		Graveyard, Trees, Human Settlement, Ditches, etc.
		R	Agricultural Land, Shops, Human Settlement, Trees, etc.
1200-1500	L		Human Settlement, Graveyard, Shops, Trees, Bazar, etc.
		R	Human Settlement, Shops, Trees, Pond, Ditches, etc.
1500-1800	L		Human Settlement, Fish Pond, Ditches, etc.
		R	Human Settlement, Ditches, Trees, Mosque, etc.
1800-2100	L		Agricultural Land, Human Settlement, Trees, etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
2100-2400	L		Agricultural Land, Human Settlement, Trees, etc.
		R	Agricultural Land, Human Settlement, Ditches, Trees, etc.
2400-2700	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Human Settlement, Trees, Agricultural Land, etc.
2700-3000	L		Mosque, Trees, Human Settlement, etc.
		R	Agricultural Land, Human Settlement, Trees, etc.
3000-3300	L		Human Settlement, Ditches, Trees, Agricultural Land, etc.
		R	Agricultural Land, Human Settlement, Trees, Mosque, etc.
3300-3600	L		Human Settlement, Trees, Agricultural Land, Khal etc.
		R	Human Settlement, Khal, Trees, Agricultural Land, etc.
3600-3870	L		Human Settlement, Trees, School, Mosque, Shops, etc.
		R	Human Settlement, Agricultural Land, Trees, Shops, etc.



Starting Point of Kutubpor GC-Dhunat Upazila H/Q Rd (Shariakandi part)

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

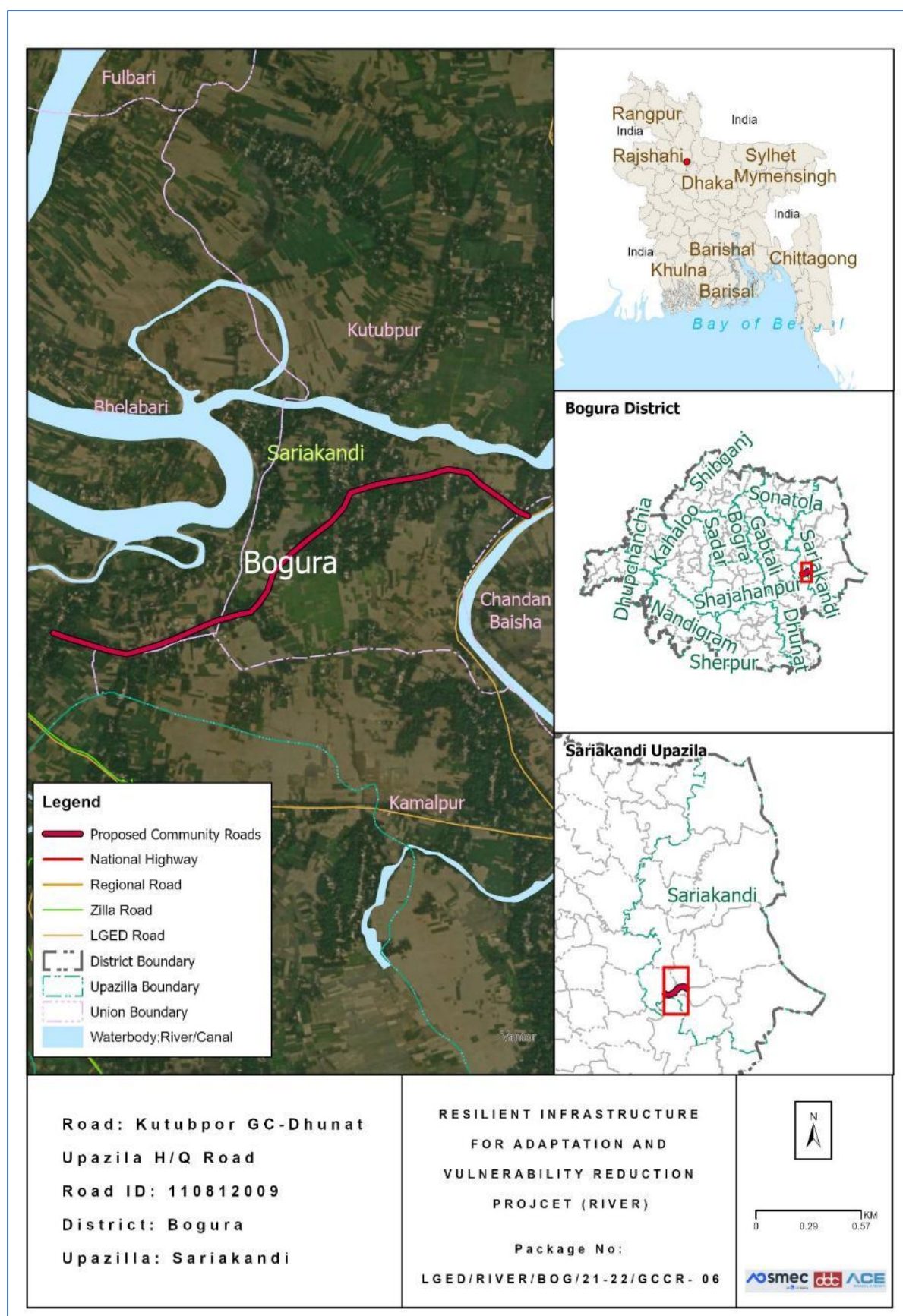
ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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, which is located in Kulubpur Bazar, Choto Kutubpur, Jorogaca, Sonapur villages under Kutubpur Union (Ward No. 7) of Sariakandi Upazila in Bogura District. The road alignment passes through a predominantly rural landscape comprising settlements, agricultural land, water bodies, and several socially and culturally important features along both sides of the corridor. From chainage 0-300 m, both sides include Kutubpur Bazar, khal, trees, agricultural land, and human settlements, with Choto Kutubpur Jame Mosque and a graveyard located on the right side. Between 300-600 m, the left side consists of human settlements, trees, agricultural land, and khal, while the right side includes human settlements, a graveyard, and trees. From 600-900 m, both sides are characterized by human settlements, trees, agricultural land, ditches, and a mosque on the left side. In the 900-1200 m section, the left side includes a graveyard, trees, human settlements, and ditches, while the right side consists of agricultural land, shops, human settlements, and trees. From 1200-1500 m, the alignment includes human settlements, graveyards, shops, trees, and bazar areas on the left side, while the right side includes human settlements, shops, trees, ponds, and ditches. In the 1500-1800 m section, the left side consists of human settlements, fishponds, and ditches, while the right side includes human settlements, ditches, trees, and a mosque. From 1800-2400 m, both sides are mainly characterized by agricultural land, human settlements, trees, and scattered ditches. From 2400-3000 m, the alignment continues through agricultural land, human settlements, and trees on both sides, while from 3000-3300 m, the left side includes human settlements, ditches, trees, and agricultural land. Overall, the alignment passes through a mix of culturally sensitive sites such as mosques, graveyards, bazaars, and residential areas; however, since the proposed works will remain within the existing road corridor, no significant adverse impacts are anticipated, and appropriate environmental and social management measures will be implemented during construction to protect these sensitive receptors.



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:

1. The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 3870 m**.

Sub-project Location:

Important Features	
ID	110812009
District	Bogura
Upazila	Sariakandi
Union	Kutubpur
Total Chainage	3870m
Proposed Chainage	3870m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.80758 N Longitude: 89.58438 E
Road Ending Point Coordinates	Latitude: 24.80552 N Longitude: 89.57246 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 Kulubpur Bazar, Choto Kutubpur, Jorogaca, Sonapur villages.
- 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:

No archaeological sites or elephant migration routes are identified within the project influence area. However, the road alignment passes through a landscape containing culturally and socially sensitive features such as mosques, graveyards, bazaars, khal, ponds, fishponds, ditches, agricultural land, and scattered tree cover. On the left side, from chainage 0-300 m, Kutubpur Bazar, khal, trees, agricultural land, and settlements are present, while from 300-600 m and 600-900 m, the area includes settlements, trees, agricultural land, ditches, and a mosque. Between 900-1200 m and 1200-1500 m, graveyards, shops, bazar areas, trees, and settlements are observed. From 1500-2400 m, the corridor consists mainly of settlements, fishponds, agricultural land, and ditches, continuing similarly up to 3000-3300 m with a mosque, settlements, trees, and agricultural land. On the right side, from chainage 0-300 m, Kutubpur Bazar, khal, settlements, trees, a mosque, and a graveyard are present. From 300-900 m, the area is mainly settlements, graveyards, trees, and agricultural land. Between 900-1500 m, agricultural land, shops, settlements, trees, ponds, and ditches are observed. From 1500-3000 m, the alignment continues through a mix of settlements, agricultural land, trees, ditches, and a mosque. These features hold local cultural, religious, and social importance; however, as the sub-project is confined within the existing road alignment, no significant adverse impacts are expected. Appropriate environmental and social mitigation measures will be implemented during construction to protect these sensitive receptors.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 $\mu\text{S}/\text{cm}$. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in

controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or

other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No formal drainage system, river, or canal crossing is identified along the proposed alignment. However, natural drainage features such as khal (canals), ditches, ponds, fishponds, beels, and low-lying agricultural land are present intermittently along both sides of the road throughout the entire alignment. From chainage 0-300 m, both sides include Kutubpur Bazar, khal, human settlements, trees, and agricultural land. Between 300-900 m, the area consists mainly of human settlements, agricultural land, trees, khal, and ditches. From 900-1500 m, agricultural land, settlements, shops, ponds, ditches, and trees are present on both sides. Between 1500-2400 m, the alignment continues through agricultural land, human settlements, fishponds, khal, and ditches, followed by similar features up to 3000-3900 m, including schools, mosques, shops, and settlements interspersed with agricultural land, trees, and khal. Although no major rivers or engineered drainage systems are present, construction activities may have a moderate impact on nearby natural drainage features such as khal, ditches, ponds, and fishponds, potentially affecting local surface water flow and seasonal drainage patterns. Appropriate drainage management and mitigation measures will therefore be required 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: Kutubpor GC-Dhunat Upazila H/Q Rd (Shariakandi part)

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	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		all relevant stakeholders. • People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.		
Pre-Construction Stage	Loss of right to access	• Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		filtered through appropriate filtering system, before supplying to the consumers.		
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. - 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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - Tubewell location wherever required to install, within the construction site is not near to any kinds of latrine and soaks well which could be	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Since expensive engineering controls (e.g.,	Contractor	Environmental Consultant of PIU

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

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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	Labour related issues	• A separate grievance mechanism for workers has		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	and grievances	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	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 chemicals/contaminants,	• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road.	Contractor	Environmental and Social Development Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	etc. to nearby water bodies	Dust suppression measures and material storage and handling procedure have to be undertaken with 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	- 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'	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
	or permanent hearing loss, heat stress, and dermatitis.	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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.) • The material stockpile sites shall be far away	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	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
	to 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	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	Upazila Engineer (UE)	District Executive Engineer, LGED

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

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.	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)	4620Sq.m	@38.15 Tk. Per sqm	176253
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	3850.0m	@ 2.56 BDT	9856
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at c 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>	1 no.	LS @5000	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.		Tk. Per box	
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

Sl. no.	Description of item	Quantity	Unit price	Total amount
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
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

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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Sl. no.	Description of item	Quantity	Unit price	Total amount
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 17 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			376,754.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Chalapnra UZR-South Paikpara hat Road; Road ID: 110274057**

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

District: Bogura **Upazila:** Dhunat **Union:** Sadar

Name of Community/Local Area: Chalapara, Belkuchi, South Paikpara

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

The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes palisading measuring 51.0 m at Chainage (Ch.) 914 m to 965 m to provide slope protection and prevent erosion at vulnerable sections of the road. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 2721 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 907m. 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
500-800	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Human Settlement, Fishpond, Trees, Agricultural Land, etc.
800-1100	L		Shops, Human Settlement, Agricultural Land, Fishpond etc.
		R	Human Settlement, Agricultural Land, Trees, etc.
1100-1407	L		Fishpond, Beel, Agricultural Land, etc.
		R	Fishpond, Agricultural Land etc.



Starting Point of Chalapnra UZR-South Paikpara hat 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.

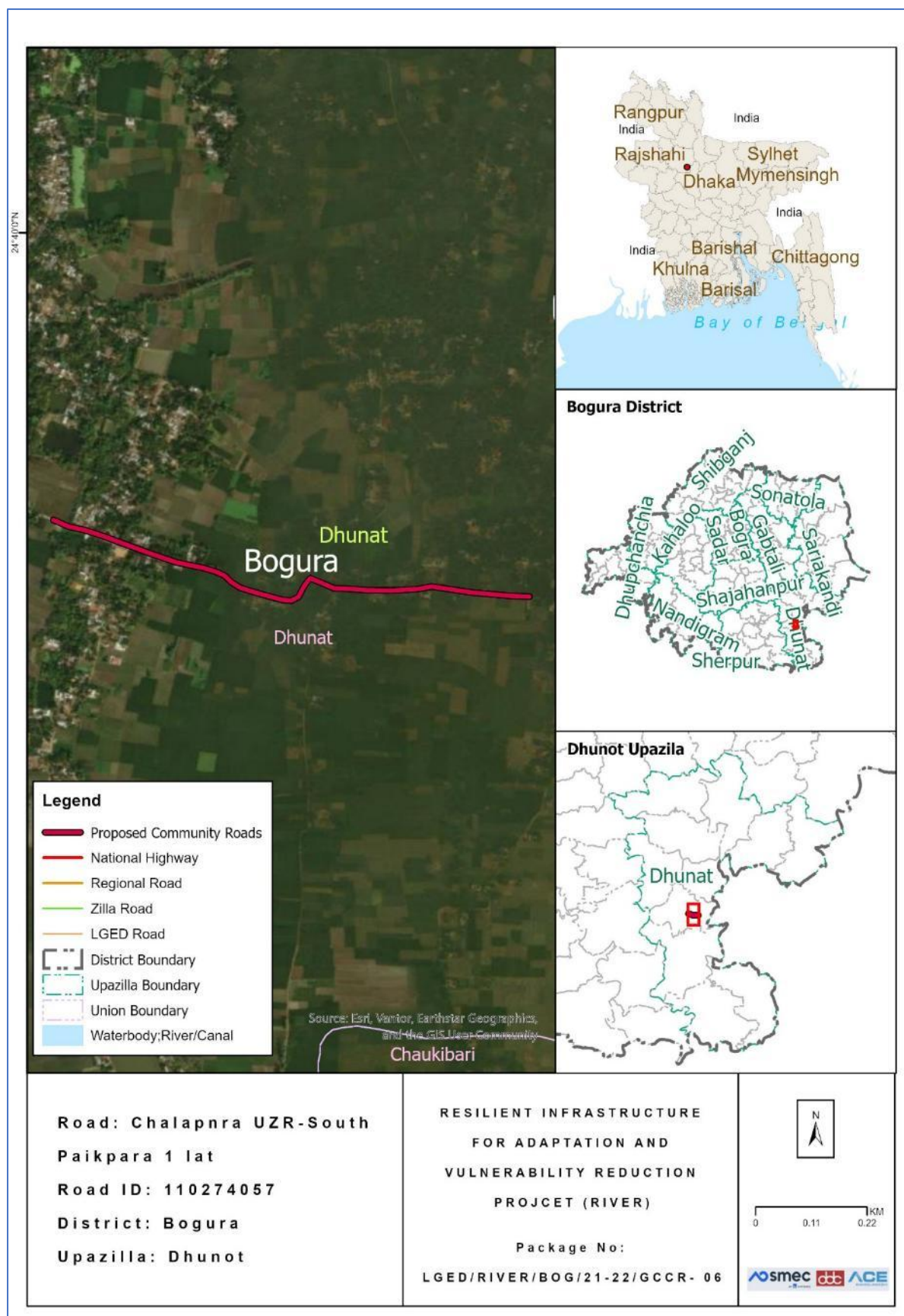
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 sub-project is located in Chalapara, Belkuchi, South Paikpara villages under Sadar Union, Ward No. 5 of Sariakandi Upazila in Bogura District. Within approximately 1 km of the project area, the surrounding environment consists of a mix of agricultural land, human settlements, water bodies, and scattered trees, along with some religious structures. Along the left side of the proposed road alignment, from Chainage (Ch.) 0-300 m the area includes agricultural land, trees, and human settlements; from 300-600 m it consists of agricultural land, human settlements, fish ponds, and small shops; from 600-900 m the area comprises agricultural land, trees, human settlements, and khal; and from 900-1200 m it is mainly agricultural land and trees. On the right side, from Ch. 0-300 m the area includes human settlements, trees, agricultural land, and a mosque; from 300-600 m it consists of khal, agricultural land, and human settlements; from 600-900 m the area includes agricultural land, human settlements, and trees; and from 900-1200 m it is dominated by trees and agricultural land. Overall, the road passes through a rural landscape with mixed land use, including settlements, agricultural fields, water bodies, and community structures of local importance. However, as the proposed sub-project activities will be carried out primarily within the existing road alignment, no significant adverse impacts on these sensitive environmental and social features are anticipated. Appropriate precautionary and environmental management measures will be implemented during the construction phase to ensure their protection.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 00m to Chainage 907 m**.

Sub-project Location:

Important Features	
ID	110274057
District	Bogura
Upazila	Sariakandi
Union	Sadar
WARD	05
Total Chainage	907m
Proposed Chainage	907m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24 66169 N Longitude: 89.52879 E
Road Ending Point Coordinates	Latitude: 24.66036 N Longitude: 89.53723 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 Chalapara, Belkuchi, South Paikparavillages.
- ii) No historical sites were found
- iii) Not required to relocate local community.
- iv) Some trees, vegetation and livelihood will be affected.
- v) Very low chance of loss of agricultural land.
- vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmentally and socially sensitive features, including human settlements and religious structures, are located within approximately 1 km of the project area. Along the left side of the road alignment, within Chainage (Ch.) 0-300 m, the area consists of agricultural land, trees, and human settlements; from 300-600 m, it includes agricultural land, human settlements, fish ponds, and shops; from 600-900 m, the area comprises agricultural land, trees, human settlements, and khal; and from 900-1200 m, it is mainly agricultural land and trees.

Along the right side of the alignment, within Ch. 0-300 m, the area includes human settlements, trees, agricultural land, and a mosque; from 300-600 m, it consists of khal, agricultural land, and human settlements; from 600-900 m, the area includes agricultural land, human settlements, and trees; and from 900-1200 m, it is characterized by trees and agricultural land. These features hold local social and religious importance for the surrounding communities. However, as the proposed sub-project activities will be carried out primarily within the existing road alignment, no significant disturbance or adverse impacts on these nearby sensitive receptors are anticipated. Nevertheless, appropriate precautionary and environmental management measures will be implemented during the construction phase to ensure their protection.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining

ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No formal drainage system, river, or canal crossing is identified along the proposed alignment. However, natural drainage features such as khal, fishponds, and low-lying agricultural land are present along both sides of the road. Along the left side of the alignment, from Chainage (Ch.) 0-300 m the area includes agricultural land, trees, and human settlements; from 300-600 m it consists of agricultural land, human settlements, fishponds, and shops; from 600-900 m the area comprises agricultural land, trees, human settlements, and khal; and from 900-1200 m it is mainly agricultural land and trees. On the right side, from Ch. 0-300 m the area includes human settlements, trees, agricultural land, and a mosque; from 300-600 m it consists of khal, agricultural land, and human settlements; from 600-900 m the area includes agricultural land, human settlements, and trees; and from 900-1200 m it is characterized by trees and agricultural land. Although no direct impact on major water bodies is expected, construction activities may have a moderate influence on nearby khal, ponds, and local drainage patterns due to earthworks and material handling. Therefore, the impact is considered medium, and appropriate drainage management and mitigation measures will be implemented during construction to maintain natural water flow and prevent waterlogging.

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: Chalapnra UZR-South Paikpara hat Road

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction	Stakeholders Engagement	- All of the project stakeholders should be consulted - 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
	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Construction materials will be transported to the site in a fully covered manner to prevent spillage and environmental contamination. - All materials will be stored in designated areas with appropriate fencing and protective coverings to ensure safety and minimize environmental impacts.	Contractor	Environmental Consultant of PIU
	Sanitation and water supply	- Adequate sanitation facilities, including separate toilets and wash-basins for male and female workers as well as construction staff, will be provided at the site. - A safe and reliable supply of potable water will be ensured for all workers and employees. Water quality will be tested at a local DPHE laboratory to	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		confirm its potability, and it will be treated using an appropriate filtration system prior to distribution.		
	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- The workers' camp, site office, and stack yard will be established at locations convenient for workers, as proposed by the contractor and approved by the Environmental Specialist of the D&SC. - No trees, shrubs, or vegetation will be removed without prior approval from the Environmental Consultants. In unavoidable cases, a compensatory plantation of three (3) trees for every tree removed will be carried out, along with provision for maintenance of the planted trees for at least 12 months. - Sanitary latrines with septic tanks will be constructed for both male and female workers and staff, and regular cleaning and maintenance of these facilities will be ensured. - Provision of waste bins/ cans, where appropriate, - 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. - Stockpiled materials in the yard will be properly	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		covered with tarpaulin or polythene sheets. The exposed ends of reinforced steel bars or iron rods will be fitted with safety caps or covered with cloth/jute sacks to prevent accidental injuries. Hazardous materials, such as oils, paints, and similar substances, will be stored in designated bunded areas or on raised wooden platforms lined with polythene to prevent leakage and contamination. 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.		
	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. - After completing the development, the site shall be restored as before. - Sub project intervention must avoid natural disturbance to existing slope and natural drainage. - Existing utility services must be relocated or	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. .		
Construction Activity	Noise from construction works	- Construction activities will generally be completed during daytime hours, preferably by 5:00 PM, with appropriate measures in place to minimize disturbance to surrounding communities. - All required Personal Protective Equipment (PPE) will be made available on-site prior to the commencement of any construction activities. - Noise-generating vehicles and equipment will be regularly maintained to ensure efficient operation and reduced noise levels. - As advanced engineering controls (e.g., acoustic curtains or noise barriers) may not be feasible due to project scope and availability, cost-effective alternatives such as noise-reducing mufflers will be utilized during construction.	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	- Emissions of CO, particulate matter (SPM, PM_{2.5}, PM₁₀), and hydrocarbons will be controlled through good construction practices. - Dust generation from site clearing, leveling, and	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		grading will be minimized through regular water spraying. - Dust from vehicle movement on access roads will be controlled by periodic watering. - Construction materials will be properly covered during transportation to prevent dust dispersion.		
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	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	- Here is a concise and professionally paraphrased version: - Water sources for construction will be selected in consultation with the DPHE, considering availability, technical feasibility, and potential impacts on existing users, especially during critical periods. - Groundwater (tube wells) or nearby surface water may be used if the quality meets construction standards. - Prior approval from the relevant authorities will be obtained for any water extraction or installation of bore wells outside designated sources. - Local communities will be consulted prior to the commencement of construction activities.	PIU & Contractor	Social Development Specialist and Gender Specialist 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,	Contractor	Social Development Specialist and

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

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	- Waste from temporary labor facilities and routine site activities will be properly collected and managed. - Construction debris will be segregated, stored in a designated area, and disposed of or sold to local recyclers as applicable. - Ring slab septic tanks will be installed before construction to ensure proper sanitation for workers and staff. - The construction site will be kept clean and regularly inspected to prevent accumulation of waste and spills (e.g., oil, chemicals). - Waste bins will be emptied regularly, and waste will be disposed of at approved locations. - Hazardous waste, such as waste oil, will be collected and stored in a safe, covered area and handed over to authorized recyclers. - Workers will be briefed on basic safe handling of fuels/chemicals and immediate spill response procedures. - Applicable Hazardous Waste Management	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Rules will be followed throughout the project.		
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	- 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. - 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	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
	such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.		
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. - All precautions to store chemicals/oil/fuel properly so that no chance of spill. - Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage: - Pollution from waste materials. - Health & Safety risks to workers and local	- Appropriate mitigation and monitoring measures will be implemented during demobilization to address environmental and social impacts, similar to the construction phase. These include removal of all debris, temporary structures, and leftover materials; proper rehabilitation or compensation of affected structures; inspection and cleanup of any contamination (e.g., oil, paint) at the construction camp site; safe disposal of fecal sludge if required; and restoration of the area through re-vegetation or re-grassing as specified. - The contractor will ensure proper termination of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	community.			
Construction activity	Odors and pollution caused by leaking latrines and fecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	- A preventive maintenance schedule will be properly followed. - Solid organic waste will be collected in bins/skips and regularly disposed of at a designated waste disposal site. Where no such site is available nearby, a properly managed pit may be used, with periodic soil covering to prevent pollution and support gradual composting.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic	Road safety issues can be minimized in following ways: - Road safety can be ensured through strict enforcement of speed limits and penalties for traffic violations. - Appropriate traffic signs will be installed to inform	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	accidents. The accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	road users about speed limits, parking/rest areas, and no-horn zones, along with warning signage at accident-prone locations to discourage over-speeding. Lanes, medians, and sharp bends will be reflectorized to improve visibility and enhance night-time safety.		
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)	1088.4Sq.m	@38.15 Tk. Per sqm	41522.46
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	907.0m	@2.56 BDT	2,321.92
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at c 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	1 no.	LS @5000 Tk. Per box	5,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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	LS	LS @ Tk 30,000	30,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	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			
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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. <u>[One person to be appointed for 17 roads]</u>	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			234,490.1



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Padmapara-Nischantapur Road; Road ID: 110954041**

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

District: Bogura

Upazila: Sonatola

Union: Pakulla

Name of Community/Local Area: Padma Para, Nischinitopur

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

The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes palisading measuring 25 m at Chainage (Ch.) 0+640-0+665 to provide slope protection and ensure stability of the road embankment. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and environmental and social mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 4692 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1564m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
000-300	L		Shop, Human Settlement, School, Trees, etc.
		R	Padma Para GPS, Shops, Trees, Ditches, Agricultural Land, etc.
300-600	L		Human Settlement, Agricultural Land, Trees, etc.
		R	Eid Gah, Human Settlement, Agricultural Land, Trees, etc.
600-900	L		Human Settlement, Trees, Agricultural Land, Khal, etc.
		R	Human Settlement, Trees, Agricultural Land, Khal, etc.
900-1200	L		Agricultural Land, Portly Frame, Human Settlement, Trees, etc.
		R	Fish Pond, Agricultural Land, Human Settlement, Trees, etc.
1200-1500	L		Human Settlement, Trees, Graveyard, Shops, etc.
		R	Human Settlement, Agricultural Land, Trees, Shops, etc.
1500-1564	L		Nischantapur GPS, Human Settlement, Trees, Graveyard, etc.
		R	Human Settlement, Trees, Mosque, Shops, Agricultural Land, etc.



Starting Point of Padmapara-Nischantapur 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 passable 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.

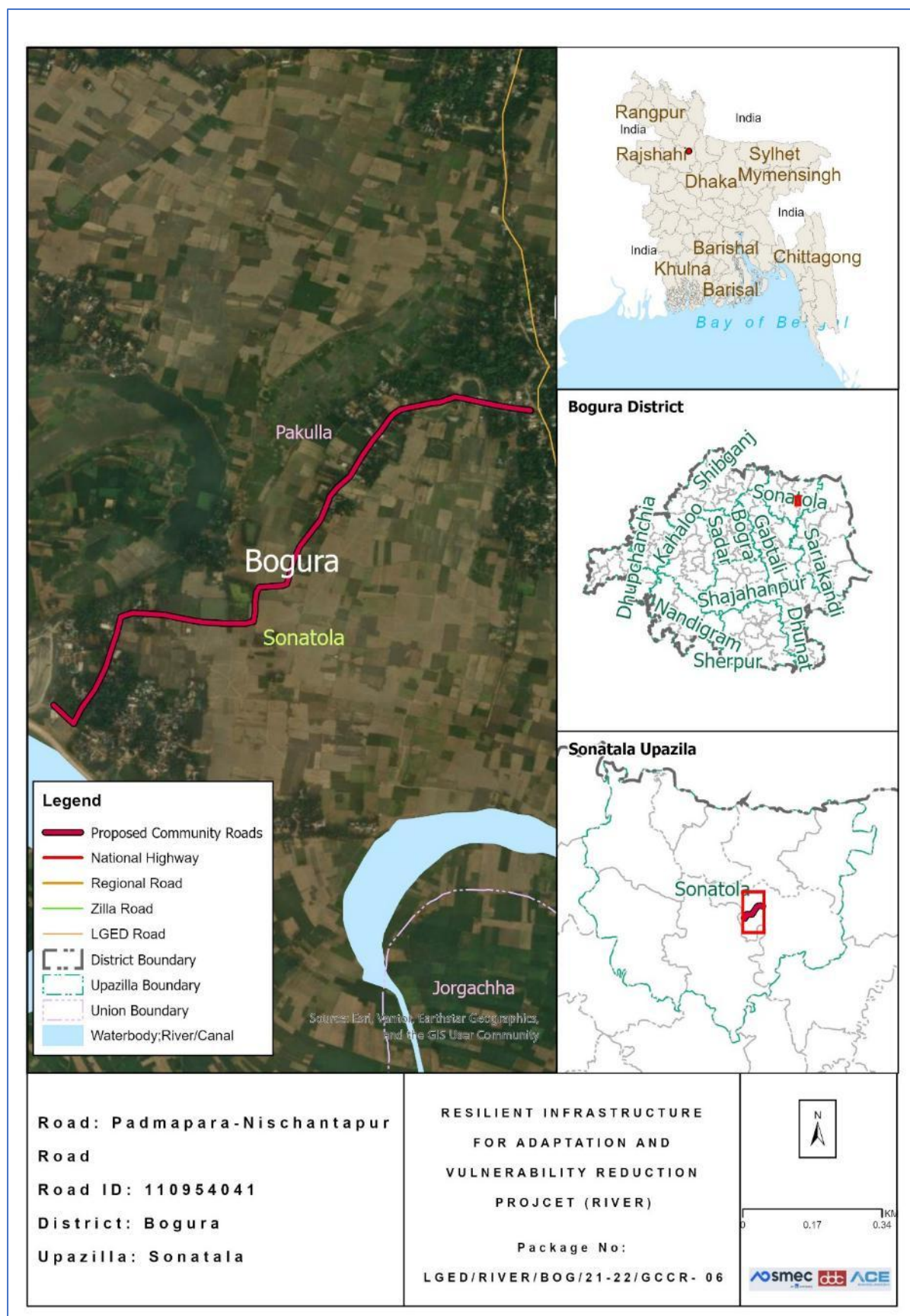
Types of waste to be generated during construction and operation phase:

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 sub-project is located within Padma Para, Nischinitopur villages under Pakulla Union, Ward No. 2 of Sonatola Upazila in Bogura District. Several environmentally and socially sensitive features, including settlements, schools, mosques, graveyards, markets, and agricultural land, are located within approximately 1 km of the project area. Along the left side of the alignment, from Chainage (Ch.) 0-300 m the area

includes shops, human settlements, school, and trees; from 300-600 m human settlements, agricultural land, and trees; from 600-900 m human settlements, trees, agricultural land, and khal; from 900-1200 m agricultural land, poultry farm, human settlements, and trees; from 1200-1500 m human settlements, trees, graveyard, and shops; and from 1500-1800 m Nischantapur GPS, human settlements, trees, and graveyard. On the right side, from Ch. 0-300 m the area includes Padma Para GPS, shops, trees, ditches, and agricultural land; from 300-600 m Eid Gah, human settlements, agricultural land, and trees; from 600-900 m human settlements, trees, agricultural land, and khal; from 900-1200 m fish pond, agricultural land, human settlements, and trees; from 1200-1500 m human settlements, agricultural land, trees, and shops; and from 1500-1800 m human settlements, trees, mosque, shops, and agricultural land. These features are of local social, religious, and community importance; however, as the proposed sub-project activities will be carried out mainly within the existing road alignment, no significant adverse impacts are anticipated, and appropriate environmental and social management measures will be implemented during the construction phase to ensure their protection.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 1564m**.

Sub-project Location:

Important Features	
ID	110954041
District	Bogura
Upazila	Sonatola
Union	Pakulla
Total Chainage	1564m
Proposed Chainage	1564m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.98863 N Longitude: 89. 53918 E
Road Ending Point Coordinates	Latitude: 24 98240 N Longitude: 89 52887 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 Padma Para, Nischiniopu villages.
- 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:

No historical or archaeological sites were identified within the direct influence area of the proposed sub-project. The sub-project is located within New Sonatola, Fulbari, and Domkandi Padma Para, Nischinitopur villages under Pakulla Union, Ward No. 2 of Sonatola Upazila in Bogura District. Several environmentally and socially sensitive features, including shops, schools, mosques, graveyards, ponds, khal, trees, human settlements, and agricultural land, are located within approximately 1 km of the project area.

Along the left side of the alignment, from Chainage (Ch.) 0-300 m the area includes shops, human settlements, school, trees, etc.; from 300-600 m human settlements, agricultural land, and trees; from 600-900 m human settlements, trees, agricultural land, and khal; from 900-1200 m agricultural land, poultry farm, human settlements, and trees; from 1200-1500 m human settlements, trees, graveyard, and shops; and from 1500-1800 m Nischantapur GPS, human settlements, trees, and graveyard. On the right side, from Ch. 0-300 m the area includes Padma Para GPS, shops, trees, ditches, and agricultural land; from 300-600 m Eid Gah, human settlements, agricultural land, and trees; from 600-900 m human settlements, trees, agricultural land, and khal; from 900-1200 m fish pond, agricultural land, human settlements, and trees; from 1200-1500 m human settlements, agricultural land, trees, and shops; and from 1500-1800 m human settlements, trees, mosque, shops, and agricultural land. These features are of local social, cultural, and environmental importance; however, as the proposed sub-project activities will be carried out mainly within the existing road alignment, no significant adverse impacts are anticipated, and appropriate environmental management measures will be implemented during the construction phase to ensure protection of surrounding sensitive receptors.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No river or canal crossing is identified along the proposed alignment. However, natural drainage features such as bridge, culverts, ditches, khal, fishponds, and low-lying agricultural land exist along both sides of the road. Along the left side, from Ch. 0+000-0+300 the area includes shops, human settlements, school, trees, and agricultural land; from 0+300-0+600 human settlements, agricultural land, and trees; from 0+600-0+900 human settlements, trees, agricultural land, and khal; from 0+900-1+200 agricultural land, poultry farm, human settlements, and trees; and from 1+200-1+564 human settlements, trees, graveyard, and shops. On the right side, from Ch. 0+000-0+300 the area includes Padma Para GPS, shops, trees, ditches, and agricultural land; from 0+300-0+600 Eid Gah, human settlements, agricultural land, and trees; from 0+600-0+900 human settlements, trees, agricultural land, and khal; from 0+900-1+200 fish pond, agricultural land, human settlements, and trees; and from 1+200-1+564 human settlements, trees, mosque, shops, and agricultural land. Although existing and proposed drainage structures will maintain flow continuity, construction activities may cause moderate temporary disturbance to nearby ditches, ponds, and natural drainage patterns due to earthworks and material handling.

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: Padmapara-Nischantapur Road

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-	Transportation and	Transportation of construction materials to the	Contractor	Environmental

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

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		appropriate authority. The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	- Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. - All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. - Noise producing vehicles and equipment will be keep in maintenance regularly. - Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	- Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices. - Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		water pipes. - Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level. - Construction materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - Records of every training must be kept at site. - All kinds of Child labour are completely prohibited in every site. - Every construction materials storage site will be well fenced by Tin and safety caution tape.	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		extraction or setting up bore wells. - Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. - Local community must be consulted before any construction works start.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement of heavy machinery and equipment. - Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. - Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) - Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	- Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. - Work force should be prohibited from disturbing the flora, fauna including hunting of animals,	Contractor	Social Development Specialist and Gender Specialist of PIU

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

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Fire extinguishers will be located at identified 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
	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.	- 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	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
Construction Activity	Demobilization of structures, facilities and	• Provision to proper measures of mitigation and monitoring to minimize or reduce the	Contractor	Environmental Consultant of

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	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.		PIU/D&SC, district XEN.
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies,	• 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
	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	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

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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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 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)	1,876.8Sq.m	@38.15 Tk. Per sqm	71,599.92
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	1,564.0m	@ 2.56 BDT	4,003.84
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at c 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

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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)	LS	LS @ Tk 30,000	30,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles			
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 17 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			266,249.48



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Jorgacha H/O Jinnah ntondol-Guravanga GPS; Road ID: 110954094**

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

District: Bogura

Upazila: Sonatala

Union: Jorgacha

Name of Community/Local Area: Jorgacha, Gurabhanga

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

The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the construction of drainage and slope protection structures along the road alignment to facilitate proper drainage of stormwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes multiple palisading works for slope protection, measuring 10 m at Chainage (Ch.) 0+320-0+330, 65 m at Ch. 0+325-0+390, 22 m at Ch. 0+744-0+766, 16 m at Ch. 0+750-0+766, 12 m at Ch. 1+016-1+028, and 70 m at Ch. 1+130-1+200. In addition, RCC U-Drains measuring 0.625 m × 0.600 m will be constructed at Ch. 0+523 and Ch. 0+920 to ensure adequate drainage and maintain the continuity of natural water flow. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and environmental and social mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 4,008 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 00m to 1336m. 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
250-550	L		Human Settlement, Trees, Agricultural Land, etc.
		R	Khal, Agricultural Land, etc.
550-850	L		Fish Pond, Agricultural Land, Human Settlement, Ditches, etc.
		R	Khal, Agricultural Land, Human Settlement, etc.
850-1150	L		Human Settlement, Ditches, Trees, etc.
		R	Agricultural Land, Ditches, Human Settlement, etc.
1150-1350	L		Human Settlement, Ditches, Trees, etc.
		R	Human Settlement, Fish Pond, Agricultural Land, Trees, Graveyard, etc.
1350-1586	L		Khal, Agricultural Land, Trees, Community Clinic, etc.
		R	Fishpond, Human Settlement, Graveyard, School, Shop, etc.



Starting Point of Jorgacha H/O Jinnah mondol-Guravanga GPS

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.

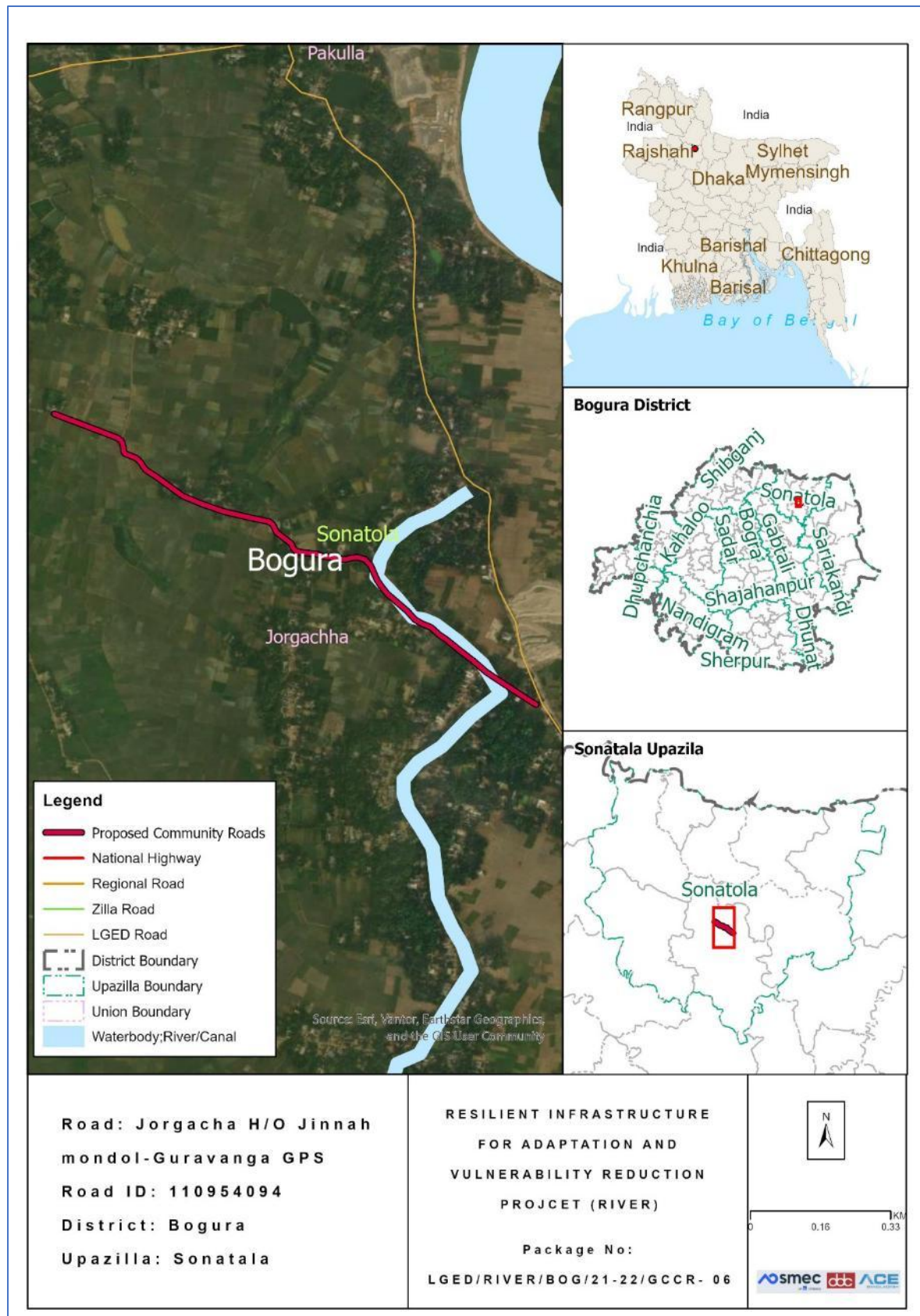
Types of waste to be generated during construction and operation phase:

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 sub-project is located within Jorgacha, Gurabhanga villages under Jorgaca Union, Ward No. 5 of Sonatola Upazila in Bogura District. The surrounding area within approximately 1 km includes a mix of human settlements, agricultural land, water bodies, trees, and community facilities. Along the left side of the alignment, from Ch. 0-300 m the area includes settlements, trees, and agricultural land; from 300-600 m fish ponds, agricultural land, settlements, and ditches; from 600-900 m settlements, ditches, and trees; from 900-1200 m settlements, ditches, and trees; and from 1200-1500 m khal, agricultural land, trees, and a community clinic. On the right side, from Ch. 0-300 m the area includes khal and agricultural land; from 300-600 m khal, agricultural land, and settlements; from 600-900 m agricultural land, ditches, and settlements; from 900-1200 m settlements, fish ponds, agricultural land, trees, and a graveyard; and from 1200-1500 m fish ponds, settlements, a graveyard, school, and shops. These features are important for local social and community use. However, as the works will be carried out mainly within the existing

road alignment, no significant adverse impacts are anticipated, and necessary environmental mitigation measures will be applied 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 **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 0m to Chainage 1336 m**.

Sub-project Location:

Important Features	
ID	110954094
District	Bogura
Upazila	Sonatola
Union	Jorgacha
WARD	05
Total Chainage	1336m
Proposed Chainage	1336m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 24.98057 N Longitude: 89.50900 E
Road Ending Point Coordinates	Latitude: 24.97458 N Longitude: 89.51904 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 Jorgacha, Gurabhanga villages.
- (ii) No historical sites were found
- (iii) Not required to relocate local community.
- (iv) Some trees, vegetation and livelihood will be affected.
- (v) Very low chance of loss of agricultural land.
- (vi) Some Household Boundary made of bamboo and tin may need adjustments.

Section B: Environmental and Social Screening

B.1: Environmental and Social feature of sub-project location

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

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

Several environmentally and socially sensitive features, including settlements, water bodies, religious and community facilities, are located within approximately 1 km of the project area. Along the left side of the alignment, from Chainage (Ch.) 0-300 m the area includes human settlements, trees, and agricultural land; from 300-600 m fish ponds, agricultural land, settlements, and ditches; from 600-900 m settlements, ditches, and trees; from 900-1200 m settlements, ditches, and trees; and from 1200-1500 m khal, agricultural land, trees, and a community clinic. On the right side, from Ch. 0-300 m the area includes khal and agricultural land; from 300-600 m khal, agricultural land, and settlements; from 600-900 m agricultural land, ditches, and settlements; from 900-1200 m settlements, fish ponds, agricultural land, trees, and a graveyard; and from 1200-1500 m fish ponds, settlements, a graveyard, school, and shops.

These features are important for local social, cultural, and community use. However, as the proposed works will be carried out mainly within the existing road alignment, no significant adverse impacts are anticipated. Appropriate environmental and social management measures will be implemented during the construction phase to ensure protection of nearby sensitive receptors.

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 Bogura district is mainly characterized by alluvial soils typical of the floodplain areas of northern Bangladesh. These soils are developed from river-borne sediments and are generally sandy loam to silt loam in texture, with some clay loam in low-lying areas. The soils are moderately to highly fertile and support intensive agricultural activities throughout the year. Due to their alluvial nature, the soils are also relatively permeable and suitable for crop cultivation, although they may be prone to seasonal waterlogging in certain locations.

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

Groundwater is the main source of potable water in the Sub-project area. People in the area primarily depend on shallow tube wells for their daily domestic water needs. The average groundwater table is typically found at a depth of approximately 130 to 250 feet below ground level. Groundwater quality assessments indicate the presence of iron & arsenic in tube-well water, which may cause health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality testing, and community awareness programs, are essential to ensure safe drinking water. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater in the project area is generally fresh and suitable for drinking. The pH typically ranges from 6.5 to 8.5, with TDS around 100 to 500 mg/l and EC about 150 to 800 μ S/cm. Dissolved Oxygen is low, as common in groundwater. Iron content may exceed standard limits in some locations (around 0.3 to 5.0 mg/l), while arsenic is generally low to negligible (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and wetland habitats. Notable species include ghugu, bok and Choro (House Sparrow, *Passer domesticus*). These birds play a vital role in controlling insect populations, dispersing seeds, pollinating plants, and maintaining ecological balance within rural landscapes. In addition, the presence of wild mammals, such

as Bon Biral (Jungle Cat, *Felis chaus*), snake and Fox (Bengal Fox, *Vulpes bengalensis*), reflects the typical rural biodiversity and ecological integrity of the area. These mammals function as natural predators, helping regulate populations of rodents and other small animals, thereby contributing to agricultural pest control and ecosystem stability. Overall, the diversity of fish, birds, and mammals in the area indicates a functioning and interconnected ecosystem. Protecting these species through sustainable water management, habitat conservation, and environmentally responsible development is essential for maintaining biodiversity, ecological resilience, and long-term environmental sustainability in the locality.

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. Solid waste may amount to 20 kg daily and sludge may amount to 5 kg per day.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water

bodies (wetlands, marshes): (High/Medium/Low with description)

No river or canal crossing is identified along the proposed alignment; however, natural drainage features such as existing box culverts, a bridge, U-drains, ditches, fishponds, and low-lying agricultural land are present along the road corridor. Along the left side, from Ch. 0+250-0+410 the area includes settlements, trees, and agricultural land; from 0+410-0+610 fish ponds, agricultural land, settlements, and ditches; from 0+610-0+790 settlements, ditches, and trees; and from 0+790-1+586 khal, agricultural land, trees, and community facilities. On the right side, from Ch. 0+250-0+410 the area includes khal and agricultural land; from 0+410-0+610 khal, agricultural land, and settlements; from 0+610-0+790 agricultural land, ditches, and settlements; and from 0+790-1+586 fish ponds, settlements, graveyard, school, shops, agricultural land, and trees. Although existing drainage structures will help maintain natural flow, construction activities may cause moderate temporary disturbance to nearby ponds, ditches, and local drainage patterns due to earthworks and material handling; therefore, the overall impact is considered medium and will be managed through appropriate drainage and mitigation measures to avoid waterlogging.

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: Jorgacha H/O Jinnah mondol-Guravanga GPS

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 accidents to	- 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
	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. - Construction of sanitary latrine with septic tank	Contractor	Environmental Consultant of PIU

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

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - Contractors will maintain proper route for traffic	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. - Any type of consent letter or agreement for	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		withdrawing water from either surface or underground sources will be kept on site. Local community must be consulted before any construction works start.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement of heavy machinery and equipment. - Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. - Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) - Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	- Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. - Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. - Adequate facilities ensuring sanitation for labor	Contractor	Social Development Specialist and Gender Specialist of PIU

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

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

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	• 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	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.	appropriate to the nature of the potential fire. • This sub project will have Proper communicative emergency response plan (ERP) with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are		

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
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 surrounding water bodies,	• 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
	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 may also be due to	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	Upazila Engineer (UE)	District Executive Engineer, LGED

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	drivers about likely accidents due to over speeding. All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	- Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. - Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	UE	District 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)	1603.2Sq.m	@38.15 Tk. Per sqm	61162.08
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	1336.0m	@ 2.56 BDT	3420.16
3.	<u>Water Supply and Sanitation</u> Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities 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	1 no.	LS @5000 Tk. Per box	5,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
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 n	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	LS	LS @ Tk. 30,000	30,000.00

Sl. no.	Description of item	Quantity	Unit price	Total amount
	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			
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

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Sl. no.	Description of item	Quantity	Unit price	Total amount
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. <u>[One person to be appointed for 17 roads]</u>	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			255,227.96



Existing Surroundings of the Sub-Project

ANEXURE 2:
ATTENDANCE OF CONSULTATION MEETING

ANNEXURE 2: ATTENDANCE OF CONSULTATION MEETING

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Local Government Engineering Department (LOED)
Public Consultation with Stakeholders

Name of Community Road: Sheldobari Amzad Hazi to Vandana mouza Date: 12-04-2026
Road ID: 50808072
Place of Consultation: Alongside of the Proposed Road
Village: Sheldobari Ward No.: 09 Union: Sheldobari Upazila: Sheldobari
District: Sheldobari

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
01	শেখ মুজিব	M	40	ফার্মার	শেখ মুজিব		[Signature]
02	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
03	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
04	শেখ মুজিব	M	40	ফার্মার	"		[Signature]
05	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
06	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
07	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
08	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
09	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
10	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
11	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
12	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
13	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
14	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
15	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
16	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
17	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
18	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
19	শেখ মুজিব	M	38	ফার্মার	"		[Signature]
20	শেখ মুজিব	M	38	ফার্মার	"		[Signature]

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Jamirbaria-Uzagram Bazar Road Date: 12.04.26
Road ID: 2208080166
Place of Consultation: Alongside The Proposed Road
Village: -মুন্সিগঞ্জ Ward No.: 09 Union: কুষ্টিয়া Upazila: Gatabole
District: Bogura

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
১	মুন্সিগঞ্জ	M	৫০	শ্রমিক	মুন্সিগঞ্জ		মুন্সিগঞ্জ
২	মুন্সিগঞ্জ	M	৭২	শ্রমিক	হ		মুন্সিগঞ্জ
৬	শ্রমিক	m	২৫	হ	হ		মুন্সিগঞ্জ
৪	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
৫	মুন্সিগঞ্জ	m	৬০	শ্রমিক	হ		মুন্সিগঞ্জ
৬	মুন্সিগঞ্জ	m	৫৬	শ্রমিক	হ		মুন্সিগঞ্জ
৭	মুন্সিগঞ্জ	m	৫৫	শ্রমিক	হ		মুন্সিগঞ্জ
৮	মুন্সিগঞ্জ	F	৫৫	শ্রমিক	হ		মুন্সিগঞ্জ
৯	মুন্সিগঞ্জ	m	৩০	হ	হ		মুন্সিগঞ্জ
১০	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
১১	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
১২	মুন্সিগঞ্জ	F	৪৫	শ্রমিক	হ		মুন্সিগঞ্জ
১৩	মুন্সিগঞ্জ	m	৬০	শ্রমিক	হ		মুন্সিগঞ্জ
১৪	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
১৫	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
১৬	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
১৭	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
১৮	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
১৯	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ
২০	মুন্সিগঞ্জ	m	৫০	শ্রমিক	হ		মুন্সিগঞ্জ

Public Consultation with Stakeholders

Name of Community Road: Sukhanpukur Kalurghat
Road ID: 220808226 + 6 N12km H/O Date: 12.04.2026

Place of Consultation: Alongside the proposed Road

Village: Ward No.: Union: Upazila: Gabtoli

District: Bogura

Public Consultation Participants List

[illegible]

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Nizakra (H/O Sador) Road Date: 12.04.26

Road ID: 110404153

Place of Consultation: Alongside The Proposed Road

Village: Ward No.: 04 ward Union: Sukhanpukur Upazila: Gataboli

District: Bogura

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
০১	সম্মি রায়	M	৩৪	কৃষক	নিজাকরা		
০২	আব্দুল হক বখশ	M	৩৬	কৃষক	হ		
০৩	হাতেম আলী	M	৪৫	হ	হ		
০৪	বাহুল রায়	M	৬৫	কৃষক	হ		
০৫	শ্রী: রফিক	M	৬৬	কৃষক	হ		
০৬	আবু জাহা	M	৩৩	কৃষক	হ		
০৭	সুজোষী কুমার	M	৫০	কৃষক	হ		
০৮	জামিল আলী	M	৪৫	কৃষক	হ		
০৯	জামিল রায়	M	৪০	কৃষক	হ		
১০	জামিল আলী	M	৭০	কৃষক	হ		
১১	বাহুল আলী	M	৬৫	কৃষক	হ		
১২	আবু বখশ আলী	M	৬৩	কৃষক	হ		
১৩	শ্রী: জামিল	M	২০	কৃষক	হ		
১৪	শ্রী: জামিল আলী	M	৬০	কৃষক	হ		
১৫	জামিল আলী	M	৫০	কৃষক	হ		
১৬	শ্রী: জামিল	M	৬৫	কৃষক	হ		
১৭	বাহুল আলী	M	২৬	কৃষক	হ		

Public Consultation with Stakeholders

Name of Community Road: Fulbari U.P. - Shaikhat College Road. Date: 04.04.26
Road ID: 110913001
Place of Consultation: Alongside The Proposed Road
Village: Shaikhat Ward No.: Union: Fulbari Upazila: Samiakkandi
District: Bogura

Public Consultation Participants List

[illegible]

Public Consultation with Stakeholders

District: Dagupan

[illegible]

Public Consultation with Stakeholders

District: Bogura

Public Consultation Participants List

[illegible]

Public Consultation with Stakeholders

Name of Community Road: Kuptala Moddah para - Ramnagar ^{GPS} Date: 04.04.26
Road ID: 110811076
Place of Consultation: Alongside The Proposed Road
Village: Kuptala Ward No.: Union: Narehi Upazila: Samkandi
District: Bogura

Public Consultation Participants List

[illegible]

Public Consultation with Stakeholders

District: Bogura

Name of Community Road: Chala para UER- South Parkpara Date: 12.4.26
Road ID: 110 274057
Place of Consultation: Alongside The Proposed Road
Village: Chalapara Ward No.: 5 NE Union: Sadar Upazila: Dhuenat
District: Bogura

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
01	শ্রী: দুলাল রায়	M	48	কৃষক	Chandpur		দুলাল
02	শ্রী: বাকি কুল রায়	M	42	ভাল্লভ	u		বাকি কুল
03	শ্রী: শ্রীকান্ত	M	45	কৃষি	বালুখুড়ি		শ্রীকান্ত
04	শ্রী: শ্রীকান্ত	M	30	কৃষক	u		শ্রীকান্ত
05	শ্রী: শ্রীকান্ত	M	32	u	u		শ্রীকান্ত
06	শ্রী: শ্রীকান্ত	M	18	ছাত্র	u	01	শ্রীকান্ত
07	শ্রী: শ্রীকান্ত	M	18	u	u		শ্রীকান্ত
08	শ্রী: শ্রীকান্ত	M	80	কৃষি	u		শ্রীকান্ত
09	শ্রী: শ্রীকান্ত	M	32	কৃষি	u		শ্রীকান্ত
10	শ্রী: শ্রীকান্ত	M	37	কৃষি	u		শ্রীকান্ত
11	শ্রী: শ্রীকান্ত	M	21	কৃষক	u		শ্রীকান্ত
12	শ্রী: শ্রীকান্ত	M	45	কৃষি	u		শ্রীকান্ত

