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Ministry of Local Government, Rural Development & Co-operatives  
Local Government Division  
**Local Government Engineering Department (LGED)**

**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project**  
**Improvement of Community Infrastructure, Growth Center, others roads & Connecting Roads**  
**at Nilphamari District**



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

**Package Name: LGED/RIVER/NILP/21-22/GCCR-04**

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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 Nilphamari District has been prepared for the sub-project titled “Improvement of Community Infrastructure, Growth Centre, Connecting Roads & others roads at Madaripur 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, several community infrastructures connecting roads in Madaripur 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— Kishoregonj, Nilphamari Sadar, Saidpur and Domar—which are characterized by rural settlements, agricultural landscapes, and periodic exposure to seasonal drought, river erosion and flooding. These community roads play a crucial role in connecting local villages with educational institutions, growth centres, 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.

Under this sub-project, eight (11) community infrastructures connecting roads in Nilphamari 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- Kishoregonj (01 road with total length of 2.860 km), Nilphamari Sadar (04 roads with total length of 11.370 km), Saidpur (04 roads with 6.115 km), and Domar (02 roads with active length of 4.47km) Upazila—which are characterized by rural settlements, agricultural landscapes, and periodic exposure to seasonal flooding.

<b>A short profile of the roads to be implemented</b>					
<b>Sl. No.</b>	<b>Name of Upazila</b>	<b>Name of Proposed Community Road (Road ID)</b>	<b>Total Length (Km)</b>	<b>Avg. width (m)</b>	<b>Distances from nearby Shelters</b>
1.	Kishoregonj	Bahgili UP office to Kishoregonj RHD at hospital bridge (173453008)	2.860	3.20	100m
2.	Nilphamari Sadar	Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler Bazar (173543053)	1.260	3.20	1.80 km
3.		Laxmichap UP to Chowrangi hat near R & H Road (173643015)	3.250	3.20	Adjacent
4.		Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydaner hat via Arazi Dalua GPS	1.000	3.20	800m
5.		Ramgonj GC to Mirgonj ViaKachary Hat (173642015)	5.860	3.00	1.90 km
6.		Hazarihat G.C near Dosksa Dighi-Babrijhor G.C (Up to Upazila Boarder) (173852008)	2.340	3.20	Adjacent
7.	Saidpur	UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder) (173850090)	1.500	3.20	500m
8.		Hindupara to Hamurhat	0.775	3.20	900m
9.		Chandia Bazar to Thakur Hat (173854091)	1.500	3.20	Adjacent
10.	Domar	Gomnati Bazar RHD road to Chilahati Road (173152014)	2.400	3.20	Adjacent
11.		Kaoler Mor UZR/2002 to Vholagonj GC road (173154036)	2.070	3.00	2.30 km

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

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

- (i) For the road from **Bahagili UP office to Kishoregonj RHD at hospital bridge (173453008)**, bituminous carpeting will be carried out along the entire stretch from **chainage 0+000 to 2+860**, where the existing pavement is damaged and broken. This road passes through homestead areas, agricultural land, at least 6 ponds on both sides, a Government Primary School, mosques and graveyards. Along with the general road improvement works, Road safety measures, including signage and speed breakers, will be installed near the School at **Ch. 0+150** and the graveyard at **Ch. 0+250**.
- (ii) **Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler Bazar (173543053)**, passes through agricultural lands, houses, graveyards, Eidgah and 4 ponds, 2 ditches and a canal is also located along the road. Along with the proposed bituminous carpeting from **chainage 0+000 to 1+260**, road signage will be installed near sensitive locations, including the Madrasha at **Ch. 0+260** and church at **Ch. 0+950**.
- (iii) Bituminous carpeting will be implemented from **chainage 0+000 to 3+250** on the road, which stretches from **Laxmichap UP to Chowrangi hat near R & H Road (173643015)** through a solar lamp post, stretches of trees, agricultural lands, and households, at least two bamboo bushes, number of electric poles, a rice mill, and so on. In addition, U-Drain works will be carried out through **Ch. 3+008 (approximately 1x8 m<sup>2</sup>)**, followed by tree plantation along the same section.
- (iv) For the road from **Chowrabaragacha UP to Nilphamari -Sonahar UZR at Maydaner hat via Arazi Dalua GPS**, bituminous carpeting will be implemented along the entire stretch from **chainage 0+000 to 1+000**, and the road passes through different establishment and physical features on both sides, such as a sub-station, 1 school, stretches of houses, male and female madrasas, graveyards, stretches of agricultural lands, mosques, pond, ditches, UP office, and Hat bazars. Road safety features, including signage and speed breakers, will be installed at Hat-bazar (**Ch. 0+200**).
- (v) The proposed works for the road section from **Ramgonj GC to Mirgonj ViaKachary Hat (173642015)** include the provision of bituminous carpeting over the **chainage from 0+000 to 5+860**. The road passes through different socio-environmental features and establishments, such as stretches of human settlements and agricultural lands, mosques, graveyards, ponds and two ditches, a government primary school and a madrasa. In order to ensure road safety and mitigate potential hazards, appropriate traffic safety measures shall be implemented, e.g., the installation of regulatory and warning signage, along with speed breakers in the hat-bazar at **Ch. 1+850**. Furthermore, protective palisading/barrier shall be installed near **the pond located at Ch. 2+292,2+420 and 5+580**.
- (vi) For the road from **Hazarihat G.C near Dosksa Dighi-Babrijhor G.C (Up to Upazila Boarder) (173852008)**, bituminous carpeting will be carried out from **chainage 0+000 to 2+340**. The road passes through different socio-environmental features and establishments, such as stretches of households, agricultural lands, ponds, 2

- graveyards, two mosques and a madrasa, and a Government Primary School. Besides the road improvement works, road safety signage and speed breakers will be installed near a hat-bazar location (**Ch. 0+650, 0+1280**) and a Chora school (**Ch. 1+560**).
- (vii) For the road from **UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder (173850090))**, bituminous carpeting will be undertaken from **chainage 0+000 to 1+500**. The road passes through different socio-environmental features and establishments, such as stretches of trees, four Bamboo bushes, four ponds and ditches. Road signage will be installed near the primary school at **Ch. 0+650**.
- (viii) For the road from **Hindupara to Hamurhat (173855019)**, bituminous carpeting will be carried out from **chainage 0+000 to 0+775**. The road passes through different socio-environmental features and establishments, such as stretches of households, agricultural lands, ponds. Besides the road improvement works, road safety signage and speed breakers will be installed near a hat-bazar location (**Ch. 0+350, 0+8600**).
- (ix) The proposed works for the road section from **Chandia Bazar to Thakur Hat (173854091)** include the provision of bituminous carpeting over the **chainage from 0+000 to 1+500**. The road passes through different socio-environmental features and establishments, such as stretches of human settlements and agricultural lands, mosques, graveyards, ponds and two ditches. In order to ensure road safety and mitigate potential hazards, appropriate traffic safety measures shall be implemented, e.g., the installation of regulatory and warning signage, along with speed breakers in the hat-bazar at **Ch. 0+050**. Furthermore, protective palisading/barrier shall be installed near **the pond located at Ch. 0+100**.
- (x) The proposed works for the road section from **Gomnati Bazar RHD road to Chilahati Road (173152014)** include the provision of bituminous carpeting over the **chainage from 0+000 to 2+400**. The road passes through different socio-environmental features and establishments, such as stretches of human settlements and agricultural lands, mosques, graveyards, ponds and two ditches. In order to ensure road safety and mitigate potential hazards, appropriate traffic safety measures shall be implemented, e.g., the installation of regulatory and warning signage, along with speed breakers in the School at **Ch. 0+350, 0+930, 1+250**.
- (xi) Finally, for the road from **Kaoler Mor UZR/2002 to Vholagonj GC road (173154036)**, bituminous carpeting will be implemented from **chainage 0+000 to 2+070**. The road passes through different socio-environmental features and establishments, such as primary school, ponds and stretches of trees. Slope protection works will be carried out along **Ch. 0+060, 0+125, 0+250, 0+370, 0+415 (approximately 125 m)**, followed by tree plantation along the same stretches. Safety features, including signage and speed breakers, will be installed near a hat-bazar location (**Ch. 0+650**).

The assessment study also reveals that the proposed road improvement works will largely be carried out within the existing Right of Way (ROW), thereby minimizing the need for land acquisition and significantly reducing potential resettlement issues. The existing roads are mainly earthen or partially paved rural roads that require improvement to ensure year-round

accessibility, improved drainage, and enhanced structural stability. The project will involve activities such as road widening where necessary and contingent upon the available land within ROW, strengthening of road surfaces, improvement of drainage systems, and installation of small culverts or cross-drainage structures where required. However, the scope of works, including specific safety and environmental measures along with potential impacts that may arise from the proposed interventions, are tabulated hereunder:

Sl. No.	Name of Proposed Community Road	Pavement Condition with Chainage	Proposed Physical Interventions	Specific HSE measures	Key Potential Impacts
1.	Bahgili UP office to Kishoregonj RHD at hospital bridge (173453008)	Damage/broken Paved- 0+00 to 2+860	Bituminous Carpeting (BC)-0+000 to 2+860 Palisading 10 m (Ch.- 0+10) Bridge with palisading 10x4 m <sup>2</sup> Ch.- 2+700	Road signage and speed breaker for hat-bazar (0+350); road signage for graveyard (0+690)	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
2.	Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler Bazar (173543053)	Damage/broken Paved- 0+00 to 1+260	Bituminous Carpeting (BC)-0+00 to 1+260 Palisading 10m, Ch-0+50 Culvert-1.5 mx1.5m =2.25 m <sup>2</sup> Ch.-0+353 U-Drain-6mx1m=6m <sup>2</sup> Ch.-1+108	Road signage for church (0+950), Graveyard (0+680)	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals.
3.	Laxmichap UP to Chowrangi hat near R & H Road (173643015)	Damage/broken Paved- 0+00 to 3+250	Bituminous Carpeting (BC)-0+00 to 3+250 U-Drain-1mx8m=8m <sup>2</sup> Ch.-3+008	Road sign for graveyard at chainage 0+380, Hat-bazar at chainage 0+680, temple at chainage 0+1250m	
4.	Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydane hat via Arazi Dalua GPS (173643050)	Damage/broken Paved- 0+00 to 1+000	Bituminous Carpeting (BC)-0+00 to 1+000 U-drain- 7mx1.5m=10.5 m <sup>2</sup> Ch.-0+748	Signage and speed breakers for hat-bazar (0+050, 0+250)	
5.	Ramgonj GC to Mirgonj ViaKachary	Damage/broken Paved- 3+000 to 8+860	Bituminous Carpeting (BC)-0+00 to 5+860	Signage and speed breaker for temple	Air, water and soil pollution from Construction works;

Sl. No.	Name of Proposed Community Road	Pavement Condition with Chainage	Proposed Physical Interventions	Specific HSE measures	Key Potential Impacts
	Hat (173642015)		Palisading 17 m Ch.-1+168 U-drain- 8sqm 15 m Ch.-1+215 Palisading 23 m Ch.-2+292 Palisading 20 m Ch.-2+420 Palisading 20 m Ch.-5+580	(0+050, 1+850,2+790, 5+500), for hat-bazar (0+850, 1+970, 2+200,2+840)	temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
6.	Hazarihat G.C near Dosksa Dighi- Babrijhor G.C (Up to Upazila Boarder) (173852008)	Damage/broken Paved- 0+00 to 2+340	Bituminous Carpeting (BC)-0+00 to 2+340 Palisading 40 m Ch-0+040 Palisading 10m Ch-0+130 Palisading- 15 m Ch-0+850	Signage and speed breaker for hat-bazar (0+680,1+280) and school (1+750), Eidgah 1+750	
7.	UZR-1 near Hindupara- Nayenkhal hat (Up to Upazila Boarder) (173850090)	Damage/broken Paved- 0+00 to 1+500	Bituminous Carpeting (BC)-0+00 to 0+700 Culvert-2mx2m= 4m <sup>2</sup> Ch-1+500 Palisading 10 m Ch-1+490	Signage for Temple (0+200, 0+700), School 0+550	
8.	Hindupara to Hamurhat	Damage/broken Paved- 0+00 to 0+775	Bituminous Carpeting (BC)-0+00 to 0+775 Palisading 15 m Ch-0+000 Palisading 26 m Ch-0+150	Signage and speed breaker for hat-bazar (0+400, 0+850)	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals.
9.	Chandia Bazar to Thakur Hat (173854091)	Damage/broken Paved- 0+00 to 1+500	BC-0+00 to 1+500 Palisading 50 m Ch-0+100	Signage and speed breaker for hat-bazar (0+260, 1+350), School 1+250	
10.	Gomnati Bazar RHD road to Chilahati Road (173152014)	Damage/broken Paved- 2+600 to 5+000	BC-0+00 to 2+400	Signage and speed breaker school (0+380, 0+950, 0+1250)	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree

Sl. No.	Name of Proposed Community Road	Pavement Condition with Chainage	Proposed Physical Interventions	Specific HSE measures	Key Potential Impacts
					plantation.
11.	Kaoler Mor UZR/2002 to Vholagonj GC road (173154036)	Damage/broken  Unpaved-0+00 to 2+070	Bituminous Carpeting (BC)-0+00 to 2+070 Palisading- 17m (Ch.-65m) Palisading- 35m (Right side) (Ch.-125m) Palisading-13m (L-side) (Ch.-125 m) Palisading- 20m (ch.250m) Palisading-12m (ch.370m) Palisading 28m (ch.-415m) U-Drain-0.375 sqm (ch.-1100m) U-Drain-0.375sqm (ch.-1400m) Culvert-21 cubic meters (ch.1980m)	Signage and speed breaker forhat-bazar (0+690, 0+750)	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals.

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. INTRODUCTION

### 1.1 Sub-Project Background

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

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

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

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

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

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

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

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

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

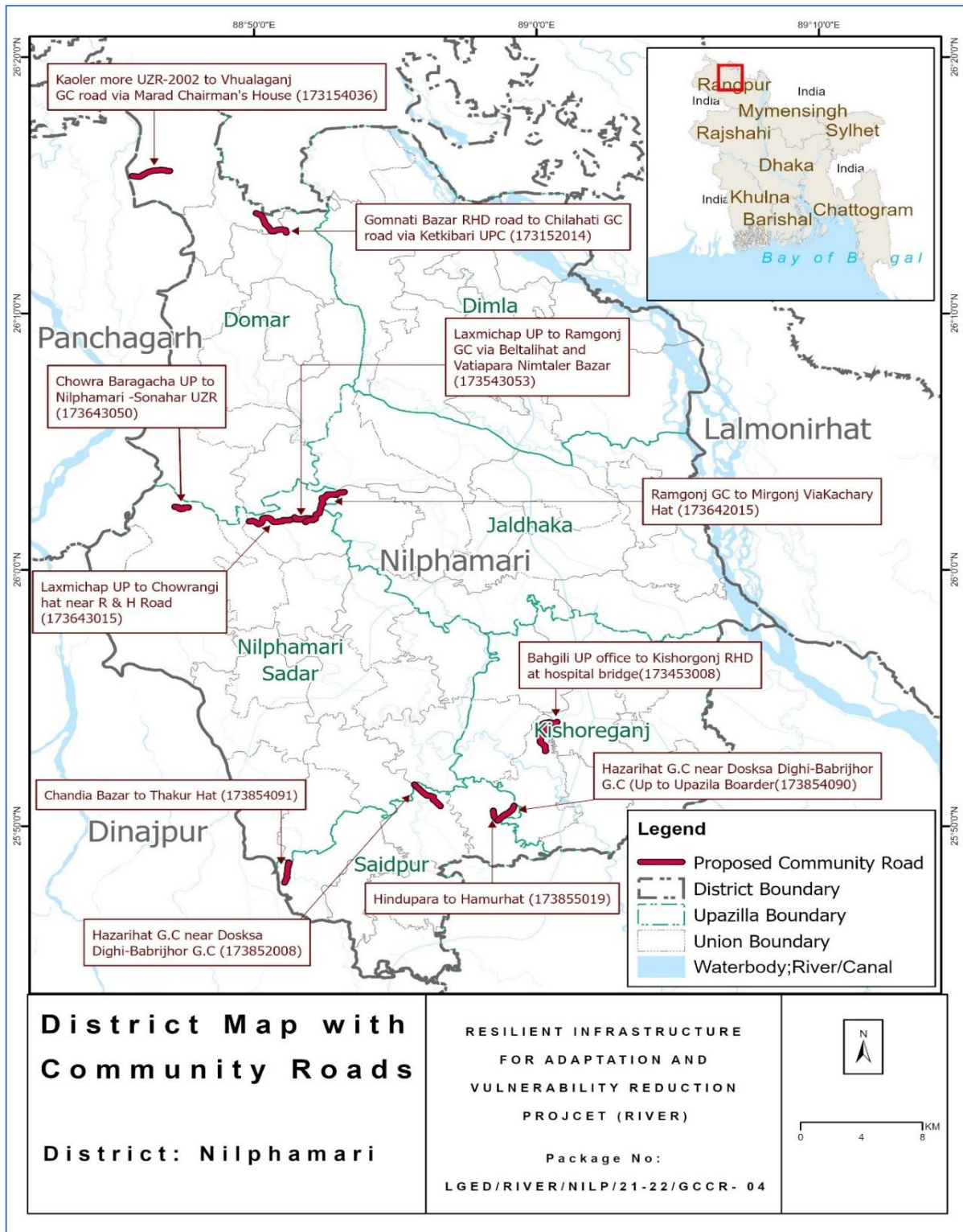
This section provides a detailed description of the sub-project location, its physical and socio-economic context, and the nature of the proposed improvement works for the community infrastructure connecting roads in Nilphamari District under the RIVER Project.

### 2.1 Sub-Project Location

The sub-project covers selected community roads located in Nilphamari 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. **Kishoregonj Upazila** – A predominantly rural area with dispersed settlements, agricultural lands, and small marketplaces. The community roads in this upazila provide critical access to flood shelters and facilitate movement within flood-prone villages.
2. **Saidpur Upazila** – Characterized by flat agricultural terrain, this upazila experiences seasonal inundation. The connecting roads targeted under this sub-project are essential for linking villages with local markets, schools, health facilities, and nearby flood shelters.
3. **Domar Upazila** – The sub-project roads in this upazila pass through several small settlements and agricultural areas, often adjacent to flood shelters constructed under the RIVER Project. The roads are critical for emergency evacuation during flood events.
4. **Sadar Upazila** – As the district headquarters, this upazila has a mix of semi-urban and rural areas. The connecting roads targeted here link local communities with flood shelters, health facilities, and administrative centers, enhancing both daily accessibility and emergency response capacity.

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



**Figure 2.1: Map illustrating Community Roads of Nilphamari District**

## 2.2 Physical Features and Environment

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

## 2.3 Socio-Economic Context

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

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

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

## 2.4 Sub-Project Description

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

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

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

## 2.5 Elementary information of Community Road in Nilphamari District

The community road package components in Nilphamari District, located in the northern 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 Kishoreganj Upazila, Saidpur Upazila, Sadar Upazila, and Domar Upazila. Each road component has been identified with specific GPS coordinates to define its alignment and location within the respective union parishads such as Uttor Bahagili, Khamadtarif, Dubachuri, Ballampath, Kachua, Uttor chawra, Laxmichap, Khatamadhupur, Barodaha, Kismot dangi 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
1.	Kishoregonj	Khamadtarif	Bahagili UP office to ishorgonj RHD at hospital bridge (173453008)	<u>Starting Point</u> 25.882000 N 89.005328 E  <u>Ending Point</u> 25.901185 N 89.012150 E	2.860	Khamadtari, Uttor Bahagili, Hospital bridge	Durakuthi GPS	0.10 km From Proposed Flood Shelte
2.	Sadar	Khamadpara	Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler	<u>Starting Point</u> 26.034194 N 88.857247 E	1.260	Khamadpara, Dubachiri, Beltali Bazar	Laxmichap Janglipara GPS	1.80 km From Proposed Flood Shelter

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Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
			Bazar (173543053)	<b><u>Ending Point</u></b> 26.032534 N 88.867199 E				
3.		Ballampath	Laxmichap UP to Chowrangi hat near R & D Road (173643015)	<b><u>Starting Point</u></b> 26.033014 N 88.854911 E <b><u>Ending Point</u></b> 26.031468 N 88.830459 E	3.250	Ballampath, Dharihara, Kachua,	Kachua GPS	Adjacent to the Proposed Flood Shelter
4.		Uttor Chowra	Chowra Baragacha UP to Nilphamari - Sonahar UZR at Maydaner hat via Arazi Dalua GPS (173643050)	<b><u>Starting Point</u></b> 26.040605 N 88.794607 E <b><u>Ending Point</u></b> 26.310781 N 89.023576 E	1.000	Uttor Chowra, Kismot Dalua	Kisamot Dolua GPS	0.80 km From Proposed Flood Shelter
5.		Laxmichap	Ramgonj GC to Mirgonj Via Kachary Hat (173642015)	<b><u>Starting Point</u></b> 26.0310525 N 88.8637396 E <b><u>Ending Point</u></b> 26.050622 N 88.886664 E	5.860	Laxmichap, Bottala Bazar, Basunia Bazar, Volarghat Bazar, Moglur Mor Bazar	Laxmichap Janglipara GPS	1.90 km From Proposed Flood Shelter
6.	Saidpur	Kisamot Dangi	Hazarihat G.C near Dosksa Dighi- Babrijhor G.C(Up to	<b><u>Starting Point</u></b> 25.846402 N 88.943288 E	2.340	Kisamot Dangi, Charoikhola	Chaora GPS	Adjacent to the Proposed Flood Shelter

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Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
			Upazila Boarder (173852008)	<b>Ending Point</b> 25.872278 N 89.535698 E				
7.		Telipara	UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder) (173850090)	<b>Starting Point</b> 25.846647 N 88.986770 E <b>Ending Point</b> 25.904804 N 89.249135 E	1.500	Telipara, Balapara, Khata Modhupur	Madhupur GPS	.50 km from Proposed Flood Shelter
8.		Khatamodhupur	Hindupara to Hamurhat (173855019)	<b>Starting Point</b> 25.836965 N 88.977081 E <b>Ending Point</b> 25.843436 N 88.974541 E	0.775	Khatamodhupur, Hamurhat	Madhupur GPS	0.900 km from Proposed Flood Shelter
9.		4 no. Bodlogari	Chandia Bazar to Thakurer Hat (173854091)	<b>Starting Point</b> 25.809791 N 88.853876 E <b>Ending Point</b> 25.797286 N 88.851567 E	1.500	Kadhopara, Barodaho, Borodaho Dagapara	Barodaha GPS	Adjacent to the Proposed Flood Shelter
10.	Domar	Gomnati	Gomnati Bazar RHD road to Chilahati GC road via Ketkibari UPC	<b>Starting Point</b> 26.219442 N 88.852456 E	2.400	Gomnati, Ketkibari	Dalagonj GPS	Adjacent to the Proposed Flood Shelter

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Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
			(173152014)	<b><u>Ending Point</u></b> 26.231896 N 88.834853 E				
11.		1 no. Vogdabari	Kaoler Mor UZR/2002 to Vhalagonj GC road via Ketkibari UPC (173154036)	<b><u>Starting Point</u></b> 26.659452 N 88.784326 E <b><u>Ending Point</u></b> 26.255702 N 88.765114 E	2.070	Nijbhogdhabari, Kaola Bhogdhabari	5 No. Bhodabari GPS	2.30 km from Proposed Flood shelter

[\*Sources of data: Field survey, April 2026]

## 2.6 Environmental/ Social Category of the subproject

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

**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 palisading, bridge & Palisading, Culvert, U-drain 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 Nilphamari District. Road wise Baseline Conditions of the community Roads status are in **Table 2.2.**

**Table 2.2 Status of Baseline Conditions of the Community Road**

Sl. No.	Road Name	Road ID	Total Length (Km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
1.	Bahagili UP office to Kishoregonj RHD at hospital bridge (UNR)	173453008	2.860	Damage/broken Paved- 0+00 to 2+860	Culvert-12.5 sqm (Ch. 010 m) Bridge-40 sqm (Ch. 2+700 m)	Not available in site	BC-0+00 to 2+860 Palisading 10 m (Ch.-0+10) Bridge with palisading 10x4 m <sup>2</sup> Ch.- 2+700
2	Laxmichap UP to Ramgonj GC via Beltalihhat and Vatiapara Nimtaler Bazar (UNR)	173543053	1.260	Damage/broken Paved- 0+00 to 1+260	U-Drain-8.4 sqm (Ch. 355 m)	Not available in site	BC-0+00 to 1+260 Palisading 10m, Ch-0+50 Culvert-1.5 mx1.5m =2.25 m <sup>2</sup> Ch.-0+353 U-Drain-6mx1m=6m <sup>2</sup> Ch.-1+108
3.	Laxmichap UP to Chowrangi hat near R & H Road (UNR)	173643015	3.250	Damage/broken Paved- 0+00 to 3+250	Bridge- 42 sqm (Ch. 365 m), U-Drain- 804 sqm (Ch. 1+275 m)	Not available in site	BC-0+00 to 3+250 U-Drain-1mx8m=8m <sup>2</sup> Ch.-3+008
4.	Chowra Baragacha UP to Nilphamari - Sonahar UZR at Maydaner hat via Arazi Dalua GPS (UNR)	173643050	1.000	Damage/broken Paved- 0+00 to 1+000	Culvert-10.45 sqm (Ch. 135 m), Culvert 11 sqm (Ch-646 m) U-drain-09 sqm (Ch-900 m)	Not available in site	BC-0+00 to 1+000  U-drain-7mx1.5m=10.5 m <sup>2</sup> Ch.-0+748
5.	Ramgonj GC to Mirgonj ViaKachary Hat (UZR)	173642015	5.860	Damage/broken Paved- 3+000 to 8+860	Culvert- 38.5 sqm (Ch. 700 m) Culvert- 14.25 sqm (Ch.	Not available in site	BC-3+00 to 8+860 Palisading 17 m Ch.-1+168

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Sl. No.	Road Name	Road ID	Total Length (Km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
					800 m) Culvert- 14.25 sqm (Ch. 1+500 m) Culvert- 14.25 sqm (Ch. 1+700 m) Culvert- 14.25 sqm (Ch. 2+700 m) Culvert- 14.25 sqm (Ch. 3+000 m) Culvert- 14.25 sqm (Ch. 3+200 m) Culvert- 14.25 sqm (Ch. 3+600 m) Culvert- 14.25 sqm (Ch. 4+100 m) Culvert- 14.25 sqm (Ch. 4+400 m) Culvert- 17.1 sqm (Ch. 4+500 m) Culvert- 17.1 sqm (Ch. 4+600 m) Bridge- 605 sqm (Ch.- 5+100 m) Culvert- 8.55 sqm (Ch. 5+200 m)		U-drain- 8sqm 15 m Ch.-1+215 Palisading 23 m Ch.-2+292 Palisading 20 m Ch.-2+420 Palisading 20 m Ch.-5+580
6.	Hazarihat G.C near Dosksa Dighi- Babrijhor G.C (Up to Upazila Boarder) (UZR)	173852008	2.340	Damage/broken Paved- 0+00 to 2+340	Bridge-60.59 sqm (Ch.200m) Side drain-10.2 sqm (ch.600m) Bridge-2310 sqm	Not available in site	BC-0+00 to 2+340 Palisading 40 m Ch-0+040 Palisading 10m Ch-0+130

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Sl. No.	Road Name	Road ID	Total Length (Km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
					(ch.900m) Culvert-12.9 sqm (ch.1+224 m)		Palisading- 15 m Ch-0+850
7.	UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder) (Village Road-B)	173850090	1.500	Damage/broken Paved- 0+00 to 1+500	Culvert-25.8 sqm (Ch.500m) Site drain-8 sqm (Ch. 800m) Culvert-13.33 sqm (Ch.1350m) Culvert-15 sqm (Ch.1480m)	Not available in site	BC-0+00 to 0+700 Culvert-2mx2m= 4m <sup>2</sup> Ch-1+500 Palisading 10 m Ch-1+490
8	Hindupara to Hamurhat (Village Road-B)	173855019	0.775	Damage/broken Paved- 0+00 to 0+775	Culvert- 14.64 sqm (Ch.14m)	Not available in site	BC-0+00 to 0+775 Palisading 15 m Ch-0+000 Palisading 26 m Ch-0+150
9	Chandia Bazar to Thakurer Hat (Village Road-A)	173854091	1.500	Damage/broken Paved- 0+00 to 1+500	Culvert- 13.75 sqm (Ch.- 80 m) Culvert- 15.75 sqm (Ch.- 0210 m) Culvert- 17.6 sqm (Ch.- 850 m)	Not available in site	BC-0+00 to 1+500 Palisading 50 m Ch-0+100
10	Gomnati Bazar RHD road to Chilahati GC road via Ketkibari UPC (UZR)	173152014	2.400	Damage/broken Paved- 2+600 to 5+000	Bridge- 65.12 sqm (Ch.- 180m) Culvert- 22.5 sqm (Ch. 700m) Culvert-62.4 sqm (Ch.- 1500m) Culvert- 18.25 sqm (Ch.- 1900m)	Not available in site	BC-0+00 to 2+400

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Sl. No.	Road Name	Road ID	Total Length (Km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
11	Kaoler Mor UZR/2002 to Vhalagonj GC road via Ketskibari UPC (Village Road-A)	173154036	2.070	Damage/broken Unpaved-0+00 to 2+070		Not available in site	BC-0+00 to 2+070  Palisading- 17m (Ch.-65m) Palisading- 35m (Right side) (Ch.-125m) Palisading-13m (L-side) (Ch.-125 m) Palisading- 20m (ch.250m) Palisading-12m (ch.370m) Palisading 28m (ch.-415m) U-Drain-0.375 sqm (ch.-1100m) U-Drain-0.375sqm (ch.-1400m) Culvert-21 cubic meters (ch.1980m)

### **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 (hats), 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, Martyred Monument, 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 Nilphamari District. The identification and documentation of these features are essential for assessing potential

environmental and social impacts associated with the community road improvement works. Detailed information on these environmental, social, economic, and cultural establishments identified during the field assessment has been systematically presented in **Table 3.1**, which provides a location-specific inventory of important features situated along or near the assessed road alignments. This inventory will help guide the implementation of appropriate mitigation measures and ensure that project activities are carried out in an environmentally and socially responsible manner.

**Table 3.1: Important features under Project Influence Area**

Division: Rangpur	District: Nilphamari		Upazila: Kishoregonj
Name of the Road:	Bahagili UP office to Kishoregonj RHD at Hospital bridge (173453008)		
Total Road Length (Km)	2.860 km		
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)	
00-300	L		Ditch (2m), Human Settlements
		R	Big trees (2m), Primary School (Flood shelter), Graveyard, Human Settlements
300-600	L		Hat Bazar, Big trees, Human Settlements
		R	Hat Bazar, Ditch (25m), Madrasha, Human Settlements
600-900	L		Masjid (2m), Graveyard, Agricultural Land, Human Settlements
		R	Agricultural Land, Human Settlements
900-1200	L		Big tree, Agricultural lands
		R	Community Clinic (3m), Big Tree, Agricultural land
1200-1500	L		Big tree, Agricultural land
		R	Big tree, Agricultural land
1500-1800	L		Big tree, Agricultural land, Human Settlements
		R	Big tree, Ditch (18m), Agricultural land, Human Settlement
1800-2100	L		Masjid (25m), Human Settlements, Graveyard
		R	Human Settlement, Ditch
2100-2400	L		Old tree, Ditch (18m), Primar school (4m), Agricultural Land, Homestead
		R	Old Tree, Eidgah, River (15m), Agricultural Land, Homestead
2400-2700	L		Agricultural lands, Human Settlement

		R	Masjid, Agricultural lands
2700-2860	L		Agricultural Land
		R	River (4m), Agricultural land
<b>Division: Rangpur</b>	<b>District: Nilphamari</b>		<b>Upazila: Sadar</b>
<b>Name of the Road:</b>	<b>Laxmichap UP to Ramgonj GC via Beltalihhat and Vatiapara Nimtaler Bazar (173543053)</b>		
Total Road Length (Km)	1.260 km		
<b>Chainage</b>	<b>Orientation (Left/Right)</b>		<b>Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)</b>
00-300	L		Pond (6m), Big trees, Human Settlement (3-5m), Agricultural land
		R	Ditch (4m), Big trees, Human Settlements (3.5m)
300-600	L		Old trees (3.5m), human Settlements
		R	Big tree (8m), Human Settlements, Madrasha (4m), Agricultural land
600-900	L		Ditch (10m), Human Settlements, Agricultural land
		R	Graveyard (3.m), Human Settlement, Agricultural land
900-1200	L		Church (4m), Litchi Garden, Agricultural land
		R	Agricultural land
1200-1260	L		Agricultural land
		R	Agricultural land
<b>Name of the Road:</b>	<b>Laxmichap UP to Chowrangi hat near R &amp; H Road (173643015)</b>		
Total Road Length (m)	3.250 km		
<b>Chainage</b>	<b>Orientation (Left/Right)</b>		<b>Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)</b>
00-300	L		Laxmichap UP office (2m), Primary school (2m), Big tree (2m), Maternity hospital, Agricultural land
		R	Playground, big trees (4m), Agricultural land
300-600	L		Graveyard, Temple (5m), Hat-bazar, Human Settlements
		R	Hat-bazar, big tree
600-900	L		Graveyard, Temple (4m), Hat-bazar, Human Settlements

		R	Hat-bazar, pond (8m), Big tree
900-1200	L		Ditches, Old trees, Forest
		R	Agricultural land, Ditch (4m), old trees
1200-1500	L		Big tree, Ditches, Human Settlements
		R	Temple (22m), Ditches, Agricultural land
1500-1800	L		Ditches, Human Settlements
		R	Big tree (30m), Ditches, Human Settlements
1800-2100	L		Big tree, Ditches, Human Settlements
		R	Kachua GPS, Big tree, Ditches, Human Settlements
2100-2400	L		Ponds, Ditches, Human Settlements, Agricultural land
		R	Ditches, Masjid (4m), human Settlements
2400-2700	L		Pond (3m), Big tree, Human Settlements, Agricultural land
		R	Ditches, Human Settlements, Agricultural Land
2700-3000	L		Kindergarten (5m), Big tree, Human Settlements
		R	Ditches, Human Settlements
3000-3250	L		Temple (2 Nos.), Union Health Complex
		R	Ditches, Bazar
<b>Name of the Road:</b>	<b>Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydaner hat via Arazi Dalua GPS (173643050)</b>		
Total Road Length (Km)	1.000 km		
<b>Chainage</b>	<b>Orientation (Left/Right)</b>		<b>Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)</b>
00-300	L		Hat-bazar, Ditches, Agricultural land, Human Settlements
		R	Hat-bazar, Union Parishod, Union Land Office, Big tree, Human Settlements
300-600	L		Kindergarten, Ditch, Agricultural land, Human Settlements
		R	Ditch, Agricultural land, Human Settlements
600-900	L		Agricultural land
		R	Agricultural land
900-1000	L		Agricultural land
		R	Agricultural land

Name of the Road:	Ramgonj GC to Mirgonj Via Kachary Hat (173642015)		
Total Road Length (m)	5.860 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Temple (10m), Human Settlements
		R	Big old tree, Agricultural land
300-600	L		Human Settlements (3 to 5m)
		R	Graveyard (10m), agricultural land
600-900	L		Ditch (3.0m), Temple
		R	Hat- Bazar, Human Settlements, Agricultural land
900-1200	L		Ditch (3.0m), Temple
		R	Human Settlements
1200-1500	L		Human Settlements
		R	Human Settlements, Agricultural Land
1500-1800	L		Big old tree, School (4.0m), Human Settlements, Agricultural Land
		R	Human Settlements, Agricultural land, Ditch (3.0m)
1800-2100	L		Temple, Community, Clinic (3.0m), Majid (2.5m), Hat-Bazar (Kachary Bazar)
		R	Hat-Bazar (Kachary Bazar), Church, Human Settlements
2100-2400	L		Hat-Bazar (Kachary Bazar), Church, Human Settlements
		R	Hat-Bazar (Kachary Bazar), Agricultural Land, Human Settlements
2400-2700	L		Agricultural Land
		R	College (4.0 m), Pond (3.0m)
2700-3000	L		Temple (10m), Big old tree, Hat Bazar (Bosunia Bazar), Human Settlements
		R	Hat Bazar (Bosunia Bazar), Church, Human Settlements
3000-3300	L		Agricultural Land, River (15m)
		R	Agricultural Land, River (4m), Human Settlements
3300-3600	L		Agricultural Land
		R	Agricultural Land, Human Settlements
3600-3900	L		Human Settlements, Ditch (3.0m), Pond (4.0m)

		R	Agricultural Land, Primary School (3.0m), Temple (4.0m)
3900-4200	L		Agricultural Land. Big old tree, Human Settlements, Ditch
		R	Agricultural Land. Big old tree, Human Settlements
4200-4500	L		Agricultural Land, Pond (4.0m), Human Settlements
		R	Human Settlements, Pond (3.0m), Temple (3.0m)
4500-4800	L		Agricultural land, Human Settlements
		R	Agricultural land, Human Settlements
4800-5100	L		Hat- Bazar (Volarghat), Human Settlements, River (50 m)
		R	Hat-Bazar (Volarghat), Human Settlements
5100-5400	L		Agricultural land, Human Settlements
		R	Agricultural Land
5400-5700	L		Temple (5m), Human Settlements
		R	Masjid (4.0m), Ditch, human Settlements
5700-5860	L		Agricultural Land
		R	Agricultural Land
<b>Division: Rangpur</b>	<b>District: Nilphamari</b>		<b>Upazila: Saidpur</b>
<b>Name of the Road:</b>	<b>Hazarihat G.C near Dosksa Dighi-Babrihor G.C (Up to Upazila Boarder) (173852008)</b>		
Total Road Length (m)	2.340 km		
<b>Chainage</b>	<b>Orientation (Left/Right)</b>		<b>Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)</b>
00-300	L		Ditches (2.5m), Agricultural land, Human Settlements
		R	Old tree, Agricultural land, Human Settlements
300-600	L		Hat-bazar, Human Settlements
		R	Pond, Hat-bazar, Human Settlements
600-900	L		Hat-bazar, Human Settlements
		R	Masjid, Agricultural lands, Human Settlements
900-1200	L		Agricultural land
		R	Agricultural land, Human settlements
1200-1500	L		Hat- bazar, Human settlements
		R	Masjid, Hat-bazar, Human Settlements
1500-1800	L		Chora School, (10m), Eidgah, Agricultural land

		R	Shops, Agricultural land, Human Settlements
1800-2100	L		Agricultural land
		R	Human Settlements, Shops
2100-2340	L		Agricultural lands, Human Settlements
		R	Shops, human Settlements
<b>Name of the Road:</b>	<b>UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder) (173854090)</b>		
Total Road Length (m)	1.500 km		
<b>Chainage</b>	<b>Orientation (Left/Right)</b>	<b>Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)</b>	
00-300	L		Shops, human settlements
		R	Temple(10m), Human Settlements
300-600	L		Shops, Agricultural lands, Human Settlements
		R	Shops, Primary School (3.0m), Human Settlements
600-900	L		Temple (5m), Human Settlements, Ponds(3m)
		R	Human Settlements
900-1200	L		Agricultural lands
		R	Agricultural lands
1200-1500	L		Pons (3m), Human Settlements
		R	Agricultural lands, Human Settlements
<b>Name of the Road:</b>	<b>Hindupara to Hamurhat (173855019)</b>		
Total Road Length (Km)	0.775 km		
<b>Chainage</b>	<b>Orientation (Left/Right)</b>	<b>Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)</b>	
00-300	L		Pond (2.5m), Agricultural Land
		R	Pond (2.5m), Human Settlements, Agricultural lands
300-600	L		Shops, Agricultural lands
		R	Hat-Bazar, Agricultural land
600-775	L		Hat-Bazar, Agricultural land
		R	Hat-Bazar, Agricultural land
<b>Name of the Road:</b>	<b>Chandia Bazar to Thakur Hat (173854091)</b>		

Total Road Length (Km)	1.500 km	
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L	Hat-Bazar, Human Settlements, Agricultural Land
	R	Ponds (2.5m), Hat-Bazar, Temple (3.0m), Human Settlements
300-600	L	Human Settlements, Agricultural Land
	R	Agricultural Land
600-900	L	Agricultural Land
	R	Big old tree, Human Settlements, Agricultural Land
900-1200	L	Human Settlements, Agricultural Land
	R	Agricultural Land
1200-1500	L	Primary school (4.0m), Hat-Bazar, Agricultural Land
	R	Hat-Bazar, Agricultural Land
<b>Division: Rangpur</b>	<b>District: Nilphamari</b>	<b>Upazila: Domar</b>
<b>Name of the Road:</b>	<b>Gomnati Bazar RHD road to chilahati GC road via Ketkibari UPC (173152014)</b>	
Total Road Length (Km)	2400 km	
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
000 - 300	L	River(15m), Agricultural land, Human Settlement
	R	Agricultural land, Human Settlement
300-600	L	Primary school (1.0m), Agricultural land, Human Settlement
	R	Agricultural land, Human Settlement
600-900	L	Agricultural land, Human Settlement
	R	Agricultural land, Human Settlement
900-1200	L	Shops, Agricultural land, Human Settlement
	R	School (5.0m), Pond (4.0m), Human Settlement
1200-1500	L	Primary school (5.0m), Agricultural Land
	R	Ditches (3.0m), Agricultural land, River (50.0m)
1500-1800	L	Big old tree, Agricultural land, Human Settlement
	R	Masjid (3.0m), Pond (5.0m), Human Settlement
1800-2100	L	Big old tree, Agricultural land, Human Settlement

		R	Agricultural land, Human Settlement
2100-2400	L		Shops, Agricultural land, Human Settlement
		R	Pond (4.0m), Agricultural land, Human Settlement
<b>Name of the Road:</b>	<b>Kaoler Mor UZR/2002 to Vholagonj GC road via Murad Chairman House (173154036)</b>		
Total Road Length (Km)	2.070km		
<b>Chainage</b>	<b>Orientation (Left/Right)</b>	<b>Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)</b>	
000-300	L		Pond (3.0), Masjid, Human settlement, Agricultural land
		R	Shops (2.0m), Pond 92.5m), Human Settlement, Agricultural land
300-600	L		Human Settlement, Agricultural land, Ditch (3.0m), Pond (2.5m), Masjid
		R	Pond (2.0m), Human Settlement, Agricultural land
600-900	L		Hat-Bazar, Agricultural Land
		R	Hat-Bazar, Human Settlement, Agricultural land
900-1200	L		Human Settlement, Agricultural land
		R	Human Settlement, Agricultural land
1200-1500	L		Human Settlement, Agricultural land
		R	Human Settlement, Agricultural land
1500-1800	L		Human Settlement, Agricultural land
		R	Agricultural land
1800-2070	L		Human Settlement, Agricultural land
		R	Agricultural land

(\*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 Nilphamari 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 Nilphamari District**

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
1.	Bahagili UP office to Kishoregonj RHD at hospital bridge	<ul style="list-style-type: none"> <li>Dust generation and air pollution during earthworks, transportation of construction materials, and road surface improvement which may affect nearby settlements and the area around Bahagili UP office.</li> <li>Noise disturbance from construction machinery and vehicles, particularly affecting nearby residents and religious activities at the mosque.</li> <li>Temporary disruption of local movement and access for residents, pedestrians, and local vehicles during road rehabilitation activities.</li> <li>Occupational and community safety risks due to movement of construction vehicles and operation of equipment along the road corridor.</li> </ul>	<ul style="list-style-type: none"> <li>Regular water spraying on exposed soil and road surfaces, covering of construction materials during transport, limiting vehicle speed, and maintaining machinery to control dust emissions.</li> <li>Restrict construction work during sensitive hours (especially prayer times), maintain equipment to reduce noise, and avoid unnecessary honking or heavy machinery operation near the mosque and office area.</li> <li>Maintain temporary access pathways, install warning signs and barricades, implement a basic traffic management plan, and inform local residents in advance about construction schedules.</li> <li>Provide personal protective equipment (PPE) to workers, install safety signage and barricades, conduct safety briefings for workers, and ensure safe movement of construction vehicles within the work zone.</li> </ul>
2.	Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtalar Bazar	<ul style="list-style-type: none"> <li>Dust generation and air pollution from earthworks, transportation of materials, and road surface preparation which may affect nearby settlements and roadside shops.</li> <li>Noise disturbance from construction equipment and vehicles, particularly affecting nearby households, schools, and local religious establishments.</li> </ul>	<ul style="list-style-type: none"> <li>Regular water spraying on exposed surfaces, covering of construction materials during transport, maintaining vehicles and limiting speed near settlements.</li> <li>Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction work during prayer times or school hours where feasible.</li> <li>Install temporary traffic management signs, maintain alternate access routes, and ensure safe pedestrian</li> </ul>

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		<ul style="list-style-type: none"> <li>• Temporary disruption to local traffic and pedestrian movement during culvert repair, earthworks, and road surface improvement.</li> <li>• Potential drainage blockage and localized waterlogging due to damaged culverts or improper construction practices.</li> </ul>	<p>passage during construction.</p> <ul style="list-style-type: none"> <li>• Rehabilitate and maintain existing culverts and cross-drainage structures, ensure proper alignment of drainage channels, and keep drainage paths clear during construction.</li> </ul>
3.	Laxmichap UP to Chowrangi hat near R & H Road	<ul style="list-style-type: none"> <li>• Noise and vibration from construction equipment disturbing nearby residents, schools, and local community activities.</li> <li>• Temporary disruption of local traffic and pedestrian movement along the road corridor during construction activities.</li> <li>• Minor removal of roadside vegetation or small trees within the existing right of way.</li> <li>• Risk of soil erosion or embankment instability particularly during the rainy season.</li> <li>• Community safety risks due to movement of construction vehicles near settlements and agricultural fields.</li> <li>• Temporary disturbance to roadside economic activities and access to houses or agricultural land.</li> </ul>	<ul style="list-style-type: none"> <li>• Restrict construction activities to daytime hours, maintain machinery properly, and avoid excessive noise near sensitive locations.</li> <li>• Install warning signs and barricades, ensure temporary access for pedestrians and local vehicles, and implement a basic traffic management plan.</li> <li>• Minimize cutting of trees and vegetation; undertake compensatory roadside tree plantation after construction where feasible.</li> <li>• Maintain alternative access paths where required, schedule works in sections to minimize disruption, and consult with local residents before major activities.</li> </ul>
4.	Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydaner hat via Arazi Dalua GPS	<ul style="list-style-type: none"> <li>• Dust generation from earthworks, excavation, and movement of construction vehicles affecting nearby households and roadside shops.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular water spraying on exposed surfaces, covering of construction materials during transport, and limiting vehicle speed within settlements.</li> <li>• Restrict high-noise activities to daytime hours, maintain</li> </ul>

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		<ul style="list-style-type: none"> <li>Noise disturbance from operation of construction machinery near residential areas, schools, and religious establishments.</li> <li>Temporary traffic congestion and disruption of local mobility during road repair and culvert improvement works.</li> <li>Community safety risks due to movement of heavy vehicles and construction equipment near settlements and schools.</li> <li>Temporary disturbance to local economic activities such as roadside shops and vendors.</li> </ul>	<ul style="list-style-type: none"> <li>machinery properly, and avoid construction near sensitive locations during school or prayer times.</li> <li>Implement traffic management measures including temporary diversions, warning signs, flagmen, and maintaining access to houses and local roads.</li> <li>Install warning signs, safety barriers, and speed control measures; assign flagmen in busy locations to guide traffic and pedestrians.</li> <li>Dispose excess materials at designated sites, reuse suitable materials for road embankment, and maintain proper waste management practices.</li> <li>Maintain access to shops and markets during construction, conduct works in phases, and coordinate with local community representatives to minimize disruptions.</li> </ul>
5.	Ramgonj GC to Mirgonj ViaKachary Hat	<ul style="list-style-type: none"> <li>Dust generation during earthworks, road resurfacing, and material transportation, affecting nearby homes, shops, schools, and roadside settlements.</li> <li>Temporary obstruction of pedestrian and local traffic, creating difficulties for villagers, school children, and vendors.</li> <li>Blockage or inadequate cross-drainage and culverts, leading to waterlogging and localized flooding along the road.</li> <li>Generation of construction waste and debris,</li> </ul>	<ul style="list-style-type: none"> <li>Regular sprinkling of water on roads, covering transport vehicles, limiting speed of vehicles, and maintaining construction equipment to minimize dust.</li> <li>Construct protection walls, palisading walls, and guide walls where required; use compaction and proper grading to stabilize embankments.</li> <li>Maintain access to businesses, communicate construction schedule in advance, and coordinate temporary relocation or alternate access routes if required.</li> <li>Ensure road maintenance after construction, integrate</li> </ul>

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		<p>which may pollute nearby fields or drainage channels if improperly managed.</p> <ul style="list-style-type: none"> <li>Disturbance to local livelihoods, including roadside vendors, small shops, and farmers during construction activities.</li> </ul>	<p>road safety features, and promote roadside plantation for environmental enhancement.</p>
6.	<p>Hazarihat G.C near Dosksa Dighi-Babrijhor G.C (Up to Upazila Boarder)</p>	<ul style="list-style-type: none"> <li>Temporary obstruction of local traffic and pedestrian movement during culvert replacement and embankment works.</li> <li>Soil erosion and slope instability along embankment sections, especially in low-lying areas prone to flooding.</li> <li>Waterlogging and drainage blockage due to construction near existing culverts and cross drains.</li> <li>Waste generation from construction debris and excavated soil causing visual pollution and potential blockage.</li> <li>Community health and safety risks from heavy vehicles and construction near schools, mosques, and settlements.</li> <li>Enhanced disaster resilience and evacuation access to nearby flood-prone areas and embankments.</li> <li>Potential cultural sensitivity issues near Narikelbari Eidgha and local community gathering areas.</li> </ul>	<ul style="list-style-type: none"> <li>Implement traffic management plan, provide warning signs, maintain alternative routes, and allow temporary pedestrian access.</li> <li>Stabilize slopes with palisading or protection walls, compaction of earthworks, and turfing or roadside plantation.</li> <li>Clean and rehabilitate existing drains, construct additional drainage where needed, and ensure water flow during monsoon.</li> <li>Proper disposal at designated sites, reuse suitable materials for embankment, and maintain clean worksite.</li> <li>Climate-resilient Road design, improved drainage, and clear linkages with other shelters.</li> <li>Maintain buffer zones around religious or cultural sites, avoid construction activities during events, and consult local leaders before works.</li> </ul>

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
7.	UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder)	<ul style="list-style-type: none"> <li>• Dust generation during earthworks, road surface improvement, and material transport affecting nearby households, schools, and shops.</li> <li>• Noise and vibration from machinery and vehicles disturbing residents, nearby schools, and religious establishments.</li> <li>• Temporary disruption of pedestrian and vehicular traffic along the road.</li> <li>• Soil erosion and embankment instability due to excavation, filling, or rainfall.</li> <li>• Removal of roadside trees or vegetation for road widening or protection works.</li> <li>• Construction waste and debris generation that may affect nearby settlements or drainage.</li> <li>• Disturbance to agricultural lands adjacent to the road during earthwork and material storage.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular water spraying on construction sites and road surfaces, covering trucks carrying materials, and minimizing speed of vehicles.</li> <li>• Stabilize embankments with compaction, turfing, palisading walls, and guide/protection walls where required.</li> <li>• Avoid unnecessary encroachment, fence off agricultural plots, and restore disturbed lands after construction.</li> <li>• Install speed limits, warning signs, temporary barriers, and raise awareness among local residents.</li> <li>• Training the labors to work carefully not to spoil any crops</li> </ul>
8.	Hindupara to Hamurhat	<ul style="list-style-type: none"> <li>• Temporary obstruction of traffic and pedestrian movement along the road.</li> <li>• Erosion of road shoulders and embankments during earthworks or heavy rainfall.</li> <li>• Waterlogging and improper drainage due to old or insufficient culverts and cross drains.</li> <li>• Safety risks for workers including accidents, injuries, and exposure to dust or noise.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement traffic management plans; provide alternative access or temporary detours; install warning signs and barricades.</li> <li>• Stabilize embankments with turfing, palisading walls, guide/protection walls; proper compaction and grading of shoulders; maintain drainage.</li> <li>• Rehabilitate existing culverts; construct additional cross-drains where needed; ensure free flow of water</li> </ul>

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		<ul style="list-style-type: none"> <li>• Safety risks for local communities from heavy machinery, trucks, and construction activities.</li> <li>• Access disruption to schools, mosques, and markets along the road alignment.</li> <li>• Impact on small roadside businesses or vendors due to construction activities.</li> <li>• Potential soil and water contamination from fuel, lubricants, and construction materials.</li> <li>• Improved disaster resilience and evacuation route during floods or emergencies.</li> <li>• Enhancement of local environment and aesthetics along the road corridor.</li> </ul>	<p>during and after construction.</p> <ul style="list-style-type: none"> <li>• Avoid encroachment on crop areas; coordinate with landowners; restore disturbed farmland after construction.</li> <li>• Install road signs, barriers, and speed control measures; conduct safety awareness sessions for residents, students, and road users.</li> <li>• Provide temporary access; schedule work to avoid peak market hours; inform vendors in advance.</li> <li>• Store fuel and chemicals in safe, designated areas; prevent leakage; maintain spill containment measures; avoid disposal in drains or water bodies.</li> </ul>
9.	Chandia Bazar to Thakur Hat	<ul style="list-style-type: none"> <li>• Dust generation during earthworks, road surface improvement, and material transport affecting nearby households, schools, and shops.</li> <li>• Temporary obstruction of local traffic and pedestrian movement during culvert replacement and embankment works.</li> <li>• Noise and vibration from construction equipment disturbing nearby residents, schools, and local community activities.</li> <li>• Temporary disturbance to local economic activities such as roadside shops and vendors.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular water spraying on construction sites and road surfaces, covering trucks carrying materials, and minimizing speed of vehicles.</li> <li>• Implement traffic management plan, provide warning signs, maintain alternative routes, and allow temporary pedestrian access.</li> <li>• Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction near sensitive locations during school or prayer times.</li> <li>• Maintain access to shops and markets during construction, conduct works in phases, and coordinate with local community representatives to minimize disruptions.</li> </ul>

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
10.	Gomnati Bazar RHD road to Chilahati GC road via Ketkibari UPC	<ul style="list-style-type: none"> <li>• Dust generation during earthworks, road surface improvement, and material transport affecting nearby households, schools, and shops.</li> <li>• Temporary obstruction of local traffic and pedestrian movement during culvert replacement and embankment works.</li> <li>• Noise and vibration from construction equipment disturbing nearby residents, schools, and local community activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular water spraying on construction sites and road surfaces, covering trucks carrying materials, and minimizing speed of vehicles.</li> <li>• Implement traffic management plan, provide warning signs, maintain alternative routes, and allow temporary pedestrian access.</li> <li>• Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction near sensitive locations during school or prayer times.</li> </ul>
11.	Kaoler Mor UZR/ 2002 to Vholagachi GC road via Murad Chairman House	<ul style="list-style-type: none"> <li>• Dust generation from earthworks, excavation, and movement of construction vehicles affecting nearby households and roadside shops.</li> <li>• Noise disturbance from operation of construction machinery near residential areas, schools, and religious establishments.</li> <li>• Temporary traffic congestion and disruption of local mobility during road repair and culvert improvement works.</li> <li>• Community safety risks due to movement of heavy vehicles and construction equipment near settlements and schools.</li> </ul>	<ul style="list-style-type: none"> <li>• Regular water spraying on exposed surfaces, covering of construction materials during transport, and limiting vehicle speed within settlements.</li> <li>• Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction near sensitive locations during school or prayer times.</li> <li>• Implement traffic management measures including temporary diversions, warning signs, flagmen, and maintaining access to houses and local roads.</li> <li>• Install warning signs, safety barriers, and speed control measures; assign flagmen in busy locations to guide traffic and pedestrians.</li> </ul>

## **5.0 Environmental and Social Management Plan (ESMP)**

### **5.1 Purpose of the ESMP**

The purpose of the Environmental and Social Management Plan (ESMP) for the sub-project “Improvement of Community Infrastructure, Growth Centers, others roads and 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—enhanced connectivity, safer access to flood shelters, and improved resilience of rural communities—while 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 Kishoregonj, Saidpur, Domar and Nilphamari Sadar 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	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> <li>Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people.</li> <li>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.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> </ul>	PIU	Social Development

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Stage		<ul style="list-style-type: none"> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>		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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>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</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>allocation for taking care of those trees for 12 months has to be ensured.</p> <ul style="list-style-type: none"> <li>• Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility	<ul style="list-style-type: none"> <li>• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff.</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	services	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> <li>• 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.</li> <li>• The contractor must ensure sound environment for the local residents near the sub project site.</li> </ul>		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>• Noise producing vehicles and equipment will be keep in maintenance regularly.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• Acceptable range of emission of CO, particulate matter [SPM (<b>Suspended particulate matter</b>), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>every site.</p> <ul style="list-style-type: none"> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>		
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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</li> </ul>	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
		<p>authority need to be taken before extraction or setting up bore wells.</p> <ul style="list-style-type: none"> <li>• Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site.</li> <li>• Local community must be consulted before any construction works start.</li> </ul>		
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking</li> </ul>	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
		<p>purpose.</p> <ul style="list-style-type: none"> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>		
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor</li> <li>• Waste from equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Ring slab septic tank will be installed before starting</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>construction works in order to provide a better sanitation facility to the workers and staffs.</p> <ul style="list-style-type: none"> <li>• Working areas are kept clean and tidy at all times.</li> <li>• Construction site is to be checked for spills of substances i.e. chemical, oil, etc.</li> <li>• Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> <li>• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road.</li> <li>• Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.</li> </ul>	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	<p>Health &amp; Safety Risks:</p> <ul style="list-style-type: none"> <li>• The potential for exposure to</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> </ul>	Contractor	Environmental Consultant as well

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	<p>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.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>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.</li> <li>All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems.</li> <li>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</li> </ul>		<p>as Social Development and Gender Specialists of PIU</p>

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		<p>plan will exist in sub-project area.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The earthwork sites where exposed land surface is</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC.

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		<p>vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.)</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• All precautions to store chemicals/oil/fuel properly so that no chance of spill.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		
Construction Activity	<p>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:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to</li> </ul>	<ul style="list-style-type: none"> <li>• 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</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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	workers and local community.	<p>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.</p> <ul style="list-style-type: none"> <li>The contractor must arrange the cancellation of all temporary services.</li> </ul>		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>Preventative maintenance schedule should be followed.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction Stage	Rigorous Monitoring and Report Preparation and Submission	<ul style="list-style-type: none"> <li>The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU
Operation &	Road Safety. Impacts include:	Road safety issues can be minimized in following ways:	UE (Upazila	District Executive

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Maintenance	<ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	Engineer)	Engineer, LGED
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	UE	District XEN, LGED
Operation & Maintenance	Pollution of water bodies	<ul style="list-style-type: none"> <li>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</li> </ul>	PIU	PSC / UP representative

### 5.3 Monitoring of ES Performance

An effective monitoring system is crucial to ensure the proper implementation of preventive, management, and mitigation measures outlined in the ESMP and ESCOPs throughout both the construction and operational phases of the community roads improvement sub-project. 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 (DSC), while also involving relevant institutions such as the local community stakeholders where applicable.

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, the World Bank Environmental and Social Framework (ESF), and the internal Environmental and Social Management Guidelines of the Local Government Engineering Department.

**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 and Dust Control	Particulate matter, visible dust at site, dust suppression measures	Weekly during excavation, earthwork, demolition	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Visual inspection, photo documentation
2	Noise and Vibration	Noise level (dB) near sensitive receptors; vibration during pile driving/demolition	Weekly or during pile driving; daily for high-impact works	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Noise meter readings, community feedback
3	Water Quality and Drainage	Turbidity, pH, oil/grease presence in runoff; drainage flow condition	Monthly during rainy season; after major rainfall	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Water sampling, field observation
4	Soil Erosion and Sedimentation	Silt traps, slope stabilization, drainage cleanliness	Weekly during earthworks and monsoon	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Visual inspection, photographs

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
5	Waste Management (Sewage and Solid wastes)	Sanitary Latrines, Segregation, storage, disposal of solid and hazardous waste; reuse of materials	Weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	No. of latrines, waste bins, disposal receipts, site inspection
6	Excavation of road or underground	Dust suppression, debris containment, PPE use, safety barrier, debris reuse/disposal	Daily during excavation	Contractor (Safety Officer); PIU/D&SC verification	OHS checklist, photo record, waste log
7	Pile Driving (SOP)	Noise/vibration limits, use of vibration damping, safety cordons, PPE compliance	Daily during piling operations	Contractor (Engineer); PIU/D&SC (Verification)	Noise/vibration records, site inspection
8	Temporary Schooling facilities	School structure with toilets as per design	Before Construction	Contractor (Engineer); PIU/D&SC (Verification)	Visual Inspection; Interview of Students, teachers
9	Material Sourcing	Quality and source check for sand, brick, aggregate, timber suppliers	Per delivery	Contractor; verified by PIU	Delivery challan, supplier permit
10	Material Storage and Fencing	Storehouse, Coverage over materials, Spillage protection of hazardous materials, worksite and inner fencing	Before Construction and maintaining all through. Daily checking of spillage.	Contractor (Implementation); PIU/D&SC (verification)	Inspection, Incidents reporting, GRM logbook
11	Tree Cutting and Compensatory Plantation	Tree removal count, plantation ratio (3:1), species survival rate	Before construction; quarterly during plantation period	Contractor (Implementation); PIU/D&SC (verification)	Tree register, survival verification report
12	Occupational Health and Safety (OHS)	PPE use, toolbox talks, safety signage, first-aid, accident record	Daily site check; monthly reporting	Contractor (Safety Officer); PIU/D&SC (verification)	Safety checklist, accident log, training record
13	Community Health and Safety	Access control, fencing, signage, traffic management, GRM complaints	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Visual inspection, TMP, GRM log
14	Labour and Working Conditions	Wage payment, working hours, absence of child/forced labour, sanitation, accommodation	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Worker interview, payroll record, inspection

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
15	Local Labor Engagement	No. of local, female and physically challenged labors engaged	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Labor logbook, Payroll record, inspection
16	Gender and GBV/SEA Risk Management	Code of Conduct signed, GBV training conducted, availability of female grievance	Quarterly	Contractor; D&SC Gender Consultant	Training records, attendance list, GRM log
17	Cultural and Religious Sensitivity	Consultation records with mosque/madrassa committees; work-hour adjustments	As required	Contractor (Implementation); PIU/D&SC (verification)	Meeting minutes, site observation
18	Land Use and Ownership	Land ownership verification, voluntary donation documentation	Before construction	PIU/D&SC Social Specialist	Legal documents, meeting records
19	Stakeholder Engagement and Disclosure	Number of consultations held; disclosure signage posted; feedback addressed	Quarterly	Contractor (Implementation); PIU/D&SC (verification)	Consultation minutes, disclosure photos
20	Grievance Redress Mechanism (GRM)	Number of complaints received/resolved; resolution time	Monthly	Contractor (recording); PIU (review)	GRM register, resolution summary
21	Biodiversity Protection	Protection of nearby beels/canals; no dumping of waste or fill	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Site observation, photographic evidence
22	Emergency Preparedness and Fire Safety	Fire extinguisher, lightning protection, evacuation signage	Monthly	Contractor; PIU	Site inspection, safety drill record
23	Post-Construction Site Restoration	Debris clearance, landscaping, reinstatement of access roads	After construction completion	Contractor; PIU/D&SC verification	Site handover inspection, photos
24	Training and Capacity Building	Number of trainings on ES, OHS, GBV, emergency response	Quarterly	PIU/D&SC; Contractor	Attendance, training reports
25	Compliance Reporting	Submission of monthly ESMP implementation reports to PIU/D&SC	Monthly	Contractor (Implementation); PIU (verification)	Report submission record

## 5.4 Capacity Development Measures

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

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

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

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

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Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
3	<b>Contractor's Management Staff</b>	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	<b>Contractor's Workforce (Skilled &amp; Unskilled Workers)</b>	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	<b>Community Representatives / Local Stakeholders</b>	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	<b>Gender Focal Points (PIU, Contractor, Consultant)</b>	Gender and Social Inclusion (GESI) Training	To promote integration of gender considerations into project implementation.	- Gender Action Plan implementation- GBV/SEA/SH mitigation & referral pathways- Inclusive employment & equal pay- Women's participation in decision-making	At project start & mid-term	PIU Gender Specialist / External Expert

## 5.5 Tree Plantation Plan

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

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

The initiative aims to restore biodiversity, enhance greenery, prevent erosion, improve aesthetics, and ensure long-term environmental sustainability while supporting local employment. However, a generic list of species to be used for the plantation is given below in **Table 5.4**, and it is to be noted that the tree species should be native to the project location.

**Table 5.4: The List of Selected Species for Tree Plantation**

SL No.	Local Name	English Name	Scientific Name
<b>Timber Tree</b>			
1	Debdaru	Indian Mast Tree	<i>Polyalthia longifolia</i>
2	Gurjan	Gurjun	<i>Dipterocarpus turbinatus</i>
3	Silkoroi	White Siris	<i>Albizia procera</i>
4	Segun	Teak	<i>Tectona grandis</i>
5	Akashmoni	Earleaf Acacia	<i>Acacia auriculiformis</i>
6	Katbadam	Bengal almond	<i>Terminalia calappa</i>
7	Jarul	Giant Crape-myrtle	<i>Lagerstroemia speciosa</i>
	Punal	Asian indigo	<i>Callophyllum inophyllum</i>
8	Mahogany	Mahogany	<i>Swietenia mahagoni</i>
9	Epil-Ipil	White Lead Tree	<i>Leucaena leucocephala</i>
<b>Fruit Tree</b>			
10	Am	Mango	<i>Mangifera indica</i>
11	Kathal	Jackfruit	<i>Artocarpus heterophyllum</i>
12	Peyara	Guava	<i>Psidium guajava</i>
13	Jam	Black Berry	<i>Syzygium cumini</i>
14	Khejur	Date Palm	<i>Phoenix sylvestris</i>
15	Tal	Palm	<i>Borossus flabelliformis</i>

SL No.	Local Name	English Name	Scientific Name
16	Amra	Hogplum	<i>Spondias pinnata</i>
17	Narikel	Coconut	<i>Cocos nucifera</i>
18	Chalta	Elephant Apple	<i>Dillenia indica</i>
19	Kul/Boroi	Jujube	<i>Ziziphus mauritiana</i>
20	Lichu	Lychee	<i>Litchi chinesis</i>
21	Tetul	Tamarind	<i>Temarindus indica</i>
22	Jambura	Pumelo	<i>Citrus grandis</i>
23	Bel	Wood Apple	<i>Aegle marmelos</i>
24	Kodbel	Wood Apple	<i>Limonia acidissima</i>
25	Jolpai	Olive	<i>Elaeocarpus floribundus</i>
<b>Medicinal Tree</b>			
26	Neem	Indian lilac	<i>Azarlira chlaindica</i>
27	Arjun	Arjun	<i>Terminalia arjuna</i>
28	Amlaki	Indian gooseberry	<i>Phyllanthus emblica</i>
29	Horitoki	Chebulic Myrobalan	<i>Terminalia chebula</i>
30	Bohera	Beleric Myrobalan	<i>Terminalia belliricha</i>
31	Akando	White Aak Plant	<i>Calotropis gigantea</i>
<b>Fuel Tree</b>			
32	Shimul	Silk Cotton Tree	<i>Bombox ceiba</i>
33	Gab	Malabar ebony	<i>Diospyros spp.</i>
34	Kadam	Burflower Tree	<i>Anthocephalus chinensis</i>
35	Jhau	Tamarisk	<i>Tamarix dioica</i>
36	Pituli	Patchouli	<i>Trewta nudiflora</i>

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

Under the proposed tree plantation plan:

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

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

**Table 5.6: SOP for Tree Plantation at road side**

Plant Selection	Height and Spacing	Planting and Fencing Details	Maintenance
<ul style="list-style-type: none"> <li>• Most types of trees average height should be more than 1 meter which equals more than 3ft. at the time of planting;</li> <li>• As all tree heights are not same, at the time of some specific tree plantation Upazila and Contractor should communicate with Consultant Team;</li> <li>• Tree plantation spacing should be 3m c/c from one tree to another tree</li> </ul>	<p>Preparation of plantation pits will involve excavation of pits measuring 600 mm × 600 mm × 450 mm. The excavated soil will be mixed with loamy silty soil and cow dung to create suitable planting media. Saplings will then be planted and securely supported using 1800 mm long Borrak bamboo stakes, tied with jute rope, including the provision of 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.</p>	<ul style="list-style-type: none"> <li>• Watering: needs two times in a day; Prefer especially rainy season for tree plantation if it is in other season then proper watering is needed;</li> <li>• Needs weed out grass and other unnecessary vegetation</li> <li>• Need regular monitoring by the Contractor till the end of defect liability period and later the Office of the Upazila Engineer.</li> </ul>	

## 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 eight identified community roads across Kishoregonj, Saidpur, Domar and Nilphamari Sadar Upazilas. The detailed road wise estimate, with tentative cost for implementing the ESMP, is given in annexure 1. These costs are specifically allocated to implement mitigation measures and safeguard activities that address environmental and social risks during construction and operation phases. Key components included in the BOQ for ES enhancement works comprise dust suppression through regular water spraying,

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

## 6.0 PUBLIC CONSULTATION MEETING

### 6.1 Stakeholder Engagement

Stakeholder engagement is a critical component for ensuring that the perspectives, concerns, and suggestions of affected communities and relevant stakeholders are incorporated into project planning and implementation, a comprehensive series of stakeholder engagement and site-specific consultation meetings were conducted for all proposed shelter sites. These meetings were held from March 30 to April 09, 2026. Public consultation meetings were conducted in the alongside covering of the eight (11) 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 Nilphamari 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—including 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.	Bahgili UP office to Kishoregonj RHD at hospital bridge	03.04.2026	Bahagili Bazar	The local individuals, elites, chairman and/or member of respective Union Parishad, farmer, businessmen, religious leaders, women, fishermen etc.	09
2.	Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler Bazar	30.03.2026	Dubachuri Bazar		05
3.	Laxmichap UP to Chowrangi hat near R & H Road	30.03.2026	Laxmichap Union Parishod		09
4.	Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydaner hat via Arazi Dalua GPS	30.03.2026	Chowra Baragacha Bazar		07
5.	Ramgonj GC to Mirgonj ViaKachary Hat	30.03.2026	Laxmichap Bazar		10
6.	Hazarihat G.C near Dosksa Dighi-Babrihhor G.C (Up to Upazila Boarder)	04.04.2026	Chowra Bazar		06
7.	UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder)	04.04.2026	Balapara Bazar		07
8.	Hindupara to Hamurhat	09.04.2026	Panisala & Hamurhat		06
9	Chandia Bazar to Thakur Hat	09.04.2026	Kodhopara & Boro dhola danga para		07
10	Gomnati Bazar RHD road to Chilahati Road	31.03.2026	Gomnati Bazar		05
11	Kaoler Mor UZR/2002 to Vholagonj GC road	08.04.2026	Nijvogdabari Bazar		11





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

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

During the public consultation meetings conducted in the project influence areas of the proposed community road sub-projects in Nilphamari District, local community members, representatives of local government institutions, teachers, farmers, and other stakeholders actively shared their views regarding the planned interventions under the project. Participants highlighted several key issues including poor road conditions during the rainy season, inadequate drainage facilities causing waterlogging, damaged culverts restricting natural water flow, and erosion of road embankments in certain vulnerable sections. Community members also expressed concerns about temporary disturbances during construction such as dust, noise, traffic obstruction, and safety risks for school children and pedestrians.

In response to these concerns, participants recommended ensuring proper rehabilitation of existing culverts and cross drains, construction of protective structures where erosion occurs, implementation of effective dust and noise control measures during construction, and installation of road safety signs near schools, markets, and densely populated areas. They also suggested maintaining uninterrupted access for local residents and agricultural transport during construction activities and giving priority to local labor employment where possible. Based on these discussions, participants recommended that the project should ensure proper rehabilitation and installation of culverts and cross-drainage structures to facilitate natural water flow and prevent water stagnation. They also suggested strengthening road embankments and constructing protection walls or palisading structures at vulnerable locations to reduce erosion and structural damage. Community members emphasized the need for road safety measures such as warning signs, speed breakers near educational institutions, and improved visibility at road intersections. In addition, participants recommended minimizing construction disturbances, controlling dust and noise during construction activities, and ensuring that local access roads remain open during the implementation period. The issues and recommendations collected during these consultations have been summarized and documented in **Table 6.2** (in the next page), 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.	Bahagili UP office to Kishoregonj RHD at hospital bridge (173453008)	03/04/2026 and in a shop of a market (starting of Bahagili UP office)	<ul style="list-style-type: none"> <li>Existing road surfaces are damaged and become muddy and difficult to use during the rainy season.</li> <li>Some road sections remain submerged due to poor drainage and low elevation.</li> <li>Need to ensure safe and quick access to flood shelters during emergencies.</li> <li>Construction waste may be dumped improperly and affect nearby land or water bodies.</li> <li>Potential impact on nearby agricultural lands and irrigation channels.</li> <li>Need for community awareness regarding project activities and safety measures.</li> </ul>	<ul style="list-style-type: none"> <li>Improve road pavement and strengthen the road base to ensure all-weather accessibility.</li> <li>Raise the road level where necessary and construct adequate side drains and cross-drainage structures.</li> <li>Design road improvements to ensure uninterrupted connectivity to nearby flood shelters.</li> <li>Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements.</li> <li>Conduct community awareness programs and maintain regular communication with local stakeholders.</li> <li>Encourage contractors to prioritize hiring local workers where possible.</li> </ul>
2.	Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler Bazar (173543053)	30/03/2026 and in front of a house at lakxmichup	<ul style="list-style-type: none"> <li>Dust pollution during construction may affect nearby houses, schools, and markets.</li> <li>Noise and disturbance may occur near schools, mosques, and residential areas.</li> <li>Traffic congestion and safety risks may occur during construction activities.</li> <li>Concerns about removal of roadside trees during road widening.</li> <li>Temporary disruption to access of local houses, shops, and agricultural lands during construction.</li> </ul>	<ul style="list-style-type: none"> <li>Regular water spraying and proper management of construction materials to minimize dust generation.</li> <li>Restrict heavy construction activities during sensitive hours and maintain noise control measures.</li> <li>Prepare and implement a traffic management plan including warning signs, barriers, and designated detours.</li> <li>Avoid unnecessary tree cutting; where unavoidable, implement compensatory plantation programs.</li> <li>Maintain temporary access routes and inform</li> </ul>

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			<ul style="list-style-type: none"> <li>• Need to ensure safe and quick access to flood shelters during emergencies.</li> <li>• Risk of erosion and damage to road shoulders during heavy rainfall.</li> </ul>	<p>the community in advance about construction schedules.</p> <ul style="list-style-type: none"> <li>• Design road improvements to ensure uninterrupted connectivity to nearby flood shelters.</li> <li>• Strengthen road shoulders and provide slope protection and erosion control measures.</li> <li>• Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements.</li> <li>• Ensure proper drainage design and avoid blockage of irrigation channels during construction.</li> </ul>
3.	Laxmichap UP to Chowrangi hat near R & H Road (173643015)	30/03/2026 and UP office of Laxmichap	<ul style="list-style-type: none"> <li>• Waterlogging occurs in some low-lying sections of the road.</li> <li>• Road width is narrow in certain segments which creates difficulty for two-way traffic.</li> <li>• Dust pollution during construction may affect nearby households and shops.</li> <li>• Farmers depend on roadside access to transport agricultural products to local markets.</li> <li>• Some households are located very close to the road alignment.</li> <li>• Flood shelter accessibility is important during flood emergencies.</li> <li>• Community members requested installation of safety signage.</li> </ul>	<ul style="list-style-type: none"> <li>• The road surface should be improved with proper pavement and compaction to ensure all-weather accessibility.</li> <li>• Adequate roadside drainage and culverts should be constructed to facilitate smooth water flow and prevent waterlogging.</li> <li>• Minor widening should be considered within the available Right of Way (ROW) to improve traffic movement and safety.</li> <li>• Regular water spraying and proper construction management should be implemented to minimize dust generation.</li> <li>• Traffic management measures, warning signs, and temporary safety barriers should be installed during construction.</li> <li>• Construction activities should be planned to</li> </ul>

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
				avoid blocking access to agricultural lands and transport routes.
4.	Chowra Baragacha UP to Nilphamari - Sonahar UZR at Maydaner hat via Arazi Dalua GPS (173643050)	30.03.2026 and in a shop of Chowra Baragacha	<ul style="list-style-type: none"> <li>• Road width is narrow in certain segments which creates difficulty for two-way traffic.</li> <li>• Dust pollution during construction may affect nearby households and shops.</li> <li>• Movement of construction vehicles may create safety risks for pedestrians and school children.</li> <li>• Roadside trees provide shade and environmental benefits for the community.</li> <li>• Farmers depend on roadside access to transport agricultural products to local markets.</li> <li>• Some households are located very close to the road alignment.</li> <li>• Improper disposal of construction waste may affect nearby agricultural land.</li> <li>• Community members requested installation of safety signage.</li> </ul>	<ul style="list-style-type: none"> <li>• Minor widening should be considered within the available Right of Way (ROW) to improve traffic movement and safety.</li> <li>• Regular water spraying and proper construction management should be implemented to minimize dust generation.</li> <li>• Traffic management measures, warning signs, and temporary safety barriers should be installed during construction.</li> <li>• Contractors should maintain safe working distances and ensure minimal disturbance to local residents.</li> <li>• The road improvement should prioritize ensuring safe and quick access to the nearby flood shelter.</li> <li>• Construction work should be scheduled during daytime and equipment should be properly maintained to reduce noise.</li> <li>• Waste materials should be properly managed and disposed of at designated locations.</li> <li>• Road safety signs and markings should be installed near settlements, intersections, and flood shelters.</li> </ul>

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
5.	Ramgonj GC to Mirgonj Via Kachary Hat (173642015)	30.03.2026 and at Laxmichap Bazar	<ul style="list-style-type: none"> <li>Waterlogging occurs in several low-lying sections of the road during monsoon.</li> <li>Movement of school students and pedestrians may be at risk during construction activities.</li> <li>Dust generation during construction may affect nearby houses and roadside shops.</li> <li>Noise from construction machinery may disturb nearby residents and institutions.</li> <li>Some roadside trees may need to be removed during road widening.</li> <li>Temporary disruption to local transportation and market access may occur during construction.</li> </ul>	<ul style="list-style-type: none"> <li>Adequate side drains and cross-drainage structures (culverts) should be constructed or improved to ensure proper drainage.</li> <li>Contractors should implement traffic safety measures, including warning signage, speed control, and safe pedestrian passage near schools and settlements.</li> <li>A temporary traffic management plan should be prepared to ensure continued movement of local transport and access to markets.</li> <li>Installation of road safety signage, speed breakers, and road markings near market areas is recommended.</li> </ul>
6.	Hazarihat G.C near Dosksa Dighi- Babrihor G.C (Up to Upazila Boarder) (173852008)	04.04.2026 and in a shop of Hazari hat	<ul style="list-style-type: none"> <li>Noise from construction machinery may disturb nearby residents and institutions.</li> <li>Some roadside trees may need to be removed during road widening.</li> <li>Safety concerns near local markets due to increased traffic after road improvement.</li> <li>Risk of improper disposal of construction waste near agricultural lands.</li> <li>Community members emphasized the importance of quick access to flood shelters during emergencies.</li> </ul>	<ul style="list-style-type: none"> <li>The road should be properly improved and strengthened with suitable pavement to ensure all-weather accessibility for local residents and vehicles.</li> <li>Contractors should implement traffic safety measures, including warning signage, speed control, and safe pedestrian passage near schools and settlements.</li> <li>Regular water spraying and proper construction material management should be carried out to minimize dust pollution.</li> <li>Construction work should be scheduled during daytime and machinery should be properly maintained to reduce noise levels.</li> </ul>

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
				<ul style="list-style-type: none"> <li>• Tree cutting should be minimized, and compensatory tree plantation should be undertaken along suitable roadside locations.</li> <li>• The road design should ensure uninterrupted connectivity to nearby flood shelters and maintain the road at an appropriate elevation to remain usable during floods.</li> </ul>
7.	UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder) (173854090)	04.04.2026 and in a shop of Hindupara	<ul style="list-style-type: none"> <li>• Existing road surface is uneven and becomes muddy during monsoon season.</li> <li>• Narrow road width causes difficulty for two-way traffic movement.</li> <li>• Some roadside trees may need to be removed during road improvement works.</li> <li>• Traffic safety concerns near settlements and local markets.</li> <li>• Risk of accidents during construction due to movement of heavy vehicles and machinery.</li> <li>• Temporary disruption of access to houses, shops, and agricultural lands during construction.</li> <li>• Safety concerns for school children and pedestrians using the road.</li> <li>• Need for reliable road access to nearby flood shelters during emergencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Improve the road pavement with proper compaction and surfacing to ensure all-weather accessibility.</li> <li>• Widen the road within the available Right of Way (ROW) where feasible to improve vehicle movement and safety.</li> <li>• Minimize tree cutting where possible and implement compensatory tree plantation along the roadside.</li> <li>• Install traffic signs, speed breakers, and safety markings near populated areas and markets.</li> <li>• Implement a traffic management plan with proper signage, barricades, and safety personnel.</li> <li>• Maintain temporary access routes and inform local residents about construction schedules.</li> <li>• Provide pedestrian safety measures, signage, and speed control near schools and populated areas.</li> <li>• Ensure that road elevation, pavement strength, and drainage are designed to remain functional during flood conditions.</li> </ul>
8.	Hindupara to Hamurhat	09.04.2026 and in a shop of	<ul style="list-style-type: none"> <li>• Waterlogging occurs at several low-lying sections of the road during heavy</li> </ul>	<ul style="list-style-type: none"> <li>• Construct adequate side drains and cross-drainage structures to ensure proper water</li> </ul>

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
	(173155057)	Khata modhupur	<p>rainfall.</p> <ul style="list-style-type: none"> <li>• Dust generation during construction may affect nearby houses, schools, and shops.</li> <li>• Some roadside trees may need to be removed during road improvement works.</li> <li>• Risk of accidents during construction due to movement of heavy vehicles and machinery.</li> <li>• Drainage obstruction could affect nearby agricultural lands.</li> <li>• Waste materials from construction may be dumped near agricultural fields or water bodies.</li> <li>• Workers' safety during construction activities.</li> <li>• Community members requested regular maintenance after project completion.</li> </ul>	<p>flow and prevent waterlogging.</p> <ul style="list-style-type: none"> <li>• Regular water spraying and proper material handling should be implemented to control dust pollution.</li> <li>• Minimize tree cutting where possible and implement compensatory tree plantation along the roadside.</li> <li>• Implement a traffic management plan with proper signage, barricades, and safety personnel.</li> <li>• Ensure proper drainage design and avoid blocking natural water channels during construction.</li> <li>• Proper waste management practices should be implemented, and disposal sites should be designated in advance.</li> <li>• Ensure the use of Personal Protective Equipment (PPE) and implement occupational health and safety measures at construction sites.</li> <li>• Establish a maintenance mechanism and monitoring system to ensure long-term road usability.</li> </ul>
9	Chandia Bazar to Thakur Hat (173854091)	09/04/2026 In a shop of Kodhopara	<ul style="list-style-type: none"> <li>• Construction waste may be dumped improperly and affect nearby land or water bodies.</li> <li>• Noise from construction machinery may disturb nearby residents and institutions.</li> <li>• Temporary disruption to access of local houses, shops, and agricultural lands</li> </ul>	<ul style="list-style-type: none"> <li>• Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements</li> <li>• The road should be properly improved and strengthened with suitable pavement to ensure all-weather accessibility for local residents and vehicles.</li> </ul>

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			<p>during construction.</p> <ul style="list-style-type: none"> <li>Improper disposal of construction waste may affect nearby agricultural land.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain temporary access routes and inform the community in advance about construction schedules.</li> <li>Waste materials should be properly managed and disposed of at designated locations.</li> </ul>
10	Gomnati Bazar RHD road to Chilahati Road (173152014)	31/03/2026 Gomnati Bazar	<ul style="list-style-type: none"> <li>Risk of accidents during construction due to movement of heavy vehicles and machinery.</li> <li>Drainage obstruction could affect nearby agricultural lands.</li> <li>Waste materials from construction may be dumped near agricultural fields or water bodies.</li> <li>Workers' safety during construction activities.</li> </ul>	<ul style="list-style-type: none"> <li>Implement a traffic management plan with proper signage, barricades, and safety personnel.</li> <li>Ensure proper drainage design and avoid blocking natural water channels during construction.</li> <li>Proper waste management practices should be implemented, and disposal sites should be designated in advance.</li> <li>Ensure the use of Personal Protective Equipment (PPE) and implement occupational health and safety measures at construction sites.</li> </ul>
11	Kaoler Mor UZR/2002 to Vholagonj GC road (173154036)	08/04/2026 Nijvogdabari Bazar	<ul style="list-style-type: none"> <li>Narrow road width causes difficulty for two-way traffic movement.</li> <li>Some roadside trees may need to be removed during road improvement works.</li> <li>Traffic safety concerns near settlements and local markets.</li> </ul>	<ul style="list-style-type: none"> <li>Widen the road within the available Right of Way (ROW) where feasible to improve vehicle movement and safety.</li> <li>Minimize tree cutting where possible and implement compensatory tree plantation along the roadside.</li> <li>Install traffic signs, speed breakers, and safety markings near populated areas and markets.</li> </ul>

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the environmental and social assessment conducted for Community Roads at Nilphamari District under the RIVER Project, it can be concluded that the proposed improvement of eleven (11) community roads across Kishoreganj Upazila, Saidpur Upazila, Domar Upazila and Nilphamari Sadar Upazila in Nilphamari 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 Nilphamari 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 Kishoregonj, Saidpur, Domar and Nilphamari Sadar 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 NILPHAMARI**  
**DISTRICT**

## **ANNEXURE 1: ROAD WISE ENVIRONMENTAL AND SOCIAL FINDINGS UNDER NILPHAMARI DISTRICT**

**Name of Sub-Project:** Improvement of Community Road for **Bahagili UP office to Kishoregonj RHD at hospital bridge; ID: 173453008**

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

**District:** Nilphamari

**Upazila:** Kishoegonj

**Union:** Uttor Bahagili

**Name of Community/Local Area:** Khamadtarif, Uttor Bahagili.

**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 the construction of Palisading 10 m (Ch.-0+010) and Bridge with palisading 10x4 m<sup>2</sup> (Ch.- 2+700). 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 9152 sqm.

### **Important Environmental and Social Features near site:**

Detail Chainage Length of the sub-project: 00m to 2860m. 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 (Left/Right)		Environmental Features
	L	R	
00-300	L		Ditch (2m), Human Settlements
		R	Big trees (2m), Primary School (Flood shelter), Graveyard, Human Settlements
300-600	L		Hat Bazar, Big trees, Human Settlements
		R	Hat Bazar, Ditch (25m), Madrasha, Human Settlements
600-900	L		Masjid (2m), Graveyard, Agricultural Land, Human Settlements
		R	Agricultural Land, Human Settlements
900-1200	L		Big tree, Agricultural lands
		R	Community Clinic (3m), Big Tree, Agricultural land
1200-1500	L		Big tree, Agricultural land
		R	Big tree, Agricultural land
1500-1800	L		Big tree, Agricultural land, Human Settlements
		R	Big tree, Ditch (18m), Agricultural land, Human Settlement
1800-2100	L		Masjid (25m), Human Settlements, Graveyard
		R	Human Settlement, Ditch
2100-2400	L		Old tree, Ditch (18m), Primar school (4m), Agricultural Land, Homestead
		R	Old Tree, Eidgah, River (15m), Agricultural Land, Homestead
2400-2700	L		Agricultural lands, Human Settlement
		R	Masjid, Agricultural lands
2700-2860			Agricultural Land
			River (4m), Agricultural land



**Starting Point of Bahagili UP office to Kishoregonj RHD at Hospital bridge (173453008)**

### **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

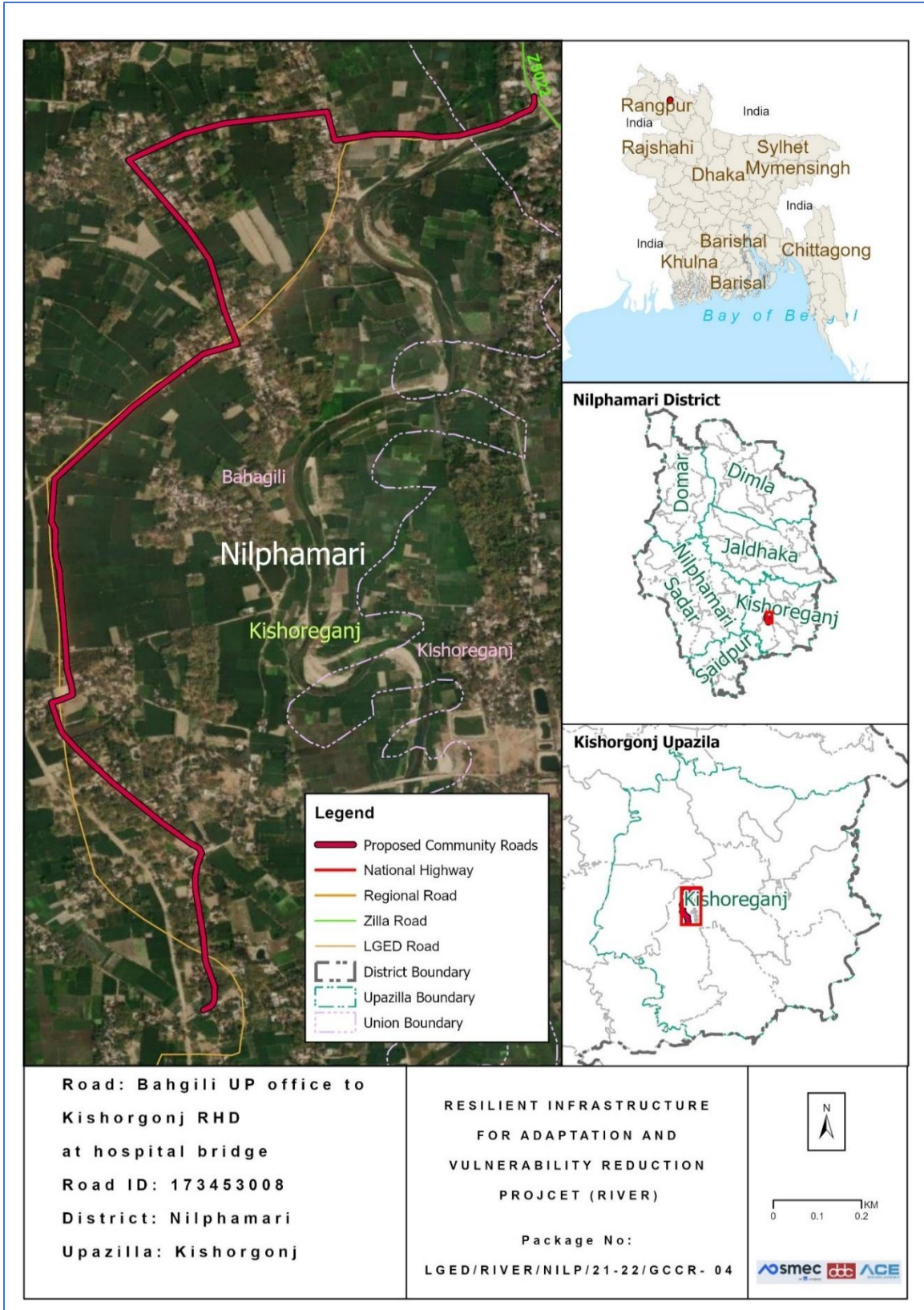
included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural 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 Uttor Durikuti under Bahagili union, Ward No. 04 at Kishoegonj Upazila in Nilphamari 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 road alignment, these include ponds, homesteads, and agricultural land within approximately 600 m, as well as Bahagili Mosque, Graveyard, Madrasha and community clinic within approximately 1 km of the project site. Along the right side of the alignment, homesteads and agricultural land are located within approximately 500 m, and a ditch is located at a distance of approximately 2 m from the road. In addition, Bahagili Union Council, a few masjid and Primary schools, Kishoregonj Upazila Health Complex, Upazila Family Planning office are situated within approximately 1 km of the project area. 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**

<b>Description of sub-project/component interventions:</b>	
The sub-project is classified as a <b>union road</b> . Based on the field survey, this sub-project involves the construction of palisading. According to the project design, the road will be upgraded with <b>Bituminous Carpeting (BC)</b> along the entire alignment from <b>Chainage 0 0m to Chainage 2860 m</b> .	
<b>Sub-project Location:</b>	
<b>Important Features</b>	
ID	173453008
District	Nilphamari
Upazila	Kishoregonj
Union	Bahagili
Total Chainage	2860 m
Proposed Chainage	2860 m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.882000'' N Longitude: 89.005328'' E
Road Ending Point Coordinates	Latitude: 25.901185'' N Longitude: 89.012150'' E
<b>Land ownership</b>	
Land is owned by Government.	
<b>Expected construction period: 12</b> (twelve months approx.)	
<b>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:</b>	
<ul style="list-style-type: none"> <li>i) The proposed Sub-project is located within Kahamadtarif, Uttor Bahagili, Bahagili Union Council, a few masjid and Primary schools, Kishoregonj Upazila Health Complex, Upazila Family Planning office within one kilometer.</li> <li>ii) No historical sites were found</li> <li>iii) Some trees, vegetation and livelihood will be affected.</li> <li>iv) Very low chance of loss of agricultural land.</li> <li>v) Some Household Boundary made of bamboo and tin may need adjustments.</li> </ul>	

## **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, these include homesteads, and agricultural land within approximately 500 m, as well as, hat-bazar, primary school, a few Jame Mosque and Graveyard within approximately 1 km of the project site. Along the right side of the alignment, homesteads, Community clinic and agricultural land are located within approximately 500 m, and a ditch is located at a distance of approximately 2 m from the road. In addition, Bahagili Union Council, a few masjid and Primary schools, Kishoregonj Upazila Health Complex, Upazila Family Planning office, a few Jame Mosque and Graveyard within approximately 1 km of the project site. 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 is mainly characterized by alluvial, sandy, and silty loam soil formations, which are typical of the northern floodplain region of Bangladesh. The soils in this area generally develop from riverine alluvial deposits and tend to be **sandy loam to clay loam in texture**. These soils are moderately fertile and widely used for agricultural activities in the surrounding rural areas.

**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.

Ground water quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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 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 450 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 existing drainage system has been identified along the project alignment. However, several natural drainage features, including ponds, ditches, rivers, and palisades, are present along the

<p>route. On the left side of the alignment, one ditch is located at approximately 2 m from the road.</p>
<p><b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>Under the improvement of this intervention Low, 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.).</p>
<p><b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b></p> <p>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.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b></p> <p>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.</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b></p> <p>No traffic movement impacts on light but low effects of noise and air pollution.</p>

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

<p><b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b></p> <p>No</p>
<p><b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b></p> <p>No</p>
<p><b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b></p> <p>No.</p>
<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p> <p>There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.</p>

**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: Bahagili UP office to Kishoregonj RHD at hospital bridge**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> <li>Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people.</li> <li>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.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	<ul style="list-style-type: none"> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>		
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>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.</li> <li>Construction of sanitary latrine with septic tank</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>for both male and female workers and staffs; and ensure regular cleaning of those.</p> <ul style="list-style-type: none"> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage;	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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	removal/relocation of utility services	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> <li>• 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.</li> <li>• The contractor must ensure sound environment for the local residents near the sub project site.</li> </ul>		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>• All Personal Protective Equipment (PPEs) must</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>be available at sites before starting any kind of construction works.</p> <ul style="list-style-type: none"> <li>Noise producing vehicles and equipment will be kept in maintenance regularly.</li> <li>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.</li> </ul>		
Construction Activity	Dust	<ul style="list-style-type: none"> <li>Acceptable range of emission of CO, particulate matter [SPM (<b>Suspended particulate matter</b>), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.</li> <li>Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>guards at site office and stack yards, and maintaining a visitor's log book at entrance)</p> <ul style="list-style-type: none"> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>		
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> <li>• 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</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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		<p>and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site.</li> <li>• Local community must be consulted before any construction works start.</li> </ul>		
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges,</li> </ul>	Contractor	Environmental Consultant of PIU

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		hospitals, etc.) <ul style="list-style-type: none"> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>		
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> </ul>		

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		<ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor</li> <li>• Waste from equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.</li> <li>• Working areas are kept clean and tidy at all times.</li> <li>• Construction site is to be checked for spills of substances i.e. chemical, oil, etc.</li> <li>• Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>waste disposal areas and/ or at the site.</p> <ul style="list-style-type: none"> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> <li>• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road.</li> <li>• Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.</li> </ul>	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	<p>Health &amp; Safety Risks:</p> <ul style="list-style-type: none"> <li>• The potential for exposure to safety events such as tripping, working at</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> </ul>	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>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.</li> <li>All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems.</li> <li>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</li> </ul>		

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		<p>ensured. Proper Emergency evacuation response plan will exist in sub-project area.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction	Pollution of water bodies	<ul style="list-style-type: none"> <li>• Ensure monitoring of nearby surface and</li> </ul>	Contractor	Environmental

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Activity		<p>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.</p> <ul style="list-style-type: none"> <li>• 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.)</li> <li>• 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.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• All precautions to store chemicals/oil/fuel properly so that no chance of spill.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		Consultant of PIU/D&SC.
Construction	Demobilization of	<ul style="list-style-type: none"> <li>• Provision to proper measures of mitigation and</li> </ul>	Contractor	Environmental

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Activity	<p>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:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<p>monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document.</p> <ul style="list-style-type: none"> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>		Consultant of 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	<ul style="list-style-type: none"> <li>• Preventative maintenance schedule should be followed.</li> <li>• 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</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member

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		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	<ul style="list-style-type: none"> <li>The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks,</li> </ul>	<p>Road safety issues can be minimized in following ways:</p> <ul style="list-style-type: none"> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	UE (Upazila Engineer)	District Executive Engineer, LGED

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	and reckless driving may cause road accidents or traffic injuries.			
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>• Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	UE	District XEN, LGED
Operation & Maintenance	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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</li> </ul>	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.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	3,432 sqm	@38.15 Tk. Per sqm	1,30,930.80
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	2,860.0m	@ 2.56 BDT	7321.60
3.	<p><b><u>Supplying and planting</u></b> specified healthy local saplings of minimum 1.00m height, free from any diseases', collected from different nurseries (collection of saplings from government horticulture is preferable) &amp; carrying the same to the worksite; preparation of pit prior to minimum 10 days of plantation by earthwork in excavation of 450mm x 450mm x 450mm size for plantation, applying 0.015 cum cow dung and 100gm normal salt mixed with exceled earth properly; planting the plants, weltering for will be as per tree plantation guideline.</p> <p>The recommended species include Mango, Jackfruit, Jam, Segun, Rain Tree, Shil Koroi, Kathbadam, Kadom, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Polash, Krisnachura, Radhachura, Jarul, Sonalu, Bokul, Shimul, among others. The saplings will have a minimum height of 1 meter and will be provided with necessary</p>	6 nos.	@500.00 BDT	3000.00

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SI no.	Description of item	Quantity	Unit price	Total amount
	protection measures, including fencing and maintenance, up to the project's defect liability period.			
4.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
5.	<p><b><u>First Aid Box</u></b></p> <p>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.</p>	1 no.	LS @5000 Tk. Per box	5,000.00
6.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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</p>	1 no.	LS @ Tk. 30,000	30,000.00

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SI no.	Description of item	Quantity	Unit price	Total amount
	complete as per satisfaction and direction of the Engineer-in-charge.			
7.	<p><b><u>Traffic Management</u></b></p> <p>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</p>	1 no.	LS @ Tk. 15,000	15,000.00
8.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk 30,000	30,000.00
9.	<p><b><u>Motivation training</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 10,000	10,000.00
10.	<p><b><u>Waste disposal facility</u></b></p> <p>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.</p>	LS	@ Tk. 5000	5,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project  
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SI no.	Description of item	Quantity	Unit price	Total amount
11.	<p><b><u>Water Test (Drinking Water samples)</u></b></p> <p>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.</p>	LS	@ Tk. 5000	5,000.00
12.	<p><b><u>Working labour shed:</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000.00
13.	<p><b><u>Environmental management</u></b></p> <p>Environmental management costs of the Environment &amp; Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary &amp; transport (Net payment excluding Tax &amp;VAT). And as per direction of the E.I.C. <a href="#">[One person to be appointed for 11 roads]</a></p>	Each	@ Tk. 35000	35,000.00
<b>Total amount for this Road</b>				<b>231,899.12</b>



**Existing Surroundings of the Sub-Project**

**Name of Sub-Project:** Improvement of Community Road for **Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler Bazar, Road ID: 173543053**

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

**District:** Nilphamari

**Upazila:** Sadar

**Union:** Laxmichap

**Name of Community/Local Area** Khamad para, Beltali Bazar, Dubachuri

**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 proper drainage and maintaining hydraulic connectivity along the alignment, a cross-drainage and ancillary structures have been incorporated in the design. These include palisading (length: 10 m) at Ch. 0+050, 1 no. slab culvert (dimension: 1.5 m × 1.5 m) at Ch. 0+353, 1 no. U-Drain (dimension: 6.0 m × 1.0 m) at Ch. 1+108 have been included to facilitate local surface runoff and maintain roadside drainage conditions. 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.

**Important Environmental and Social Features near site:**

Detail Chainage Length of the sub-project: 1,260 m. 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 (Left/Right)		Environmental Features
	L	R	
"0" Point 000-300	L		Pond (6m), Big trees, Human Settlement (3-5m), Agricultural land
		R	Ditch (4m), Big trees, Human Settlements (3.5m)
300-600	L		Old trees (3.5m), human Settlements
		R	Big tree (8m), Human Settlements, Madrasha (4m), Agricultural land
600-900	L		Ditch (10m), Human Settlements, Agricultural land
		R	Graveyard (3.m), Human Settlement, Agricultural land
900-1200	L		Church (4m), Litchi Garden, Agricultural land
		R	Agricultural land

Chainage	Orientation (Left/Right)		Environmental Features
	L	R	
1200-1260	L		Agricultural land
		R	Agricultural land



**Starting Point of Laxmichap UP to Ramgonj GC via Beltalihat and Vatiapara Nimtaler Bazar**

**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. 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

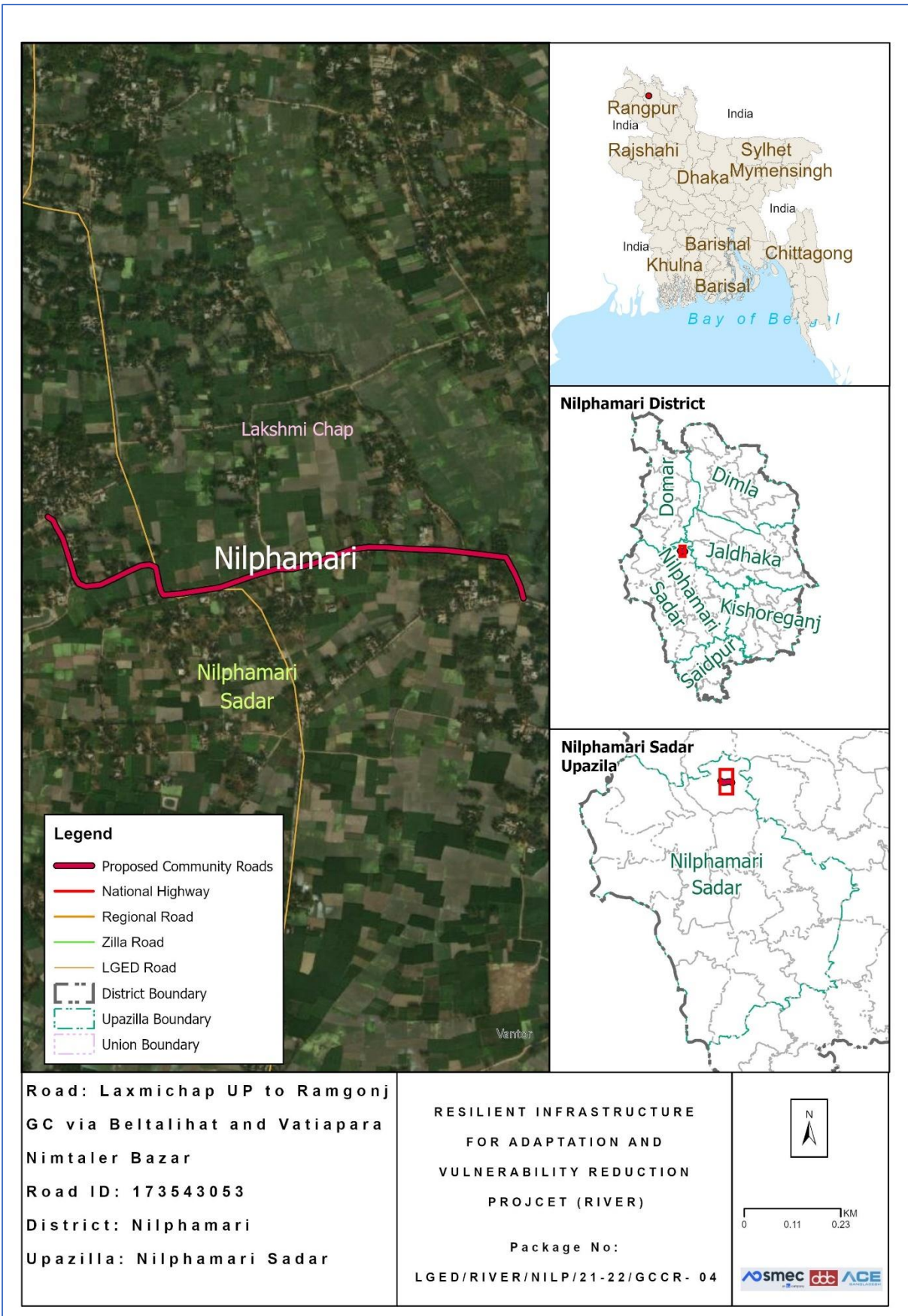
included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural 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 ditch, litchi garden and households, church; at the right-side agricultural fields and pond, residential houses, graveyard, and Madrasha. There is no scope for disturbance by this sub-project, and these features represent important environmental, social, and religious values for 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) soling. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1260 m.

**Sub-project Location:**

<b>Important Features</b>	
ID	173543053
District	Nilphamari
Upazila	Nilphamari Sadar
Union	Laxmichap
Total Chainage	2790m
Proposed Chainage	1260m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 26°03'41.94" N Longitude: 88°85'72.47" E
Road Ending Point Coordinates	Latitude: 26°03'25.34" N Longitude: 88°86'71.99" 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 Khamadpara, Dubachuri 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:**

Sensitive environmental, cultural, and religious features within 1 kilometer of the sub-project corridor include several community and environmental elements located along both sides of the alignment. At the left side of the road alignment, agricultural fields, ditch and ponds are located approximately 300 m–400 m from the road at different chainages, while shops and households are situated at approximately 350 m–550 m distance. A church was also observed on the left side at an approximate distance of 4m– 5m from the alignment. At the right side, agricultural fields and ditch are located approximately 150 m–200 m from the road edge, while residential houses are situated at approximately 280 m–380 m distance. The proposed sub-project activities will remain confined within the existing road alignment; therefore, no disturbance to these features is anticipated. Apart from these, no other sensitive environmental, cultural, or archaeological sites were identified within the vicinity of the sub-project area.

#### **Location of environmental and Social important and sensitive areas:**

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

#### **Baseline air quality and noise levels:**

##### **Dust:**

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

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

##### **Noise:**

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

**Baseline soil quality:**

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

**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: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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 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: Laxmichap UP to Ramgonj GC via Betalirhat and Vatiapara Nimtaler Bazar**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> <li>Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people.</li> <li>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.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	<ul style="list-style-type: none"> <li>• Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>• Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>• 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.</li> <li>• Construction of sanitary latrine with septic tank for</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>both male and female workers and staffs; and ensure regular cleaning of those.</p> <ul style="list-style-type: none"> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>natural water flow.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> <li>• 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.</li> <li>• The contractor must ensure sound environment for the local residents near the sub project site.</li> </ul>		
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>path at limited level.</p> <ul style="list-style-type: none"> <li>Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>		
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>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)</li> <li>Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>Records of every training must be kept at site.</li> <li>All kinds of Child labour are completely prohibited in every site.</li> <li>Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>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.</li> <li>Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction	Conflicts with existing users	<ul style="list-style-type: none"> <li>Water sources (e.g., ground or surface water) for</li> </ul>	PIU & Contractor	Social Development

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	due to the scarcity of resource base.	<p>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.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site.</li> <li>• Local community must be consulted before any construction works start.</li> </ul>		Specialist and Gender Specialist of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. <ul style="list-style-type: none"> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>		
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<ul style="list-style-type: none"> <li>• Preparation of a waste management plan covering the following aspects:</li> <li>• Waste from the temporary accommodation facilities for labor</li> <li>• Waste from equipment maintenance/vehicles on-site.</li> <li>• The construction debris material generated from the</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>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.</p> <ul style="list-style-type: none"> <li>• Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.</li> <li>• Working areas are kept clean and tidy at all times.</li> <li>• Construction site is to be checked for spills of substances i.e. chemical, oil, etc.</li> <li>• Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of	<ul style="list-style-type: none"> <li>• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the</li> </ul>	Contractor	Environmental and Social Development Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	chemicals/contaminants, etc. to nearby water bodies	road. <ul style="list-style-type: none"> <li>• Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.</li> </ul>		
Construction Activity	Health & Safety Risks: <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>• Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>• Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>• Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>• 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.</li> <li>• All people of construction site will be concerned</li> </ul>	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
		<p>about the safety and maintenance of Electrical equipment; works will be carried out on live systems.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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</li> </ul>		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		the correct methods are being used.		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.)</li> <li>• The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• All precautions to store chemicals/oil/fuel properly so that no chance of spill.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC.
Construction Activity	Demobilization of structures, facilities and equipment used during the project	<ul style="list-style-type: none"> <li>• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<p>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.</p> <ul style="list-style-type: none"> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>• Preventative maintenance schedule should be followed.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction	Rigorous Monitoring and Report Preparation and	<ul style="list-style-type: none"> <li>• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
and Construction	Submission	<p>and (v) H&amp;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.</p> <ul style="list-style-type: none"> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>		
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Road safety issues can be minimized in following ways:</li> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	Upazila Engineer (UE)	District Executive Engineer, LGED
Operation &	Noise and vibration	<ul style="list-style-type: none"> <li>Provision to maintain noise and vibration from the</li> </ul>	UE	District Executive

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Maintenance	disturbances to fauna, and Traffic Safety.	operation and maintenance of machinery and equipment by proper monitoring and measures. <ul style="list-style-type: none"> <li>• Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>		Engineer, LGED
Operation & Maintenance	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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</li> </ul>	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

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	1512. Sq.m	@38.15 Tk. Per sqm	57,682.8
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	1260 m	@ 2.56 BDT	3225.6
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

SI no.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk. 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p> <p>Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand</p>	1 no.	LS @ Tk. 10,000	10,000

SI no.	Description of item	Quantity	Unit price	Total amount
	Contractor's representatives on safety practice and as per direction of the E.I.C.			
9.	<b><u>Waste disposal facility</u></b> 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.	<b><u>Water Test (Drinking Water samples)</u></b> Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
11.	<b><u>Working labour shed:</u></b> 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.	<b><u>Environmental management</u></b> 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. <a href="#">[One person to be appointed for 11 roads]</a>	Each	@ Tk. 35000	35,000
<b>Total amount for this Road</b>				<b>251,554.12</b>



Existing Surroundings of the Sub-Project

**Name of Sub-Project:** Improvement of Community Road for **Laxmichap UP to Chowrangi hat near R & H Road, Road ID: 173643015**

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

**District:** Nilphamari

**Upazila:** Nilphamari Sadar

**Union:** Laxmichap

**Name of Community/Local Area:** Uttar Ballampath, Dharihara, Kachua

**Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):** The Sub-Project is categorized as a village road and construction with Bituminous Carpeting options. For drainage of rain water 1no. **U-Drain (dimension 1.0 m x 8.0 m)** at 3008m chainage has been included in the estimation. The purpose of the U-drain is to keep the water channel uninterrupted for water flows in monsoon.

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 10,400 sqm.

**Important Environmental and Social Features near site:**

Detail Chainage Length of the sub-project: 3250 m. 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 (Left/Right)		Environmental Features
"0" Point 000-300	L		Laxmichap UP office (2m), Primary school (2m), Big tree (2m), Maternity hospital, Agricultural land
		R	Playground, big trees (4m), Agricultural land
300-600	L		Graveyard, Temple (5m), Hat-bazar, Human Settlements
		R	Hat-bazar, big tree
600-900	L		Graveyard, Temple (4m), Hat-bazar, Human Settlements
		R	Hat-bazar, pond (8m), Big tree
900-1200	L		Ditches, Old trees, Forest
		R	Agricultural land, Ditch (4m), old trees
1200-1500	L		Big tree, Ditches, Human Settlements

Chainage	Orientation (Left/Right)		Environmental Features
		R	Temple (22m), Ditches, Agricultural land
1500-1800	L		Ditches, Human Settlements
		R	Big tree (30m), Ditches, Human Settlements
1800-2100	L		Big tree, Ditches, Human Settlements
		R	Kachua GPS, Big tree, Ditches, Human Settlements
2100-2400	L		Ponds, Ditches, Human Settlements, Agricultural land
		R	Ditches, Masjid (4m), human Settlements
2400-2700	L		Pond (3m), Big tree, Human Settlements, Agricultural land
		R	Ditches, Human Settlements, Agricultural Land
2700-3000	L		Kindergarten (5m), Big tree, Human Settlements
		R	Ditches, Human Settlements
3000-3250	L		Temple (2 Nos.), Union Health Complex
		R	Ditches, Bazar



**Starting Point of Laxmichap UP to Chowrangi hat near R & H 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. 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.

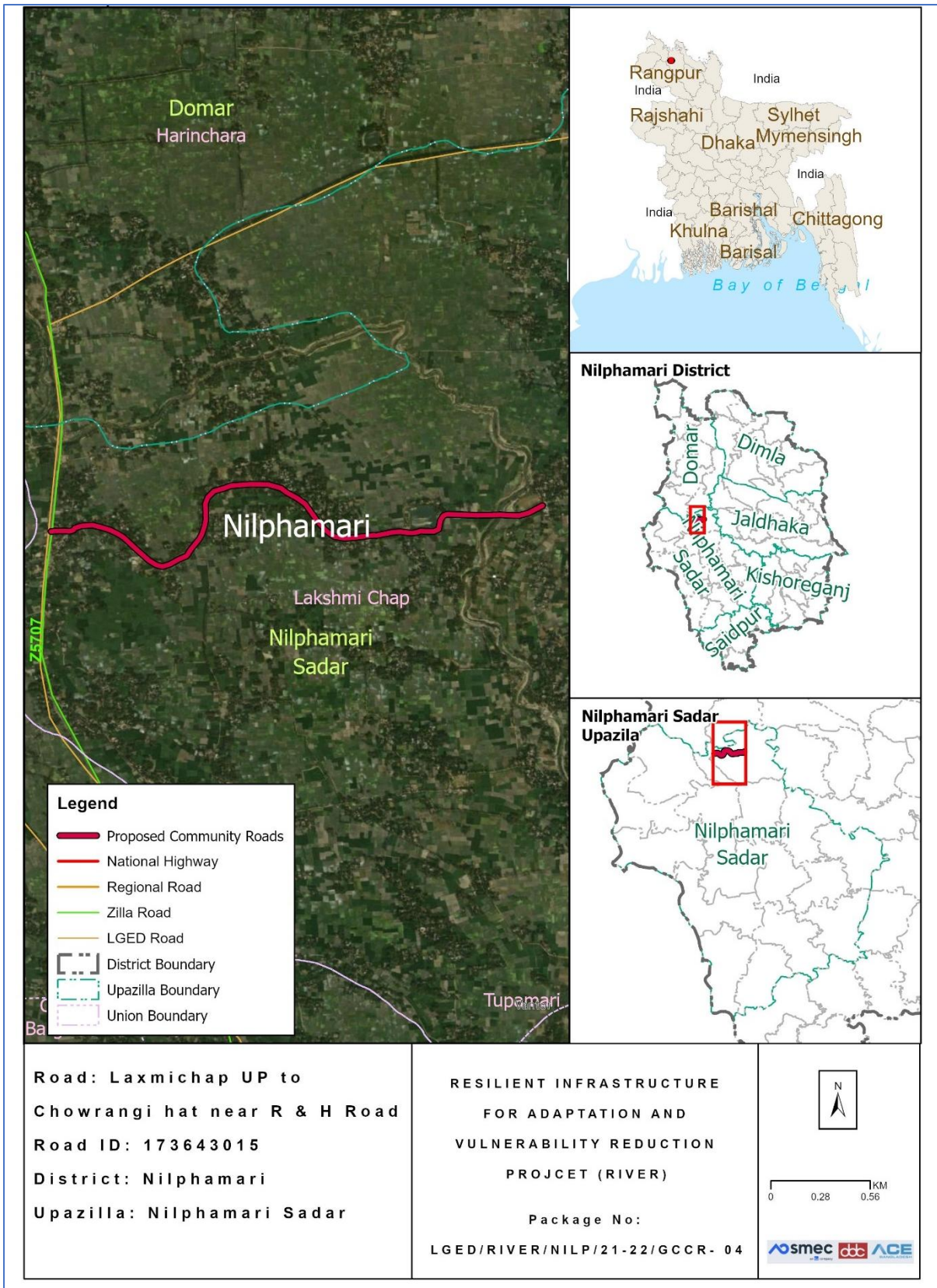
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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. In the left side maternity hospital, graveyard temple, ditch, pond and kindergarten is situated and in the right site ditches, temple, masjid is situated in different chainage. During construction, no structures will be affected.



**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 Bituminous Carpeting (Damaged). According to the design this sub-project will be developed with Bituminous Carpeting from Ch. 00 to Ch. 3250m.

**Sub-project Location:**

Important Features	
ID	173643015
District	Nilphamari
Upazila	Nilphamari Sadar
Union	Laxmichap
Total Chainage	3250 m
Proposed Chainage	3250m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 26°03'30.14" N Longitude: 88°85'49.11" E
Road Ending Point Coordinates	Latitude: 26°03'14.68" N Longitude: 88°83'04.59" 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):**

- i) The proposed Sub-project is located within Ballampath, Dharihara, Kachua, Chowrangi hat villages 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:

No sensitive environmental, cultural, archaeological, or religious sites were observed within the vicinity of the sub-project area.

#### Location of environmental and Social important and sensitive areas:

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

#### Baseline air quality and noise levels:

##### Dust:

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

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

##### Noise:

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

#### Baseline soil quality:

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

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

<p><b>Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):</b>                  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 450 kg.</p>
<p><b>Type and quantity of raw materials used (wood, bricks, cement, water, etc.):</b>  <b>Type:</b> 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.</p>
<p><b>Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:</b>                  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.</p>
<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b>                  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.</p>
<p><b>Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b>                  No pre - existing drainage channel is found.</p>
<p><b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b>                  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.).</p>
<p><b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b>                  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.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b></p>

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: Laxmichap UP to Chowrangi hat near R & H Road, Road ID: 173643015**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets with septic tanks, wash-basins, etc.) for workers and constructor's officials/employees will be provided, and ensure regular cleaning of those.</li> <li>Potable water supply will be ensured for every</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>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.</p>		
Pre-Construction Stage	<p>Site Selection for workers camps, stack yards &amp; implementing interventions: Generation of ESHS issues.</p>	<ul style="list-style-type: none"> <li>• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>• 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. Accordingly, 100 trees to be planted on the slopes of both side of the road, once the slope protection works are completed.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those.</p> <ul style="list-style-type: none"> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff.</li> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage. Accordingly, coordination with the relevant authority is required to relocate the electric pole at Ch. 0+075 prior</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>to the commencement of works.</p> <ul style="list-style-type: none"> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> </ul>		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>• Noise producing vehicles and equipment will be keep in maintenance regularly.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• Acceptable range of emission of CO, particulate matter [SPM (<b>Suspended particulate matter</b>), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>		
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• Appropriate notification or training to the workers about the scope and procedure of the grievance system will be</li> </ul>		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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: <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor and equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Health & Safety Risks: <ul style="list-style-type: none"> <li>• The potential for exposure to safety events such as tripping, working at height activities, fire from hot</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> </ul>	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
	<p>works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>• Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>• Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and</li> </ul>		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		changing facilities. <ul style="list-style-type: none"> <li>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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>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.</li> <li>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.)</li> <li>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.</li> <li>Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>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.</li> <li>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC.
Construction	Demobilization of structures,	<ul style="list-style-type: none"> <li>Remove all spoils wreckage, rubbish, or temporary</li> </ul>	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	<p>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:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<p>structures (such as buildings, shelters, and latrines) which are no longer required;</p> <ul style="list-style-type: none"> <li>• Ensure that all affected structures rehabilitated/compensated;</li> <li>• 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.</li> <li>• Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic;</li> <li>• 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.</li> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>		<p>Consultant of PIU/D&amp;SC, district XEN.</p>
Construction activity	<p>Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna</p>	<ul style="list-style-type: none"> <li>• Preventative maintenance schedule should be followed.</li> <li>• 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.</li> </ul>	Contractor	<p>Environmental Consultant of PIU, Union Parishad Member</p>
Pre-Construction and Construction	<p>Rigorous Monitoring and Report Preparation and Submission</p>	<ul style="list-style-type: none"> <li>• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> </ul>	Contractor	<p>Environmental Consultant of PIU</p>

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>		
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>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.</li> </ul>	<p>Road safety issues can be minimized in following ways:</p> <ul style="list-style-type: none"> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	UE (Upazila Engineer)	District Executive Engineer, LGED
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	Upazila Engineer	District XEN, LGED

### Cost of Environmental and Social Enhancement Works in BOQ

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

### Cost of Environmental Enhancement Works in BOQ

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	3900 Sq.m	@38.15 Tk. Per sqm	1,48,785.00
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	3250.0 m	@ 2.56 BDT	8320
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

SI no.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p> <p>Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand</p>	1 no.	LS @ Tk. 10,000	10,000

SI no.	Description of item	Quantity	Unit price	Total amount
	Contractor's representatives on safety practice and as per direction of the E.I.C.			
9.	<b><u>Waste disposal facility</u></b> 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.	<b><u>Water Test (Drinking Water samples)</u></b> Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
11.	<b><u>Working labour shed:</u></b> 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.	<b><u>Environmental management</u></b> 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. <a href="#">[One person to be appointed for 11 roads]</a>	Each	@ Tk. 35000	35,000
	<b>Subtotal Bill: Environmental and Social facilities</b>			<b>247,751.72</b>



**Existing Surroundings of the Sub-Project**

**Name of Sub-Project:** Improvement of Community Road for **Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydaner hat via Arazi Dalua GPS; Road ID: 173643050**

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

**District:** Nilphamari

**Upazila:** Nilphamari Sadar

**Union:** Chowra Baragacha

**Name of Community/Local Area:** Uttor Chowra, Kismot Dalua.

**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)** and, for the drainage of floodwater, the replacement, construction, or renovation of several damaged bridges and a culvert along the road alignment. The objective of the project is to enhance road durability, ensure safe and reliable transportation, and improve connectivity for the surrounding rural communities. The road improvement works will include site preparation, earthwork, subgrade and base preparation, and the application of bituminous carpeting within the existing road corridor to the greatest extent possible, which will improve riding quality and provide all-weather accessibility. Additionally, the road requires U-Drain (dimension 7.0m x 1.5 m) chainage 748m to ensure proper drainage and maintain natural water flow. 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 3200 sqm.

**Important Environmental and Social Features near site:**

Detail Chainage Length of the sub-project: 00m to 1000m. Detail Environmental features within 100m of the both sides from the 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 (Left/Right)		Environmental Features
00-300	L		Hat-bazar, Ditches, Agricultural land, Human Settlements
		R	Hat-bazar, Union Parishod, Union Land Office, Big tree, Human Settlements

Chainage	Orientation (Left/Right)		Environmental Features
	L	R	
300-600	L		Kindergarten, Ditch, Agricultural land, Human Settlements
		R	Ditch, Agricultural land, Human Settlements
600-900	L		Agricultural land
		R	Agricultural land
900-1200	L		Agricultural land
		R	Agricultural land



**Starting Point of Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydaner 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 (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 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.

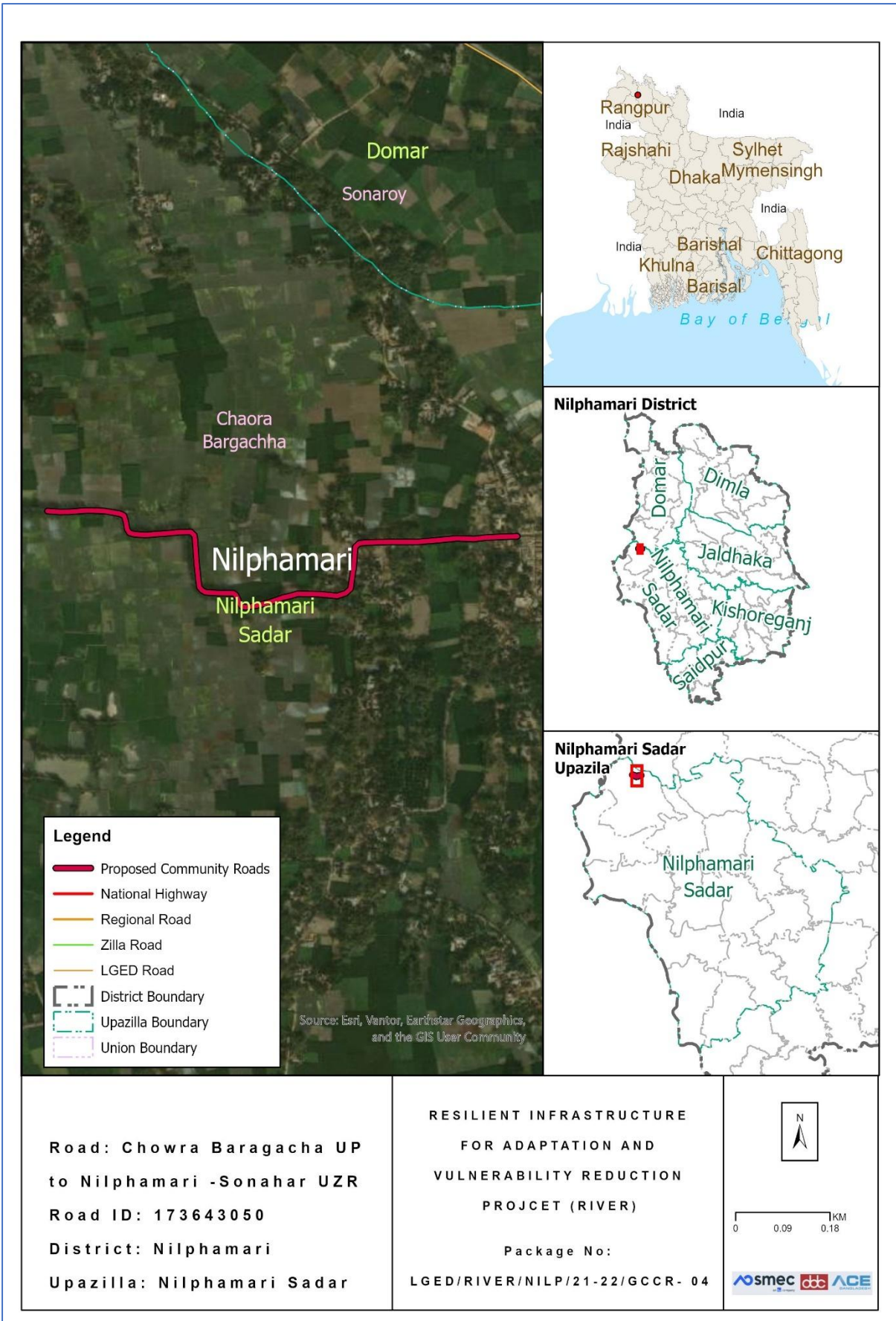
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation 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 Uttor chowra, Kismot Dalua, Chowra under Chowra Borogachi, 3 no ward, Sadar upazila under Nilphamari District. However, several environmentally and socially sensitive institutions, including educational and religious establishments, are located within approximately 1km of the project site. Along the left side of the road, these include Ditches, Kindergarten are situated in different chainage. Along the right side, Union Parishod, Union Land Office and ditches are located in several chainage. These institutions hold significant religious, cultural, and educational value for the local community. However, as the proposed sub-project activities will be carried out mainly within the existing road alignment, no disturbance or adverse impact on these nearby cultural or religious sites is anticipated. Appropriate precautionary measures will be followed during construction to ensure the protection of these sensitive locations.



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 **Union road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 0 m to Chainage 1000 m**.

**Sub-project Location:**

Important Features	
ID	173643050
District	Nilphamari
Upazila	Nilphamari Sadar
Union	Chowra Baragacha
Total Chainage	1000m
Proposed Chainage	1000m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 26.040605'' N Longitude: 88.794607'' E
Road Ending Point Coordinates	Latitude: 26.041103'' N Longitude: 88.786547'' 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 Uttor Chowra, Chowra 3 no ward, kismot Dalua 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 sensitive environmental, cultural, religious, and educational institutions are located within approximately 1 kilometer of the project site. Along the left side of the road, these include Ditches, Kindergarten are situated. Along the right side, Union Parishod, Union Land Office are located. These institutions hold significant religious, cultural, and educational value for the local community. However, as the proposed sub-project activities will be carried out mainly within the existing road alignment, no disturbance or adverse impact on these nearby cultural or religious sites is anticipated. Appropriate precautionary measures will be followed during construction 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 is mainly characterized by **alluvial, sandy, and silty loam soil formations**, which are typical of the northern floodplain region of Bangladesh. The soils in this area generally develop from riverine alluvial deposits and tend to be **sandy loam to clay loam in texture**. These soils are moderately fertile and widely used for agricultural activities in the surrounding rural areas.

**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 quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681 $\mu$ s/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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 Choroï (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 vi) steels vii) Bitumen are the most common type of road materials used in construction.

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

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

**Location identification for raw material storage:**

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

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

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

**B.3: Construction Phase**

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

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

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

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

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

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

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

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

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

No existing drainage system has been identified along the project alignment.

**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

<p><b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b></p> <p>No</p>
<p><b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b></p> <p>No</p>
<p><b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b></p> <p>No.</p>
<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p> <p>There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.</p>
<p><b>Likely direct and indirect impacts on economic development in the project areas by the sub-project:</b></p> <p>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.</p>
<p><b>Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b></p> <p>No existing drainage channels or surface water bodies found in the project area, therefore, no such effect can be anticipated.</p>
<p><b>Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>There are no protected areas in or around project sites, and no known areas of ecological interest.</p>
<p><b>Activities leading to landslides, slumps, slips and other mass movements in road cuts:</b></p>

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: Chowra Baragacha UP to Nilphamari -Sonahar UZR at Maydaner hat via Arazi Dalua GPS**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets with septic tanks, wash-basins, etc.) for workers and constructor's officials/employees will be</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>provided, and ensure regular cleaning of those.</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>• 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. Accordingly, 100 trees to be planted on the slopes of both side of the road, once the slope protection works are completed.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at</li> </ul>	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&amp;SC.</p> <ul style="list-style-type: none"> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Tubewell location wherever required to install, within the construction site is not near to any kinds of latrine and soaks well which could be</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>contaminated by those.</p> <ul style="list-style-type: none"> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage. Accordingly, coordination with the relevant authority is required to relocate the electric pole at Ch. 0+075 prior to the commencement of works.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> </ul>		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>• Noise producing vehicles and equipment will be keep in maintenance regularly.</li> <li>• Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of</li> </ul>	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.		
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• Acceptable range of emission of CO, particulate matter [SPM (<b>Suspended particulate matter</b>), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>prohibited in every site.</p> <ul style="list-style-type: none"> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>		
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting</li> </ul>		

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Environmental & Social Assessment and Management Report for Community roads of Nilphamari District

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.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor and equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction	Health & Safety Risks:	<ul style="list-style-type: none"> <li>• All construction equipment will be properly</li> </ul>	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>	<p>inspected timely.</p> <ul style="list-style-type: none"> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>• Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>• Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>• Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>• 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.</li> <li>• 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.</li> <li>• Awareness training will be given to all personnel involved during the construction</li> </ul>		Consultant as well as Social Development and Gender Specialists of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>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.</p> <ul style="list-style-type: none"> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.)</li> </ul>	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
		<ul style="list-style-type: none"> <li>• 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.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		
Construction Activity	<p>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:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local</li> </ul>	<ul style="list-style-type: none"> <li>• Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required;</li> <li>• Ensure that all affected structures rehabilitated/compensated;</li> <li>• 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.</li> <li>• Disposal of faecal sludge from latrines is to be undertaken properly, if management on site</li> </ul>	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.	<p>becomes problematic;</p> <ul style="list-style-type: none"> <li>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.</li> <li>The contractor must arrange the cancellation of all temporary services.</li> </ul>		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>Preventative maintenance schedule should be followed.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	<ul style="list-style-type: none"> <li>The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>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.</li> </ul>	<p>Road safety issues can be minimized in following ways:</p> <ul style="list-style-type: none"> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	UE (Upazila Engineer)	District Executive Engineer, LGED
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	Upazila Engineer	District XEN, LGED

### Cost of Environmental Enhancement Works in BOQ

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

### Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	1200 Sq.m	@38.15 Tk. Per sqm	45,780.00
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	1000.0m	@ 2.56 BDT	2560.00
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	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.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000.00
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000.00
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk 30,000	30,000.00

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Sl no.	Description of item	Quantity	Unit price	Total amount
8.	<p><b><u>Motivation training</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 10,000	10,000.00
9.	<p><b><u>Waste disposal facility</u></b></p> <p>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.</p>	LS	@ Tk. 5000	5,000.00
10.	<p><b><u>Water Test (Drinking Water samples)</u></b></p> <p>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.</p>	LS	@ Tk. 5000	5,000.00
11.	<p><b><u>Working labour shed:</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000.00
12.	<p><b><u>Environmental management</u></b></p> <p>Environmental management costs of the Environment &amp; Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary &amp; transport (Net payment excluding Tax &amp;VAT). And as per direction of the E.I.C. <a href="#">[One person to be appointed for 11 roads]</a></p>	Each	@ Tk. 35000	35000.00
<b>Subtotal Bill: Environmental and Social facilities</b>				<b>238,985.72</b>



**Existing Surroundings of the Sub-Project**

**Name of Sub-Project:** Improvement of Community Road for **Ramgonj GC to Mirgonj Via Kachary Hat, Road ID: 173642015**

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

**District:** Nilphamari

**Upazila:** Nilphamari Sadar

**Union:** Laxmichap

**Name of Community/Local Area:** Laxmichap, Bottala Bazar, Volarghat Bazar, Moglurmor bazar

**Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):** The Sub-Project is categorized as a village road and construction with Bituminous Carpeting options. For proper drainage of floodwater along the project alignment, U-drain will be constructed as required to ensure effective drainage and structural functionality. To ensure slope protection and road stability, brick palisading walls and RCC retaining walls will be constructed where required. 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 17,580 sqm.

**Important Environmental and Social Features near site:**

**Detail Chainage Length of the sub-project:** 5860 m. 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 (Left/Right)		Environmental Features
	L	R	
00-300	L		Temple (10m), Human Settlements
		R	Big old tree, Agricultural land
300-600	L		Human Settlements (3 to 5m)
		R	Graveyard (10m), agricultural land
600-900	L		Ditch (3.0m), Temple
		R	Hat- Bazar, Human Settlements, Agricultural land
900-1200	L		Ditch (3.0m), Temple
		R	Human Settlements
1200-1500	L		Human Settlements
		R	Human Settlements, Agricultural Land
1500-1800	L		Big old tree, School (4.0m), Human Settlements, Agricultural Land

Chainage	Orientation (Left/Right)		Environmental Features
		R	Human Settlements, Agricultural land, Ditch (3.0m)
1800-2100	L		Temple, Community, Clinic (3.0m), Majid (2.5m), Hat-Bazar (Katchary Bazar)
		R	Hat-Bazar (Katchary Bazar), Church, Human Settlements
2100-2400	L		Hat-Bazar (Katchary Bazar), Church, Human Settlements
		R	Hat-Bazar (Katchary Bazar), Agricultural Land, Human Settlements
2400-2700	L		Agricultural Land
		R	College (4.0 m), Pond (3.0m)
2700-3000	L		Temple (10m), Big old tree, Hat Bazar (Bosunia Bazar), Human Settlements
		R	Hat Bazar (Bosunia Bazar), Church, Human Settlements
3000-3300	L		Agricultural Land, River (15m)
		R	Agricultural Land, River (4m), Human Settlements
3300-3600	L		Agricultural Land
		R	Agricultural Land, Human Settlements
3600-3900	L		Human Settlements, Ditch (3.0m), Pond (4.0m)
		R	Agricultural Land, Primary School (3.0m), Temple (4.0m)
3900-4200	L		Agricultural Land. Big old tree, Human Settlements, Ditch
		R	Agricultural Land. Big old tree, Human Settlements
4200-4500	L		Agricultural Land, Pond (4.0m), Human Settlements
		R	Human Settlements, Pond (3.0m), Temple (3.0m)
4500-4800	L		Agricultural land, Human Settlements
		R	Agricultural land, Human Settlements
4800-5100	L		Hat- Bazar (Volarghat), Human Settlements, River (50 m)
		R	Hat-Bazar (Volarghat), Human Settlements
5100-5400	L		Agricultural land, Human Settlements
		R	Agricultural Land
5400-5700	L		Temple (5m), Human Settlements

Chainage	Orientation (Left/Right)		Environmental Features
		R	Masjid (4.0m), Ditch, human Settlements
5700-5860	L		Agricultural Land
		R	Agricultural Land



**Starting Point of Ramgonj GC to Mirgonj Via Kachary Hat**

### 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 U-drain, palisading 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

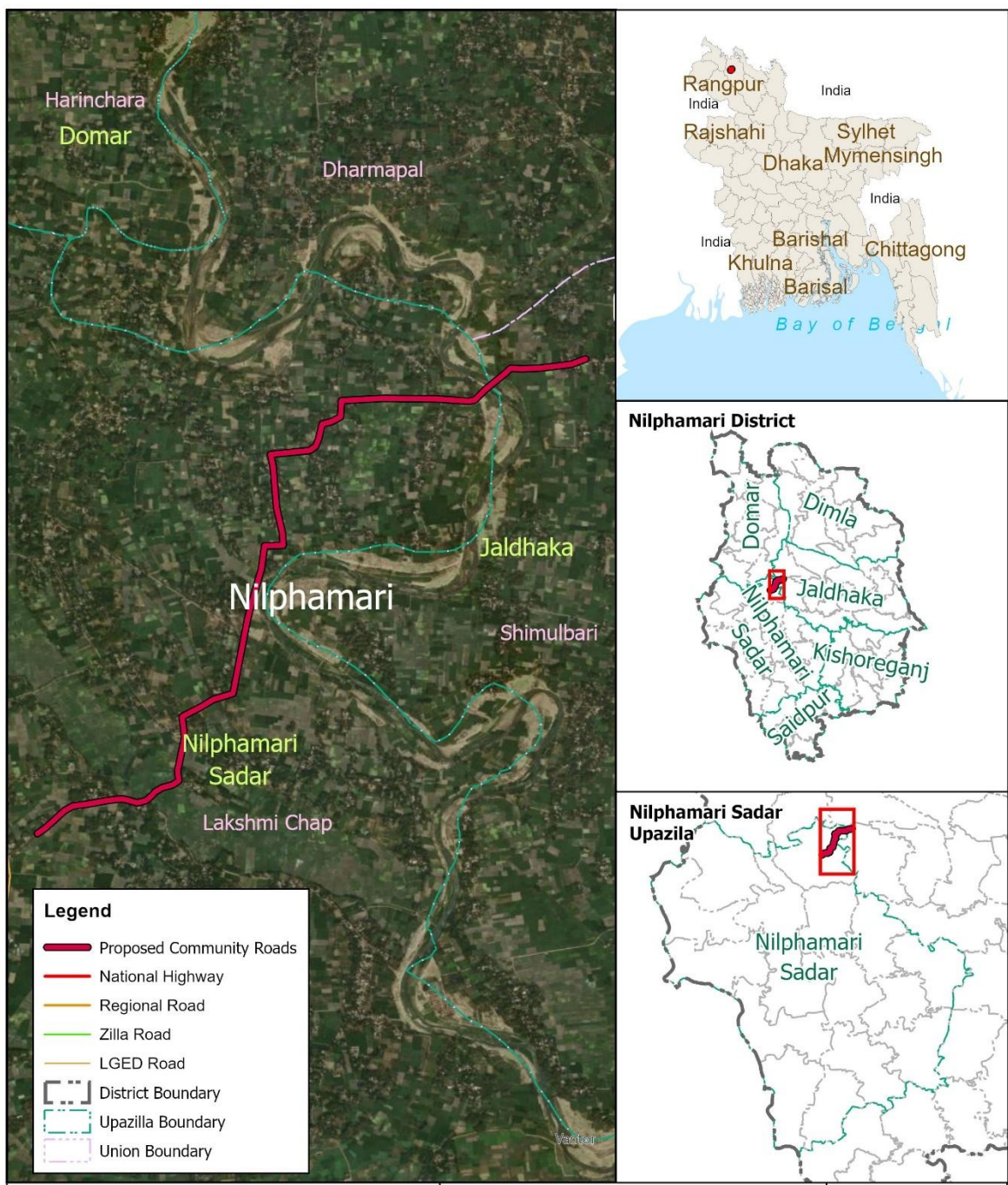
included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural 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 Laxmichap village under Laxmichap Union, Ward No. 7 of Sadar Upazila in Nilphamari 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 Temple, ditches, school, community clinic, masjid, human settlements, agricultural lands etc. Similarly, the right side of the road consists of primary school, temple, hat-bazar, masjid, ditches, human settlements, agricultural lands. 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.



**Road: Ramgonj GC to Mirgonj  
 Via Kachary Hat**  
**Road ID: 173642015**  
**District: Nilphamari**  
**Upazilla: Nilphamari Sadar**

**RESILIENT INFRASTRUCTURE  
 FOR ADAPTATION AND  
 VULNERABILITY REDUCTION  
 PROJECT (RIVER)**  
 Package No:  
**LGED/RIVER/NILP/21-22/GCCR- 04**

North arrow pointing up.

Scale bar: 0, 0.26, 0.52 KM

Logos for **asmec**, **dbb**, and **ACE**.

**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 an upazila road. Based on field survey, this sub-project involves Bituminous Carpeting (BC). According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 5860m.

**Sub-project Location:**

<b>Important Features</b>	
ID	173642015
District	Nilphamari
Upazila	Nilphamari Sadar
Union	Laxmichap
Total Chainage	5860m
Proposed Chainage	5860m
Road Type	Upazila Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 26.0310525 N Longitude: 88.8637396 E
Road Ending Point Coordinates	Latitude: 26.050622 N Longitude: 88.886664 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 laxmichap 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 features are located within approximately 100 meters of the project site. On the left side of the road, temple, ditches, school, community clinic, masjid, human settlements, agricultural lands etc. Similarly, the right side of the road consists of primary school, temple, hat-bazar, masjid, ditches, human settlements, agricultural lands. The proposed sub-project is not expected to cause any disturbance to the religious or cultural values of the local community. Apart from the structures and features mentioned above, no environmentally sensitive, cultural, archaeological, or religious sites have been identified within the project influence area.

#### **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 Nilphamari 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 quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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 30 kg daily and sludge may amount to 10 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.
<b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b> 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.).
<b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b> 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.
<b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b> 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.
<b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b> 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

<b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b>  No
<b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b>  No
<b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b>  No.
<b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b>  There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.
<b>Likely direct and indirect impacts on economic development in the project areas by the</b>

**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: Ramgonj GC to Mirgonj Via Kachary Hat, Road ID: 173642015**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> <li>Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people.</li> <li>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.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	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	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	people, generating dust and noise)			
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>• 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.</li> <li>• Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• Bins and/ or skips should be emptied regularly and</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&amp;SC.</p> <ul style="list-style-type: none"> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
<p style="text-align: center;">Pre- Construction Stage</p>	<p>Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services</p>	<ul style="list-style-type: none"> <li>• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff.</li> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be</li> </ul>	<p style="text-align: center;">PIU &amp; Contractor</p>	<p style="text-align: center;">Environmental Consultant of PIU</p>

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>restored as before.</p> <ul style="list-style-type: none"> <li>This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> <li>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.</li> <li>The contractor must ensure sound environment for the local residents near the sub project site.</li> </ul>		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>Noise producing vehicles and equipment will be keep in maintenance regularly.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	<ul style="list-style-type: none"> <li>Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter), PM2.5, 10] and Hydrocarbons must be maintained through good</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>construction work practices.</p> <ul style="list-style-type: none"> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>		
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>management which is to be consulted with and confirmed by the district Executive Engineer.</p> <ul style="list-style-type: none"> <li>Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site.</li> <li>Local community must be consulted before any construction works start.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>Maintain safety measures during the movement of heavy machinery and equipment.</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>		
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in</li> </ul>		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>weekly manner.</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<ul style="list-style-type: none"> <li>• Preparation of a waste management plan covering the following aspects:</li> <li>• Waste from the temporary accommodation facilities for labor</li> <li>• Waste from equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.</li> <li>• Working areas are kept clean and tidy at all times.</li> <li>• Construction site is to be checked for spills of substances i.e. chemical, oil, etc.</li> <li>• Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> </ul>	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>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.</li> <li>Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> <li>Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road.</li> <li>Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.</li> </ul>	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: <ul style="list-style-type: none"> <li>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.</li> <li>Exposure to health events during</li> </ul>	<ul style="list-style-type: none"> <li>All construction equipment will be properly inspected timely.</li> <li>The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>Fire extinguishers will be located at identified fire points around the site. The extinguishers must be</li> </ul>	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
	<p>construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.</p>	<p>appropriate to the nature of the potential fire.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available</li> </ul>		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>at all Sites, on different locations within the site.</p> <ul style="list-style-type: none"> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.)</li> <li>• The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• All precautions to store chemicals/oil/fuel properly so</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>that no chance of spill.</p> <ul style="list-style-type: none"> <li>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		
Construction Activity	<p>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:</p> <ul style="list-style-type: none"> <li>Pollution from waste materials.</li> <li>Health &amp; Safety risks to workers and local community.</li> </ul>	<ul style="list-style-type: none"> <li>Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i) remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document.</li> <li>The contractor must arrange the cancellation of all temporary services.</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC, district XEN.
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>Preventative maintenance schedule should be followed.</li> <li>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</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>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.</p>		
<p style="text-align: center;">Pre- Construction and Construction</p>	<p>Rigorous Monitoring and Report Preparation and Submission</p>	<ul style="list-style-type: none"> <li>• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>• Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	<p style="text-align: center;">Contractor</p>	<p style="text-align: center;">Environmental Consultant of PIU</p>
<p style="text-align: center;">Operation &amp; Maintenance</p>	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>• The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>• Widened road, lack of road safety signage or speed-breakers at crossings/strategic</li> </ul>	<ul style="list-style-type: none"> <li>• Road safety issues can be minimized in following ways:</li> <li>• By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>• 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.</li> <li>• All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	<p style="text-align: center;">Upazila Engineer (UE)</p>	<p style="text-align: center;">District Executive Engineer, LGED</p>

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.			
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>• Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	UE	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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</li> </ul>	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

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	7032 Sqm	@38.15 Tk. Per sqm	268,270.80
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	5860m	@ 2.56 BDT	15001.60
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

SI no.	Description of item	Quantity	Unit price	Total amount
	Engineer-in-charge.			
5.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk. 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 10,000	10,000
9.	<p><b><u>Waste disposal facility</u></b></p> <p>Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of</p>	LS	@ Tk. 5000	5,000

SI no.	Description of item	Quantity	Unit price	Total amount
	inorganic waste disposal facility) and as per direction of E.I.C.			
10.	<p><b><u>Water Test (Drinking Water samples)</u></b></p> <p>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.</p>	LS	@ Tk. 5000	5,000
11.	<p><b><u>Working labour shed:</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
12.	<p><b><u>Environmental management</u></b></p> <p>Environmental management costs of the Environment &amp; Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary &amp; transport (Net payment excluding Tax &amp; VAT). And as per direction of the E.I.C. <u>[One person to be appointed for 11 roads]</u></p>	1 no.	@ Tk. 35000	35,000
	<b>Subtotal Bill: Environmental facilities</b>			<b>473,918.12</b>



**Existing Surroundings of the Sub-Project**

**Name of Sub-Project:** Improvement of Community Road for **Hazarihat G.C near Doska Dighi Babrihor, Road ID: 173852008**

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

**District:** Nilphamari

**Upazila:** Saidpur

**Union:** Kasiram Balpukur

**Name of Community/Local Area:** Kisamot Dangi, Choara Bridge, Charoikhola

**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 development project with bituminous carpeting. To ensure strength of the road palisading in 3 spots will be constructed. These include palisading 40m, 10m and 15 m at the chainage 40 m, 130m and 850m respectively. In addition, appropriate road safety features, as well as environmental and social mitigation measures, have been incorporated into the project design and cost estimates.

Estimated footprint / land area for this sub-project is 7,488 sqm.

**Important Environmental and Social Features near site:**

Detail Chainage Length of the sub-project: 2340m. 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 (Left/Right)		Environmental Features
	L	R	
000-300	L		Ditches (2.5m), Agricultural land, Human Settlements
		R	Old tree, Agricultural land, Human Settlements
300-600	L		Hat-bazar, Human Settlements
		R	Pond, Hat-bazar, Human Settlements
600-900	L		Hat-bazar, Human Settlements
		R	Masjid, Agricultural lands, Human Settlements
900-1200	L		Agricultural land
		R	Agricultural land, Human settlements
1200-1500	L		Hat- bazar, Human settlements
		R	Masjid, Hat-bazar, Human Settlements
1500-1800	L		Chora School, (10m), Eidgah, Agricultural land
		R	Shops, Agricultural land, Human Settlements

Chainage	Orientation (Left/Right)		Environmental Features
	L	R	
1800-2100	L		Agricultural land
		R	Human Settlements, Shops
2100-2340	L		Agricultural lands, Human Settlements
		R	Shops, human Settlements



**Starting Point of Hazarihat G.C near Doska Dighi Babrijhor 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 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

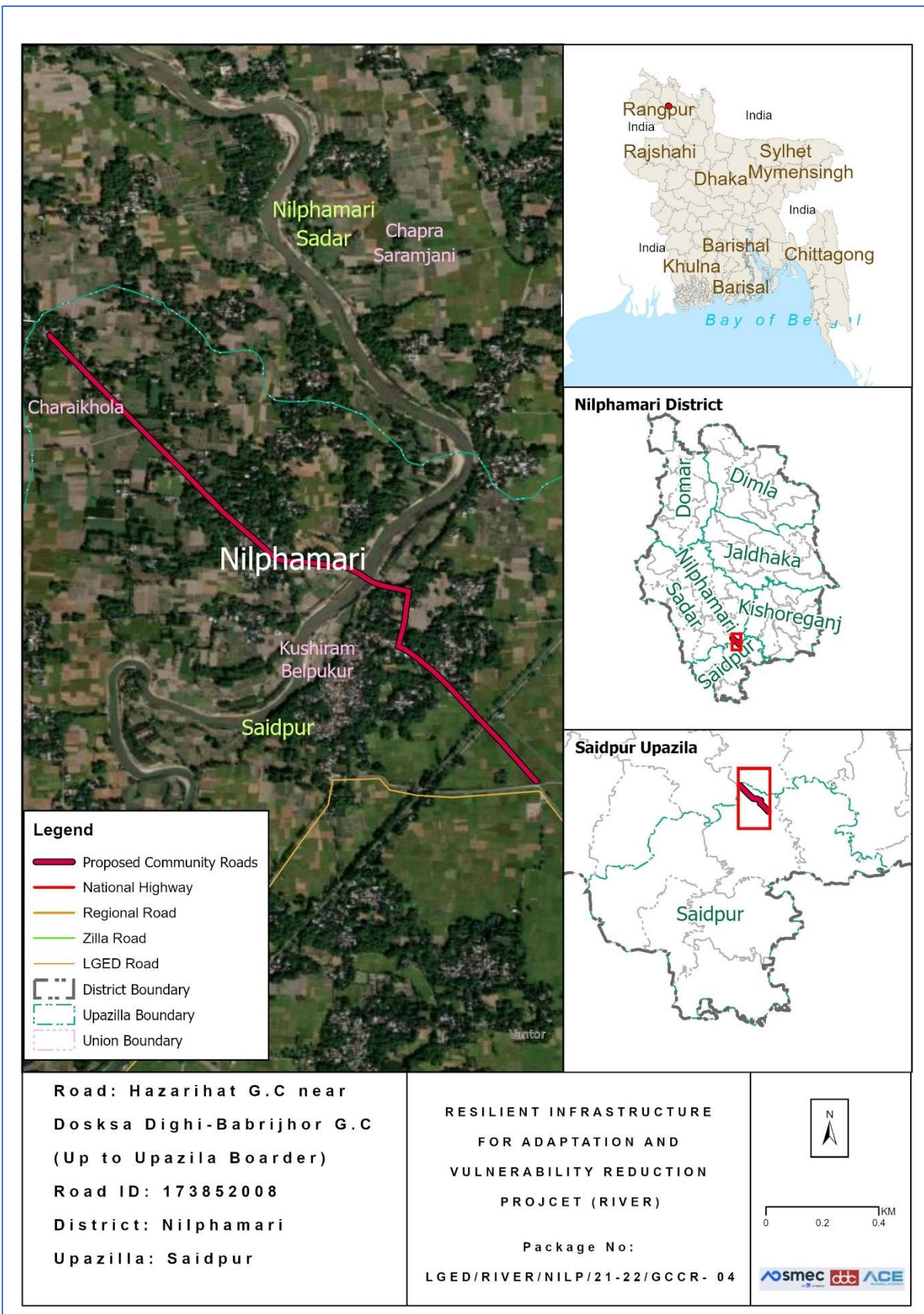
been brought to their attention that palisading has also been included into the evaluation of this project. The proposed Sub-project area for the construction included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does 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 in Kisamot Dangi, Caorabala, Codurepara villages under Kasiram Balpukur Union, Ward No. 2, in Saidpur Upazila of Nilphamari District. Several community facilities and assets are located within approximately 100 meters of the proposed road alignment. On the left side of the road, these include a local bazaar, ditches, School, Eidgah and agricultural land. On the right side, pond, hat-bazar, masjid, human settlements etc. No significant religious or cultural heritage sites will be affected by the proposed sub-project. Therefore, 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 upazila 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. 2340m.

**Sub-project Location:**

Important Features	
ID	173852008
District	Nilphamari
Upazila	Saidpur
Union	Kasiram Balpukur
WARD	02
Total Chainage	2340m
Proposed Chainage	2340m
Road Type	Upazila Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.846402 N Longitude: 88.943288 E
Road Ending Point Coordinates	Latitude: 25.860434 N Longitude: 88.927957 E

**Land ownership**

Land is owned by Government.

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

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

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

## Section B: Environmental and Social Screening

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

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

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

Several environmental and community features are located within approximately 100 meters of the project site. On the left side of the road, these include a local bazaar, ditches, School, Eidgah and agricultural land. On the right side, pond, hat-bazar, masjid, human settlements etc. The proposed sub-project is not expected to cause any disturbance to the religious or cultural values of the local community. Apart from the structures and features mentioned above, no environmentally sensitive, cultural or archaeological sites have been identified within the project's area of influence.

#### **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 of Nilphamari 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.** 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 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 quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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)**

<p>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.</p>
<p><b>Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b>                  No pre - existing drainage channel is found.</p>
<p><b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b>                  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.).</p>
<p><b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b>                  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.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b>                  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.</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b>                  No traffic movement impacts on light but low effects of noise and air pollution.</p>

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**

<p><b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b>                  No</p>
<p><b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b>                  No</p>
<p><b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b>                  No.</p>
<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p>

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: Hazarihat G.C near Doska Dighi Babrijhor, Road ID: 173852008**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets with septic tanks, wash-basins, etc.) for workers and constructor's officials/employees will be provided, and ensure regular cleaning of those.</li> </ul>	Contractor	Environmental Consultant of PIU

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>• 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. Accordingly, 100 trees to be planted on the slopes of both side of the road, once the slope protection works are completed.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>all times.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff.</li> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>based discussion with the local community to avoid any conflicts will be taking place.</p> <ul style="list-style-type: none"> <li>• Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage. Accordingly, coordination with the relevant authority is required to relocate the electric pole at Ch. 0+075 prior to the commencement of works.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> </ul>		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>• Noise producing vehicles and equipment will be keep in maintenance regularly.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• Acceptable range of emission of CO, particulate matter [SPM (<b>Suspended particulate matter</b>), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>		
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>		
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> </ul>	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
		<ul style="list-style-type: none"> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>		
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor and equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>sold to authorized recyclers.</p> <ul style="list-style-type: none"> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	<p>Health &amp; Safety Risks:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>• Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>• Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>• Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>• Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex</li> </ul>	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	hearing loss, heat stress, and dermatitis.	<p>gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test</li> </ul>	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
		<p>results are to be compared with Bangladesh Environmental Quality Standards of DoE.</p> <ul style="list-style-type: none"> <li>• 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.)</li> <li>• The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		
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:	<ul style="list-style-type: none"> <li>• Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required;</li> <li>• Ensure that all affected structures rehabilitated/compensated;</li> <li>• 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.</li> </ul>	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
	<ul style="list-style-type: none"> <li>Pollution from waste materials.</li> <li>Health &amp; Safety risks to workers and local community.</li> </ul>	<ul style="list-style-type: none"> <li>Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic;</li> <li>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.</li> <li>The contractor must arrange the cancellation of all temporary services.</li> </ul>		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>Preventative maintenance schedule should be followed.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	<ul style="list-style-type: none"> <li>The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU
Operation &	Road Safety. Impacts include:	Road safety issues can be minimized in following ways:	UE (Upazila	District Executive

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Maintenance	<ul style="list-style-type: none"> <li>• The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>• 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.</li> <li>• All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	Engineer)	Engineer, LGED
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>• Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	Upazila Engineer	District XEN, LGED

### Cost of Environmental Enhancement Works in BOQ

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

### Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	2916.00 Sq.m	@38.15 Tk. Per sqm	111,245.4
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	2340.0 m	@ 2.56 BDT	5990.4
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p>	1 no.	LS @ Tk.	10,000

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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.	<b><u>Waste disposal facility</u></b> 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.	<b><u>Water Test (Drinking Water samples)</u></b> Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
11.	<b><u>Working labour shed:</u></b> 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.	<b><u>Environmental management</u></b> 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. <a href="#">[One person to be appointed for 11 roads]</a>	Each	@ Tk. 35000	35,000
<b>Subtotal Bill: Environmental facilities</b>				<b>307,881.52</b>



**Existing Surroundings of the Sub-Project**

**Name of Sub-Project:** Improvement of Community Road for **UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder), Road ID: 173854090**

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

**District:** Nilphamari

**Upazila:** Saidpur

**Union:** 05 No. Khata Modhu

**Name of Community/Local Area:** Telipara, Balapara, Khatamodhupur

**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 and construction with Bituminous Carpeting options. For proper drainage of floodwater along the project alignment, a culvert structures will be constructed. A culvert (2 m × 2 m) will be installed at chainage 1500m. To ensure slope protection and road stability, 10m brick palisading walls (Ch.-1490m) will be constructed where required. 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 2240 sqm.

**Important Environmental and Social Features near site:**

**Detail Chainage Length of the sub-project:** 700m. 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 (Left/Right)		Environmental Features
	L	R	
00-300	L		Shops, Human Settlements
		R	Temple(10m), Human Settlements
300-600	L		Shops. Agricultural land, Human Settlements
		R	Shops, Primary school (3.0m), Human Settlements
600-700	L		Temple (3.0m), Human Settlements, Pond (3.0m)
		R	Human Settlements



**Starting Point of UZR-1 near Hindupara-Nayenkhal 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 (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 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 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,

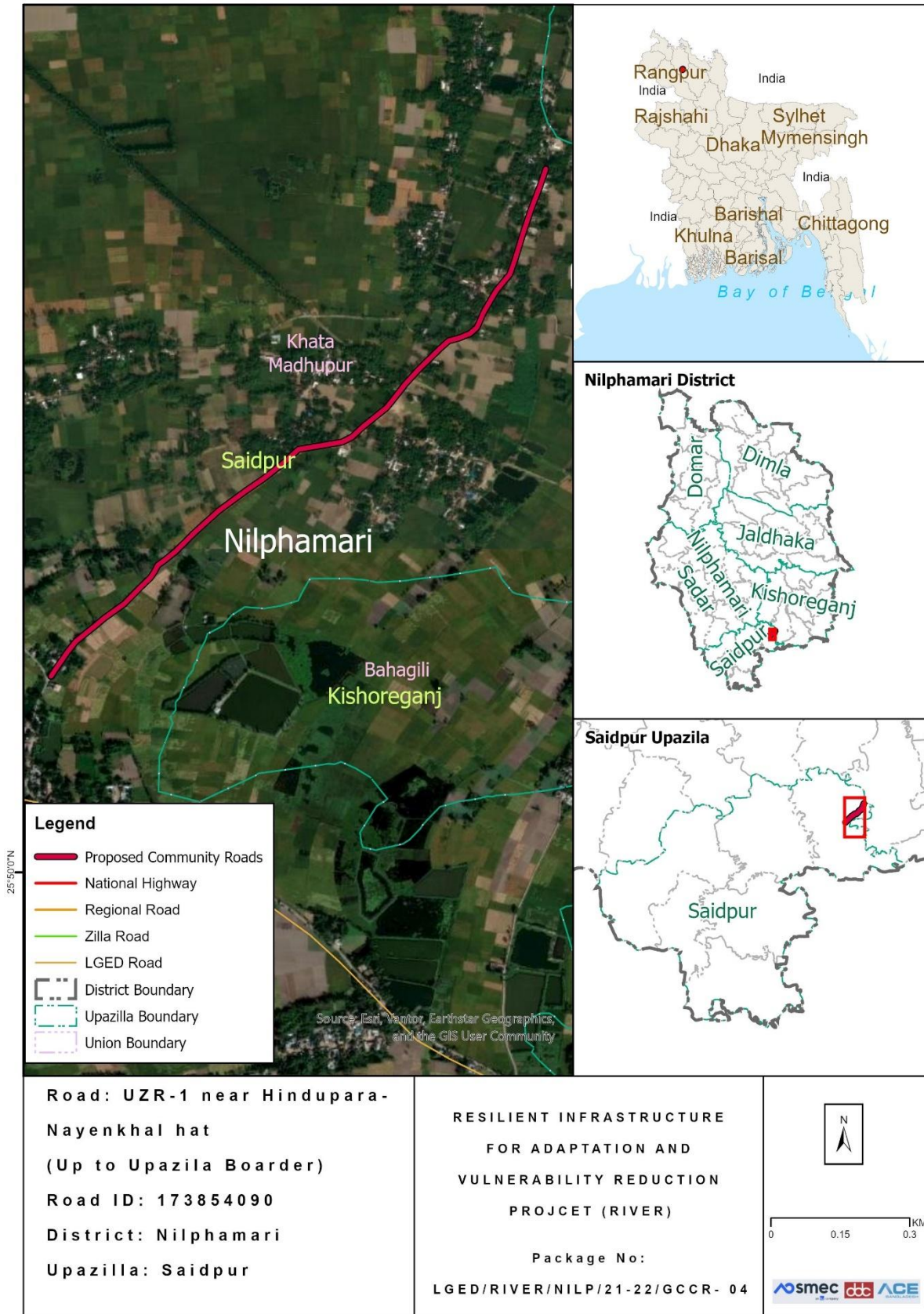
no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

**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 Parisala and Balapara villages under 05 no. Khata Modhu Union, Ward No. 6 of Saidpur Upazila in Nilphamari 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 several trees such as Kadam and mango, along with a pond. Similarly, the right side of the road contains Banyan, Date, Mango, and Coconut trees. 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 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. 700m.

**Sub-project Location:**

Important Features	
ID	173854090
District	Nilphamari
Upazila	Saidpur
Union	8 No. Khatamodhupur
Total Chainage	1500m
Proposed Chainage	700m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.846647 N Longitude: 88.986770 E
Road Ending Point Coordinates	Latitude: 25.837089 N Longitude: 88.977108 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 Parisla and Balapara 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 environmental features are located within approximately 100 meters of the project site. On the left side of the road, the surrounding land uses include several trees such as Kadam and mango, along with a pond. Similarly, the right side of the road contains Date, mango, and coconut trees. The proposed sub-project is not expected to cause any disturbance to the religious or cultural values of the local community. Apart from the structures and features mentioned above, no environmentally sensitive, cultural, archaeological, or religious sites have been identified within the project influence area.

#### **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 Nilphamari 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. 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 quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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 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: UZR-1 near Hindupara-Nayenkhal hat (Up to Upazila Boarder), Road ID: 173854090**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> <li>Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people.</li> <li>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.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	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
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>No trees, shrubs will be removed or vegetation stripped without prior permission of the</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>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.</p> <ul style="list-style-type: none"> <li>• Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• Proper fencing around the storage area and</li> </ul>		

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		<p>working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.</p>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> <li>• 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.</li> <li>• The contractor must ensure sound environment for</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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		the local residents near the sub project site.		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>• Noise producing vehicles and equipment will be keep in maintenance regularly.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> </ul>	Contractor	Environmental Consultant of PIU

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		<ul style="list-style-type: none"> <li>Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>		
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>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)</li> <li>Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>Records of every training must be kept at site.</li> <li>All kinds of Child labour are completely prohibited in every site.</li> <li>Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>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.</li> <li>Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>Local traffic police department should be contacted, if traffic problem becomes more</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site.</li> <li>• Local community must be consulted before any construction works start.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions;</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>and road diversions and closures to be informed well in advance to the local community.</p> <ul style="list-style-type: none"> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>		
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous</li> </ul>		

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		<p>reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<ul style="list-style-type: none"> <li>• Preparation of a waste management plan covering the following aspects:</li> <li>• Waste from the temporary accommodation facilities for labor</li> <li>• Waste from equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.</li> <li>• Working areas are kept clean and tidy at all times.</li> <li>• Construction site is to be checked for spills of substances i.e. chemical, oil, etc.</li> <li>• Bins and/ or skips should be emptied regularly and</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>waste/ debris should be disposed off at waste disposal areas and/ or at the site.</p> <ul style="list-style-type: none"> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> <li>• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road.</li> <li>• Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.</li> </ul>	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	<p>Health &amp; Safety Risks:</p> <ul style="list-style-type: none"> <li>• The potential for exposure to safety events such as tripping, working at height activities,</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work</li> </ul>	Contractor	Environmental Consultant as well as Social Development and Gender

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	<p>fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p>for all types of work activities on site.</p> <ul style="list-style-type: none"> <li>Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>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.</li> <li>All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems.</li> <li>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</li> </ul>		<p>Specialists of PIU</p>

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		<p>Emergency evacuation response plan will exist in sub-project area.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• Ensure monitoring of nearby surface and underground water bodies for signs of</li> </ul>	Contractor	Environmental Consultant of

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE.</p> <ul style="list-style-type: none"> <li>• 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.)</li> <li>• 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.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• All precautions to store chemicals/oil/fuel properly so that no chance of spill.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		PIU/D&SC.
Construction Activity	Demobilization of structures, facilities and equipment used during the project	<ul style="list-style-type: none"> <li>• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC, district

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<p>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.</p> <ul style="list-style-type: none"> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>		<p style="text-align: center;">XEN.</p>
<p>Construction activity</p>	<p>Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna</p>	<ul style="list-style-type: none"> <li>• Preventative maintenance schedule should be followed.</li> <li>• 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</li> </ul>	<p style="text-align: center;">Contractor</p>	<p style="text-align: center;">Environmental Consultant of PIU, Union Parishad Member</p>

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

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	<p>generating nutrient rich compost soil over time.</p> <ul style="list-style-type: none"> <li>The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Road safety issues can be minimized in following ways:</li> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	Upazila Engineer (UE)	District Executive Engineer, LGED

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>• Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	UE	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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</li> </ul>	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.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	840.00 Sqm	@38.15 Tk. Per sqm	32,046.00
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	700m	@ 2.56 BDT	1792.00
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

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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.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk. 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p>	1 no.	LS @ Tk.	10,000

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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.	<b><u>Waste disposal facility</u></b> 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.	<b><u>Water Test (Drinking Water samples)</u></b> Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
11.	<b><u>Working labour shed:</u></b> 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.	<b><u>Environmental management</u></b> 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. <a href="#">[One person to be appointed for 11 roads]</a>	Each road	@ Tk. 35000	35000
<b>Subtotal Bill: Environmental facilities</b>				<b>224,483.72</b>



**Existing Surroundings of the Sub-Project**

**Name of Sub-Project:** Improvement of Community Road for Hindupara to Hamurhat **Road,**  
**Road ID:** 173855019

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

**District:** Nilphamari

**Upazila:** Saidpur

**Union:** Khata Modhupur

**Name of Community/Local Area:** Khata Modhupur, Hamurhat, Parisala

**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 development project with bituminous carpeting. Slope protection works will be implemented 15 m and 26 m from chainage 000 m and chainage 150 m respectively. These measures are proposed to protect the road embankment from erosion and to enhance the stability of the road structure, particularly during heavy rainfall and surface runoff conditions. To ensure slope protection and road stability, brick palisading walls and RCC retaining walls will be constructed where required. 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 8,640 sqm.

**Important Environmental and Social Features near site:**

Detail Chainage Length of the sub-project: 775m. 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 (Left/Right)		Environmental Features
	L	R	
00-300	L		Pond (2.5m), Agricultural Land
		R	Pond (2.5m), Human Settlements, Agricultural lands
300-600	L		Shops, Agricultural lands
		R	Hat-Bazar, Agricultural land
600-775	L		Hat-Bazar, Agricultural land
		R	Hat-Bazar, Agricultural land



**Starting Point of Hindupara to Hamurhat 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 passve 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 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

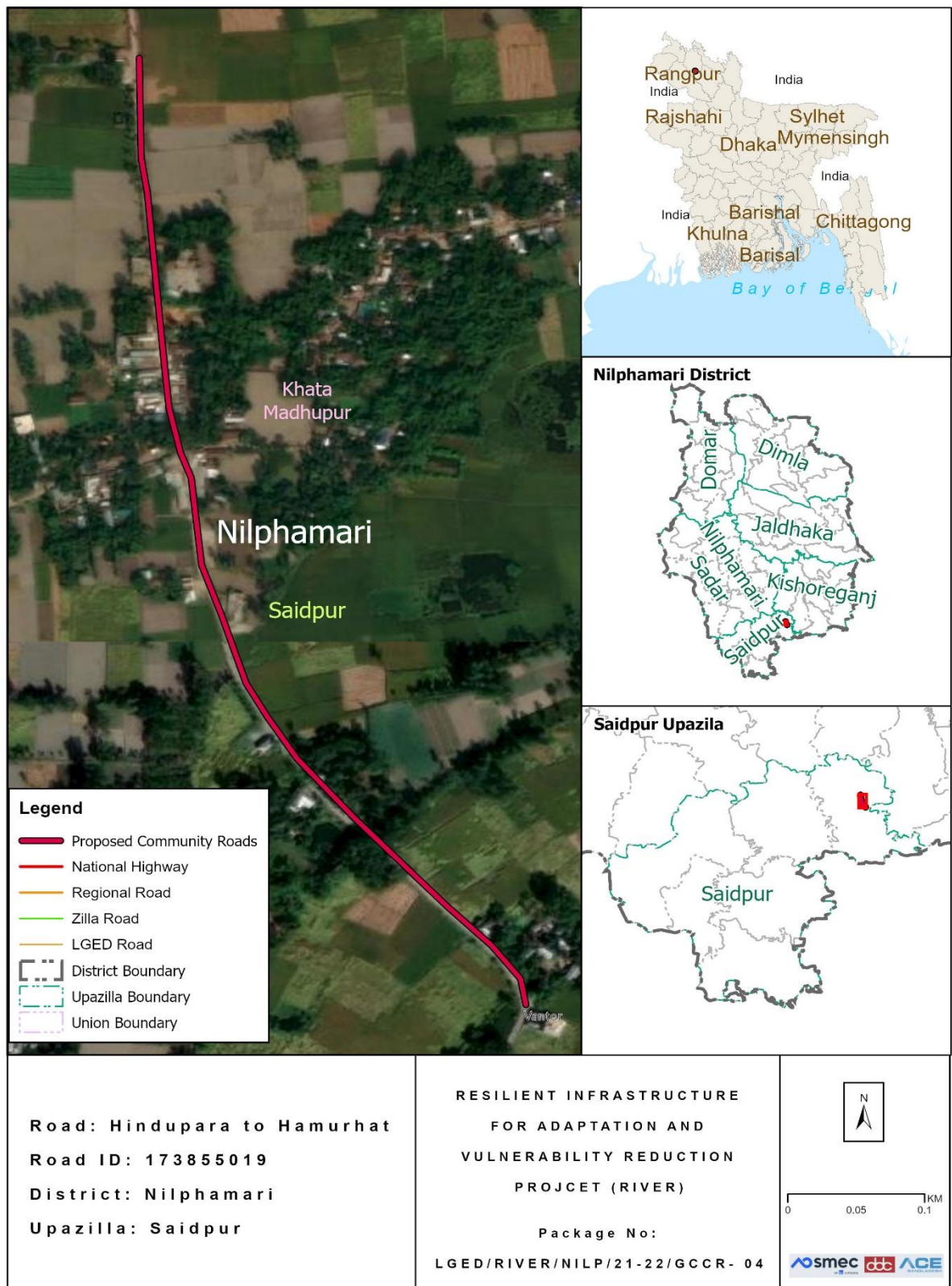
ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

**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 Parisala, Hamurhat villages under Khata Modhupur union, Ward No. 6 of Saidpur Upazila in Nilphamari District. Several community features and assets are situated within approximately 100 meters of the project alignment. On the left side of the road, these include damaged structures, ponds, trees, houses, agricultural land, and small shops. On the right side, there are damaged structures, houses, ponds, trees, and an existing bridge. 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 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. 775m.

**Sub-project Location:**

Important Features	
ID	173855019
District	Nilphamari
Upazila	Saidpur
Union	Khata Modhupur
Total Chainage	775m
Proposed Chainage	775m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.836965 N Longitude: 88.977081 E
Road Ending Point Coordinates	Latitude: 25.843436 N Longitude: 88.974541 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 Parisala, Hamurhat 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 environmental features are located within approximately 100 meters of the project site. On the left side of the alignment, these include damaged structures, Hat-Bazar, ponds, trees, houses, agricultural land, and small shops. On the right side, the surrounding features include damaged structures, houses, Hat-Bazar, ponds, trees, and an existing bridge. The proposed sub-project is not expected to cause any disturbance to the religious or cultural values of the local community. Apart from the structures and features mentioned above, no environmentally sensitive, cultural, archaeological, or religious sites have been identified within the project influence area.

#### **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 of Nilphamari 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.** 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 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: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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.
<b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b> 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.).
<b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b> 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.
<b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b> 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.
<b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b> 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

<b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b> No
<b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b> No
<b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b> No.
<b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b> There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.
<b>Likely direct and indirect impacts on economic development in the project areas by the sub-project:</b>

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: Hindupara to Hamurhat Road, Road ID: 173855019**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets with septic tanks, wash-basins, etc.) for workers and constructor's officials/employees will be provided, and ensure regular cleaning of those.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>• 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. Accordingly, 100 trees to be planted on the slopes of both side of the road, once the slope protection works are completed.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>all times.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff.</li> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>conflicts will be taking place.</p> <ul style="list-style-type: none"> <li>• Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage. Accordingly, coordination with the relevant authority is required to relocate the electric pole at Ch. 0+075 prior to the commencement of works.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> </ul>		
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• Acceptable range of emission of CO, particulate matter [SPM (<b>Suspended particulate matter</b>), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>training and guidance on health and safety issues to the labors and associated staff.</p> <ul style="list-style-type: none"> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>		
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps</li> </ul>	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
		<p>will be put in place.</p> <ul style="list-style-type: none"> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>		
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor and equipment maintenance/vehicles on-site.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	<p>Health &amp; Safety Risks:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Exposure to health events during construction activities such as manual handling and musculoskeletal</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>• Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>• Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>• Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>• Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex</li> </ul>	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.</p>	<p>gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test</li> </ul>	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
		<p>results are to be compared with Bangladesh Environmental Quality Standards of DoE.</p> <ul style="list-style-type: none"> <li>• 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.)</li> <li>• 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.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		
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	<ul style="list-style-type: none"> <li>• Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required;</li> <li>• Ensure that all affected structures rehabilitated/compensated;</li> <li>• 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.</li> </ul>	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
	<p>construction stage:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<ul style="list-style-type: none"> <li>• Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic;</li> <li>• 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.</li> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>• Preventative maintenance schedule should be followed.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	<ul style="list-style-type: none"> <li>• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>• Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include:	<p>Road safety issues can be minimized in following ways:</p> <ul style="list-style-type: none"> <li>• By enforcing speed limits and imposing penalties on the</li> </ul>	UE (Upazila Engineer)	District Executive Engineer, LGED

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<ul style="list-style-type: none"> <li>• The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>• 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.</li> </ul>	<p>traffic violators will ensure the road safety.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>• Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	Upazila Engineer	District XEN, LGED

### Cost of Environmental Enhancement Works in BOQ

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

### Cost of Environmental Enhancement Works in BOQ

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	930.00 Sq.m	@38.15 Tk. Per sqm	35,479.50
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	775.0m	@ 2.56 BDT	1,984.00
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

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SI no.	Description of item	Quantity	Unit price	Total amount
	the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk. 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p>	1 no.	LS @ Tk.	10,000

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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.	<b><u>Waste disposal facility</u></b>  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.	<b><u>Water Test (Drinking Water samples)</u></b>  Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
11.	<b><u>Working labour shed:</u></b>  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.	<b><u>Environmental management</u></b>  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. <a href="#">[One person to be appointed for 11 roads]</a>	Each	@ Tk. 35000	35,000
	<b>Total Bill of Environmental facilities for this road</b>			<b>228,109.22</b>



**Existing Surroundings of the Sub-Project**



		R	Agricultural Land
1200-1500	L		Primary school (4.0m), Hat-Bazar, Agricultural Land
		R	Hat-Bazar, Agricultural Land



**Starting Point of Chandia Bazar to Thakur 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 (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 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, for slope protection 50m palisading will be constructed at the chainage 100m. The proposed Sub-project area for the

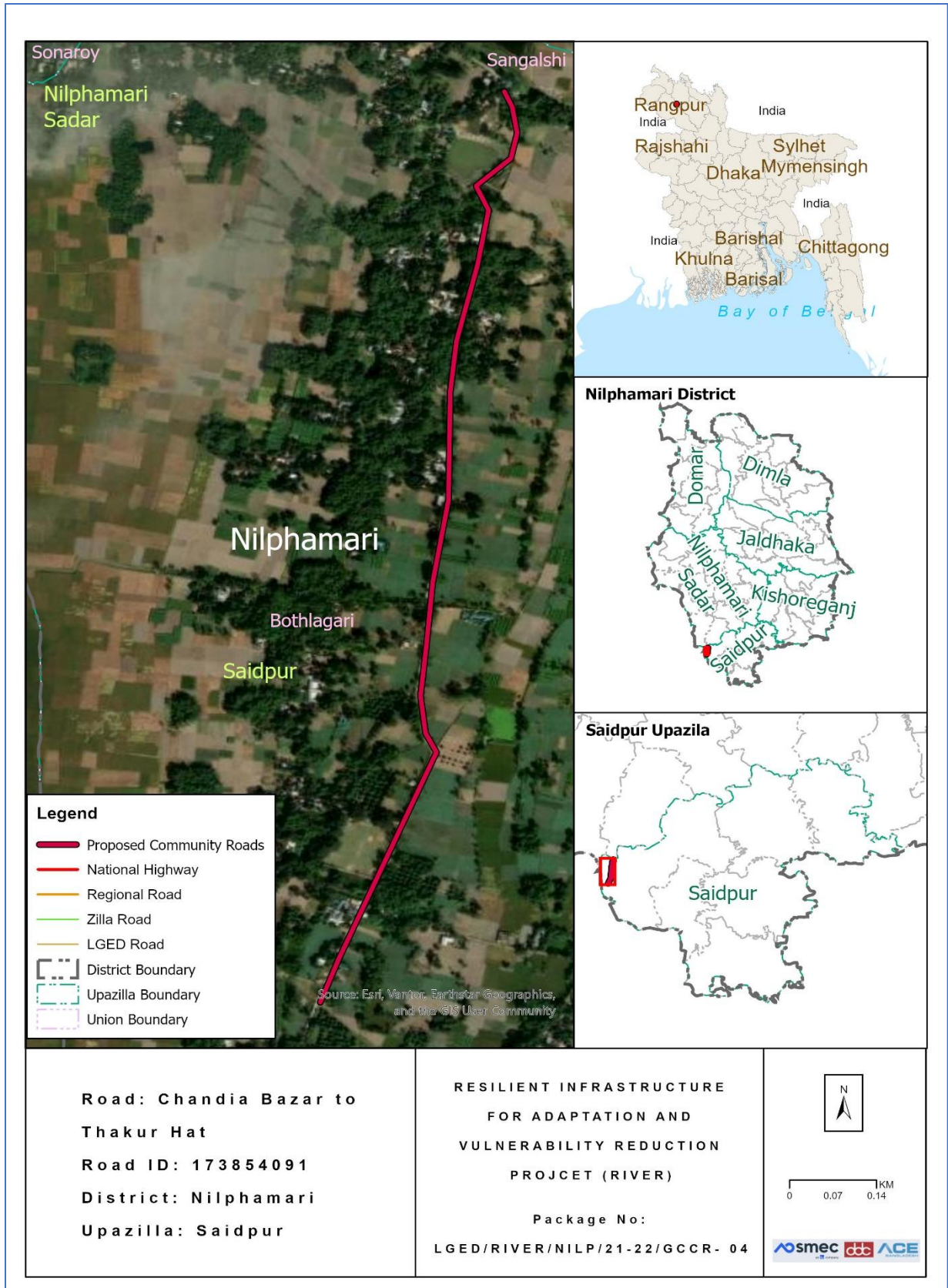
construction included flat areas and moderate hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, 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 Kodhopara, Kabirajpara villages under Bodlagaci Union, Ward No. 3 of Saidpur Upazila in Nilphamari District. Several community features and assets are situated within approximately 100 meters of the project alignment. On the left side of the road, these include damaged structures, ponds, trees, houses, agricultural land, and small shops. On the right side, there are damaged structures, houses, ponds, trees, and an existing bridge. 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 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. 1500m.

**Sub-project Location:**

Important Features	
ID	173854091
District	Nilphamari
Upazila	Saidpur
Union	4 No. Bodlagaci
Total Chainage	1500m
Proposed Chainage	1500m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 25.809791 N Longitude: 88.853876 E
Road Ending Point Coordinates	Latitude: 25.797286 N Longitude: 88.851567 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 Kodhopara, Borodoho, 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 environmental features are located within approximately 100 meters of the project site. On the left side of the alignment, these include Hat-Bazar, trees, primary school, houses, agricultural land. On the right side, the surrounding features include houses, Hat-Bazar, ponds, trees. The proposed sub-project is not expected to cause any disturbance to the religious or cultural values of the local community. Apart from the structures and features mentioned above, no environmentally sensitive, cultural, archaeological, or religious sites have been identified within the project influence area.

#### **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 of Nilphamari 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**. 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 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: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681 $\mu$ s/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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.
<p><b>Requirement and type of raw materials (e.g. sand, stone, wood, etc.):</b></p> <p>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.</p>
<p><b>Identification of access road for transportation (Yes/No):</b></p> <p>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.</p>
<p><b>Location identification for raw material storage:</b></p> <p>Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.</p>
<p><b>Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):</b></p> <p>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.</p>

### B.3: Construction Phase

<p><b>Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):</b></p> <p>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.</p>
<p><b>Type and quantity of raw materials used (wood, bricks, cement, water, etc.):</b></p> <p><b>Type:</b> 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.</p>
<p><b>Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:</b></p> <p>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.</p>
<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p> <p>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</p>

<p>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.</p>
<p><b>Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b></p> <p>No pre - existing drainage channel is found.</p>
<p><b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>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.).</p>
<p><b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b></p> <p>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.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b></p> <p>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.</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b></p> <p>No traffic movement impacts on light but low effects of noise and air pollution.</p>

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

<p><b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b></p> <p>No</p>
<p><b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b></p> <p>No</p>
<p><b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b></p> <p>No.</p>

<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p> <p>There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.</p>
<p><b>Likely direct and indirect impacts on economic development in the project areas by the sub-project:</b></p> <p>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.</p>
<p><b>Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b></p> <p>No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated</p>
<p><b>Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>There are no protected areas in or around project sites, and no known areas of ecological interest.</p>
<p><b>Activities leading to landslides, slumps, slips and other mass movements in road cuts:</b></p> <p>The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)</b></p> <p>No</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b></p> <p>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.</p>

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: Chandia Bazar to Thakur Hat Road, Road ID: 173854091**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> <li>Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people.</li> <li>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.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives</li> </ul>	PIU	Social

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Construction Stage		<p>that access enjoyed by the community remains intact.</p> <ul style="list-style-type: none"> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>		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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>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.</p> <ul style="list-style-type: none"> <li>• Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		

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Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> <li>• 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.</li> <li>• The contractor must ensure sound environment for the local residents near the sub project site.</li> </ul>	PIU & Contractor	Environmental Consultant of PIU
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> </ul>	Contractor	Environmental Consultant of PIU

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		<ul style="list-style-type: none"> <li>• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>• Noise producing vehicles and equipment will be kept in maintenance regularly.</li> <li>• 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.</li> </ul>		
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water floresent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>site office and stack yards, and maintaining a visitor's log book at entrance)</p> <ul style="list-style-type: none"> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>		
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> <li>• 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</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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		<p>especially during the critical period.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site.</li> <li>• Local community must be consulted before any construction works start.</li> </ul>		
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV,</li> </ul>	Contractor	Social Development

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		<p>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.</p> <ul style="list-style-type: none"> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>		Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• 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.</li> </ul>		
Construction	Waste Management:	<ul style="list-style-type: none"> <li>• Preparation of a waste management plan covering</li> </ul>	Contractor	Environmental

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Activity	Improper management and handling of hazardous and non-hazardous waste during construction.	<p>the following aspects:</p> <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor</li> <li>• Waste from equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.</li> <li>• Working areas are kept clean and tidy at all times.</li> <li>• Construction site is to be checked for spills of substances i.e. chemical, oil, etc.</li> <li>• Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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</li> </ul>		Consultant of PIU

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		<p>be provided with portable spill containment and cleanup equipment.</p> <ul style="list-style-type: none"> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> <li>• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road.</li> <li>• Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.</li> </ul>	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	<p>Health &amp; Safety Risks:</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Exposure to health events during construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>• Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>• Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>• Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>• This sub project will have Proper communicative</li> </ul>	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

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	<p>such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.</p>	<p>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.</p> <ul style="list-style-type: none"> <li>• All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems.</li> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be</li> </ul>		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>available at all Sites, on different locations within the site.</p> <ul style="list-style-type: none"> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.)</li> <li>• The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• The overall slope of the work areas and stack yards</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC.

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere.</p> <ul style="list-style-type: none"> <li>• All precautions to store chemicals/oil/fuel properly so that no chance of spill.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		
Construction Activity	<p>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:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<ul style="list-style-type: none"> <li>• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document.</li> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>Preventative maintenance schedule should be followed.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	<ul style="list-style-type: none"> <li>The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The</li> </ul>	<ul style="list-style-type: none"> <li>Road safety issues can be minimized in following ways:</li> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> </ul>	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
	<p>accidents may also be due to tiredness of drivers.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>		
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	UE	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	<ul style="list-style-type: none"> <li>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</li> </ul>	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

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	1800.00 Sq.m	@38.15 Tk. Per sqm	68,670.00
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	1500.0m	@ 2.56 BDT	3,840.00
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

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SI 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.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk. 30,000	30,000

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SI no.	Description of item	Quantity	Unit price	Total amount
8.	<p><b><u>Motivation training</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 10,000	10,000
9.	<p><b><u>Waste disposal facility</u></b></p> <p>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.</p>	LS	@ Tk. 5000	5,000
10.	<p><b><u>Water Test (Drinking Water samples)</u></b></p> <p>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.</p>	LS	@ Tk. 5000	5,000
11.	<p><b><u>Working labour shed:</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
12.	<p><b><u>Environmental management</u></b></p> <p>Environmental management costs of the Environment &amp; Social/ Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary &amp; transport (Net payment excluding Tax &amp;VAT). And as per direction of the E.I.C. <a href="#">[One person to be appointed for 11 roads]</a></p>	Each	@ Tk. 35000	35,000
<b>Total Bill of Environmental facilities for this road</b>				<b>263,155.72</b>



**Existing Surroundings of the Sub-Project**

**Name of Sub-Project:** Improvement of Community Road for **Gomnati Bazar RHD road to Chilahati GC road via Ketkibari UPC Road, Road ID: 173152014**

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

**District:** Nilphamari  
Gomnati

**Upazila:** Domar

**Union:**

**Name of Community/Local Area:** Gomnati, Ketkibari.

**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 development project with bituminous carpeting. These measures are proposed to protect the road embankment from erosion and to enhance the stability of the road structure, particularly during heavy rainfall and surface runoff conditions. 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 7,680 sqm.

**Important Environmental and Social Features near site:**

Detail Chainage Length of the sub-project: 2,400m. 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 (Left/Right)		Environmental Features
	L	R	
00-300	L		River(15m), Agricultural land, Human Settlement
		R	Agricultural land, Human Settlement
300-600	L		Primary school (1.0m), Agricultural land, Human Settlement
		R	Agricultural land, Human Settlement
600-900	L		Agricultural land, Human Settlement
		R	Agricultural land, Human Settlement
900-1200	L		Shops, Agricultural land, Human Settlement
		R	School (5.0m), Pond (4.0m), Human Settlement

Chainage	Orientation (Left/Right)		Environmental Features
	L	R	
1200-1500	L		Primary school (5.0m), Agricultural Land
		R	Ditches (3.0m), Agricultural land, River (50.0m)
1500-1800	L		Big old tree, Agricultural land, Human Settlement
		R	Masjid (3.0m), Pond (5.0m), Human Settlement
1800-2100	L		Big old tree, Agricultural land, Human Settlement
		R	Agricultural land, Human Settlement
2100-2400	L		Shops, Agricultural land, Human Settlement
		R	Pond (4.0m), Agricultural land, Human Settlement



**Starting Point of Gomnati Bazar RHD to Chilahati 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 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.

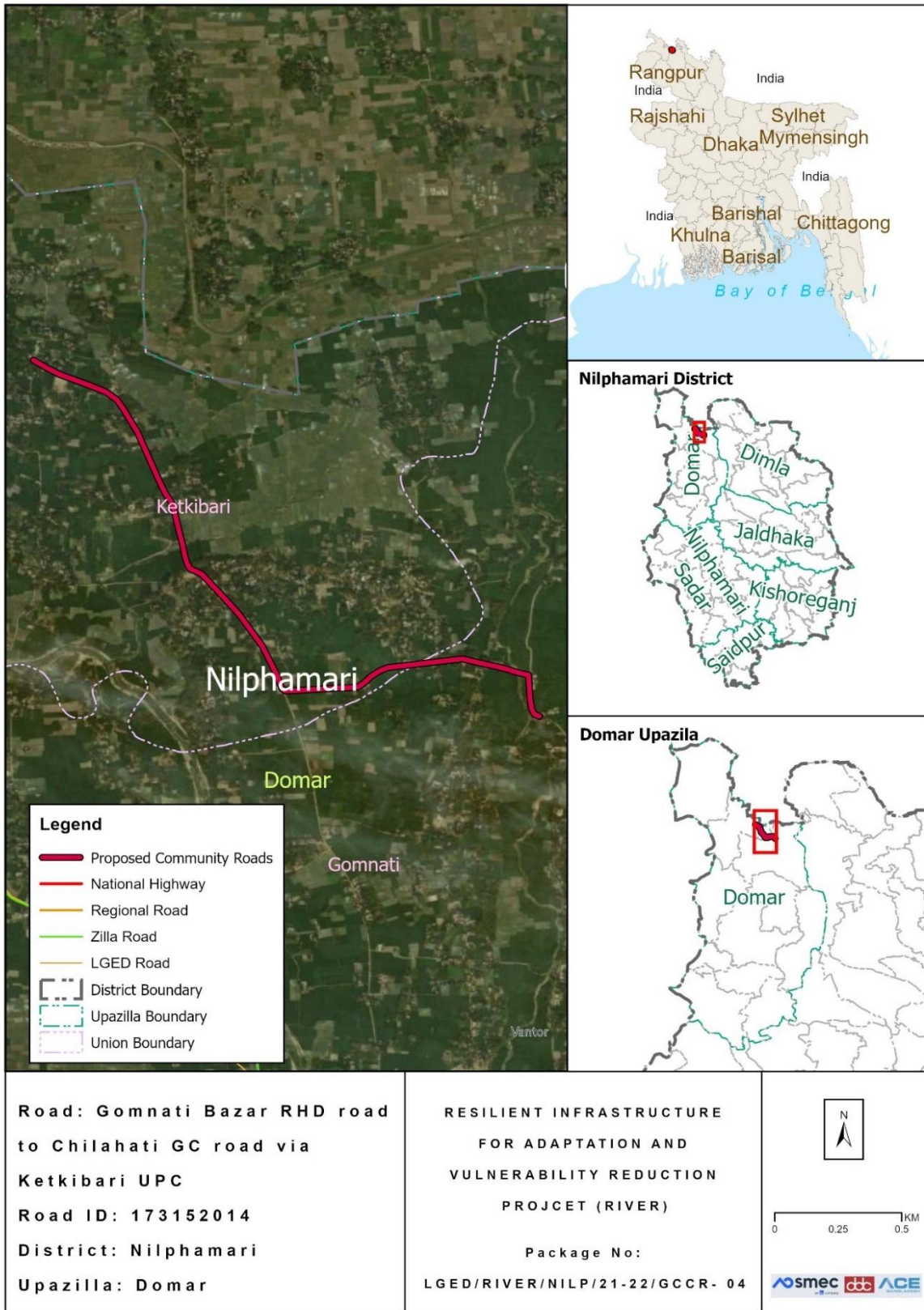
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. The proposed Sub-project area for the construction included flat areas and moderate hillock village road is not located within any identified environmentally 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 Uttor Gomnati, Ketkibari villages under Gomnati, Ward No. 9 of Domar Upazila in Nilphamari District. Several community features and assets are situated within approximately 100 meters of the project alignment. On the left side of the road, these include damaged structures, ponds, trees, houses, agricultural land, and small shops. On the right side, there are damaged structures, houses, ponds, trees, and an existing bridge. 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 upazila 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. 2600 to Ch. 5000m.

##### Sub-project Location:

Important Features	
ID	173152014
District	Nilphamari
Upazila	Domar
Union	Gomnati
WARD	09
Total Chainage	5000m
Proposed Chainage	2400m
Road Type	Upazila Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 26.219442 N Longitude: 88.852456 E
Road Ending Point Coordinates	Latitude: 26.231896 N Longitude: 88.834853 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 Uttor Gomnati, Ketkibari 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 environmental features are located within approximately 100 meters of the project site. On the left side of the alignment, these include River, shops, Hat-Bazar, trees, primary school, houses, agricultural land. On the right side, the surrounding features include Masjid, Pond, houses, Hat-Bazar, ponds, trees. The proposed sub-project is not expected to cause any disturbance to the religious or cultural values of the local community. Apart from the structures and features mentioned above, no environmentally sensitive, cultural, archaeological, or religious sites have been identified within the project influence area.

#### 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 of Nilphamari 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**. 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 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: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681 $\mu$ s/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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.
<p><b>Requirement and type of raw materials (e.g. sand, stone, wood, etc.):</b></p> <p>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.</p>
<p><b>Identification of access road for transportation (Yes/No):</b></p> <p>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.</p>
<p><b>Location identification for raw material storage:</b></p> <p>Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.</p>
<p><b>Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):</b></p> <p>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.</p>

### B.3: Construction Phase

<p><b>Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):</b></p> <p>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.</p>
<p><b>Type and quantity of raw materials used (wood, bricks, cement, water, etc.):</b></p> <p><b>Type:</b> 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.</p>
<p><b>Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:</b></p> <p>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.</p>
<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p> <p>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</p>

<p>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.</p>
<p><b>Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b></p> <p>No pre - existing drainage channel is found.</p>
<p><b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>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.).</p>
<p><b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b></p> <p>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.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b></p> <p>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.</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b></p> <p>No traffic movement impacts on light but low effects of noise and air pollution.</p>

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

<p><b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b></p> <p>No</p>
<p><b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b></p> <p>No</p>
<p><b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b></p> <p>No.</p>

<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p> <p>There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.</p>
<p><b>Likely direct and indirect impacts on economic development in the project areas by the sub-project:</b></p> <p>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.</p>
<p><b>Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b></p> <p>No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated</p>
<p><b>Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>There are no protected areas in or around project sites, and no known areas of ecological interest.</p>
<p><b>Activities leading to landslides, slumps, slips and other mass movements in road cuts:</b></p> <p>The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)</b></p> <p>No</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b></p> <p>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.</p>

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: Gomnati Bazar RHD road to Chilahati GC road via Ketkibari UPC Road, Road ID: 173152014**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	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)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets with septic tanks, wash-basins, etc.) for workers and constructor's officials/employees will be provided, and ensure regular</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>cleaning of those.</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>• 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. Accordingly, 100 trees to be planted on the slopes of both side of the road, once the slope protection works are completed.</li> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those.</p> <ul style="list-style-type: none"> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	<p>Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services</p>	<ul style="list-style-type: none"> <li>• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff.</li> <li>• 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.</li> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage. Accordingly, coordination with the relevant authority is required to relocate the electric pole at Ch. 0+075 prior to the</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>commencement of works.</p> <ul style="list-style-type: none"> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> </ul>		
Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance.</li> <li>• All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works.</li> <li>• Noise producing vehicles and equipment will be keep in maintenance regularly.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• Acceptable range of emission of CO, particulate matter [SPM (<b>Suspended particulate matter</b>), PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes.</li> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>	Contractor	Environmental Consultant of PIU

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Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.</li> <li>• Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>local community.</p> <ul style="list-style-type: none"> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>		
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• Appropriate notification or training to the workers about the</li> </ul>		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.	<p>Preparation of a waste management plan covering the following aspects:</p> <ul style="list-style-type: none"> <li>• Waste from the temporary accommodation facilities for labor and equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Health & Safety Risks: <ul style="list-style-type: none"> <li>• The potential for exposure to safety events such as tripping, working at height</li> </ul>	<ul style="list-style-type: none"> <li>• All construction equipment will be properly inspected timely.</li> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>• Provide walkways that are clearly designated as a walkway;</li> </ul>	Contractor	Environmental Consultant as well as Social Development and Gender

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	<p>activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>	<p>all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</p> <ul style="list-style-type: none"> <li>Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing</li> </ul>		Specialists of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>facilities.</p> <ul style="list-style-type: none"> <li>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.</li> </ul>		
Construction Activity	Pollution of water bodies	<ul style="list-style-type: none"> <li>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.</li> <li>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.)</li> <li>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.</li> <li>Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>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.</li> <li>Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>	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
Construction Activity	<p>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:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<ul style="list-style-type: none"> <li>• Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required;</li> <li>• Ensure that all affected structures rehabilitated/compensated;</li> <li>• 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.</li> <li>• Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic;</li> <li>• 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.</li> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>	Contractor	Environmental Consultant of PIU/D&SC, district XEN.
Construction activity	<p>Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna</p>	<ul style="list-style-type: none"> <li>• Preventative maintenance schedule should be followed.</li> <li>• 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.</li> </ul>	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	<p>Rigorous Monitoring and Report Preparation and Submission</p>	<ul style="list-style-type: none"> <li>• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<ul style="list-style-type: none"> <li>Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>		
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>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.</li> </ul>	<p>Road safety issues can be minimized in following ways:</p> <ul style="list-style-type: none"> <li>By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>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.</li> <li>All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	UE (Upazila Engineer)	District Executive Engineer, LGED
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	Upazila Engineer	District XEN, LGED

### Cost of Environmental Enhancement Works in BOQ

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

### Cost of Environmental Enhancement Works in BOQ

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	2880.00 Sq.m	@38.15 Tk. Per sqm	109,872.00
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	2400.0m	@ 2.56 BDT	6,144.00
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

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SI no.	Description of item	Quantity	Unit price	Total amount
	the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk. 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p>	1 no.	LS @ Tk.	10,000

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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.	<b><u>Waste disposal facility</u></b>  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.	<b><u>Water Test (Drinking Water samples)</u></b>  Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
11.	<b><u>Working labour shed:</u></b>  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.	<b><u>Environmental management</u></b>  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. <a href="#">[One person to be appointed for 11 roads]</a>	Each	@ Tk. 35000	35,000
<b>Total Bill of Environmental facilities for this road</b>				<b>306,661.72</b>



**Existing Surroundings of the Sub-Project**



Chainage	Orientation (Left/Right)		Environmental Features
		R	Human Settlement, Agricultural land
1200-1500	L		Human Settlement, Agricultural land
		R	Human Settlement, Agricultural land
1500-1800	L		Human Settlement, Agricultural land
		R	Agricultural land
1800-2070	L		Human Settlement, Agricultural land
		R	Agricultural land



**Starting Point of Kaoler Mor UZR/2002 to Vhalagonj 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 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.

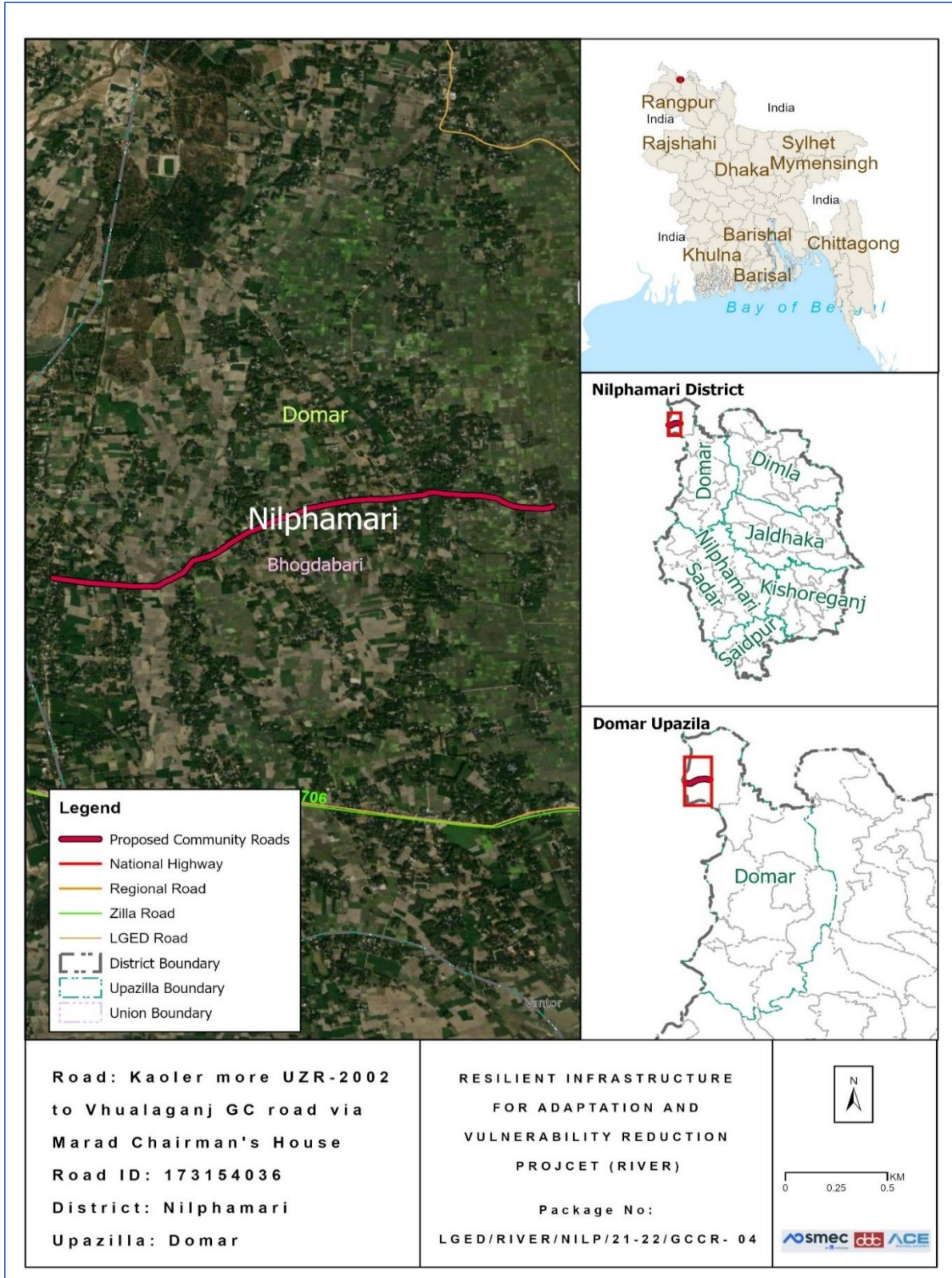
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. The proposed Sub-project area for the construction included flat areas and moderate hillock village road is not located within any identified environmentally 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 nijvogdhabari, Vogdhabari villages under 1 no. Vogdhabari Union, Ward No. 5 of Domar Upazila in Nilphamari District. Several community features and assets are situated within approximately 100 meters of the project alignment. On the left side of the road, these include damaged structures, ponds, trees, houses, Masjid, agricultural land, and small shops. On the right side, there are damaged structures, Hat-bazar, houses, ponds, trees, and an existing bridge. 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 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. 2070m.

**Sub-project Location:**

<b>Important Features</b>	
ID	173154036
District	Nilphamari
Upazila	Domar
Union	1No. Bhogdhabari
Total Chainage	2070m
Proposed Chainage	2070m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 26.659452 N Longitude: 88.784326 E
Road Ending Point Coordinates	Latitude: 26.255702 N Longitude: 88.765114 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 Nijbhogdhabari, Vogdhabari 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 environmental features are located within approximately 100 meters of the project site. On the left side of the alignment, these include pond, trees, Hat-Bazar, houses, agricultural land. On the right side, the surrounding features include shop, Pond, houses, ponds, trees. The proposed sub-project is not expected to cause any disturbance to the religious or cultural values of the local community. Apart from the structures and features mentioned above, no environmentally sensitive, cultural, archaeological, or religious sites have been identified within the project influence area.

#### 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 of Nilphamari 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**. 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 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: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681 $\mu$ s/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, January 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.

**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)**

<p>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.</p>
<p><b>Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b></p> <p>No pre - existing drainage channel is found.</p>
<p><b>Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>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.).</p>
<p><b>Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:</b></p> <p>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.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)</b></p> <p>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.</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b></p> <p>No traffic movement impacts on light but low effects of noise and air pollution.</p>

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

<p><b>Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles:</b></p> <p>No</p>
<p><b>Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)</b></p> <p>No</p>
<p><b>Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)</b></p>

No.
<p><b>Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)</b></p> <p>There is no possibility of stagnant water bodies remained for encouraging mosquito breeding and other disease vectors, during the operation phase.</p>
<p><b>Likely direct and indirect impacts on economic development in the project areas by the sub-project:</b></p> <p>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.</p>
<p><b>Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)</b></p> <p>No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated</p>
<p><b>Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)</b></p> <p>There are no protected areas in or around project sites, and no known areas of ecological interest.</p>
<p><b>Activities leading to landslides, slumps, slips and other mass movements in road cuts:</b></p> <p>The entire sub-project component area is nearly flat; thus, no such type of impacts is anticipated.</p>
<p><b>Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)</b></p> <p>No</p>
<p><b>Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:</b></p> <p>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.</p>

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: Kaoler Mor UZR/2002 to Vholagonj GC road via Murad Chairman House, Road ID: 173154036**

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of livelihood	<ul style="list-style-type: none"> <li>Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people.</li> <li>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.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	<ul style="list-style-type: none"> <li>All of the project stakeholders should be consulted</li> <li>Separate community level consultation meeting with the potential affected HHs</li> <li>All the safeguard documents will be disclosed to all relevant stakeholders.</li> <li>People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of right to access	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system)	<ul style="list-style-type: none"> <li>Transportation of construction materials to the site will be carried out by covering the materials as a whole.</li> </ul>	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	and pedestrians, potential accidents to workers/ local people, generating dust and noise)	<ul style="list-style-type: none"> <li>Store the materials in designated places, with proper fencing and coverings.</li> </ul>		
Pre-Construction Stage	Sanitation and water supply	<ul style="list-style-type: none"> <li>Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided.</li> <li>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.</li> </ul>	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	<ul style="list-style-type: none"> <li>Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>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.</li> <li>Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>regular cleaning of those.</p> <ul style="list-style-type: none"> <li>• Provision of waste bins/ cans, where appropriate,</li> <li>• Litter is to be collected daily.</li> <li>• 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&amp;SC.</li> <li>• Camp and working areas are to be kept clean and tidy at all times.</li> <li>• 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.</li> <li>• Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.</li> <li>• 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.</li> </ul>		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Construction facilities including materials are to be placed at least 10m distance from any water body in</li> </ul>	PIU & Contractor	Environmental Consultant of PIU

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		<p>order to minimize the impacts on water bodies and natural water flow.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• After completing the development, the site shall be restored as before.</li> <li>• This site is in the local community, so continuous need-based discussion with the local community to avoid any conflicts will be taking place.</li> <li>• Sub project intervention must avoid natural disturbance to existing slop and natural drainage.</li> <li>• 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.</li> <li>• The contractor must ensure sound environment for the local residents near the sub project site.</li> </ul>		
Construction Activity	Dust	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>pipes.</p> <ul style="list-style-type: none"> <li>• Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.</li> <li>• Construction materials should be covered properly while carrying in vehicles to the site.</li> </ul>		
Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>• 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)</li> <li>• Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff.</li> <li>• Records of every training must be kept at site.</li> <li>• All kinds of Child labour are completely prohibited in every site.</li> <li>• Every construction materials storage site will be well fenced by Tin and safety caution tape.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Traffic Management	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Contractors will maintain proper route for traffic</li> </ul>	Contractor	Environmental Consultant of PIU

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		<p>management which is to be consulted with and confirmed by the district Executive Engineer.</p> <ul style="list-style-type: none"> <li>Local traffic police department should be contacted, if traffic problem becomes more complex.</li> </ul>		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site.</li> <li>Local community must be consulted before any construction works start.</li> </ul>	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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Construction Activity	Increase in road accidents	<ul style="list-style-type: none"> <li>• Maintain safety measures during the movement of heavy machinery and equipment.</li> <li>• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community.</li> <li>• Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.)</li> <li>• Local community will be trained up on traffic management and awareness.</li> </ul>	Contractor	Environmental Consultant of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling.</li> <li>• Adequate facilities ensuring sanitation for labor camps will be put in place.</li> <li>• Treated water will be made available at site for drinking purpose.</li> <li>• Adequate accommodation arrangements for labor forces.</li> <li>• Labor code of conduct is to be disclosed through consultation.</li> </ul>	Contractor	Social Development Specialist and Gender Specialist of PIU

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Construction Activity	Labour related issues and grievances	<ul style="list-style-type: none"> <li>• A separate grievance mechanism for workers has to be established for the work package.</li> <li>• Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.</li> <li>• 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.</li> </ul>		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	<ul style="list-style-type: none"> <li>• Preparation of a waste management plan covering the following aspects:</li> <li>• Waste from the temporary accommodation facilities for labor</li> <li>• Waste from equipment maintenance/vehicles on-site.</li> <li>• 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.</li> <li>• Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.</li> <li>• Working areas are kept clean and tidy at all times.</li> </ul>	Contractor	Environmental Consultant of PIU

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		<ul style="list-style-type: none"> <li>• Construction site is to be checked for spills of substances i.e. chemical, oil, etc.</li> <li>• Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site.</li> <li>• Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Refueling areas and other fluid transfer areas will be imperviously paved.</li> <li>• 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.</li> <li>• Applicability of the Hazardous Waste Management Rules.</li> </ul>		
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	<ul style="list-style-type: none"> <li>• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road.</li> <li>• Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.</li> </ul>	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction	Health & Safety Risks:	<ul style="list-style-type: none"> <li>• All construction equipment will be properly</li> </ul>	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>	<p>inspected timely.</p> <ul style="list-style-type: none"> <li>• The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>• Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>• Proper Signpost at any slippery areas will be ensured in construction site.</li> <li>• Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire.</li> <li>• 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.</li> <li>• All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems.</li> <li>• Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes,</li> </ul>		Consultant as well as Social Development and Gender Specialists of PIU

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Environmental & Social Assessment and Management Report for Community roads of Nilphamari District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		<p>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.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Adequate quantities of drinking water will be available at all Sites, on different locations within the site.</li> <li>• Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> <li>• 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.</li> </ul>		
Construction	Pollution of water bodies	<ul style="list-style-type: none"> <li>• Ensure monitoring of nearby surface and</li> </ul>	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity		<p>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.</p> <ul style="list-style-type: none"> <li>• 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.)</li> <li>• The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered.</li> <li>• Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.</li> <li>• 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.</li> <li>• All precautions to store chemicals/oil/fuel properly so that no chance of spill.</li> <li>• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.</li> </ul>		Consultant of PIU/D&SC.
Construction Activity	Demobilization of structures, facilities and equipment used during the project	<ul style="list-style-type: none"> <li>• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are</li> </ul>	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
	<p>implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage:</p> <ul style="list-style-type: none"> <li>• Pollution from waste materials.</li> <li>• Health &amp; Safety risks to workers and local community.</li> </ul>	<p>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.</p> <ul style="list-style-type: none"> <li>• The contractor must arrange the cancellation of all temporary services.</li> </ul>		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	<ul style="list-style-type: none"> <li>• Preventative maintenance schedule should be followed.</li> <li>• 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.</li> </ul>	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
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	<ul style="list-style-type: none"> <li>• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&amp;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.</li> <li>• Contractor shall submit regular monthly monitoring report to the D&amp;SC and PIU as per reporting standard set by the ES Consultants of D&amp;SC/PIU.</li> </ul>	Contractor	Environmental Consultant of PIU
Operation & Maintenance	<p>Road Safety. Impacts include:</p> <ul style="list-style-type: none"> <li>• The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers.</li> <li>• Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and</li> </ul>	<ul style="list-style-type: none"> <li>• Road safety issues can be minimized in following ways:</li> <li>• By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.</li> <li>• 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.</li> <li>• All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.</li> </ul>	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
	reckless driving may cause road accidents or traffic injuries.			
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	<ul style="list-style-type: none"> <li>Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures.</li> <li>Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.</li> </ul>	UE	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	<ul style="list-style-type: none"> <li>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</li> </ul>	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

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<p><b><u>Grass Turfing</u></b></p> <p>Turfing on embankment top and slope &amp; 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)</p>	2,484.00 Sq.m	@38.15 Tk. Per sqm	94,764.60
2.	<p><b><u>Dust suppression measures</u></b></p> <p>Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C</p>	2070.0m	@ 2.56 BDT	5,299.20
3.	<p><b><u>Water Supply and Sanitation</u></b></p> <p>Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge.</p> <p>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.</p>	2 nos.	@12822.86 per toilet	25,645.72
4.	<p><b><u>First Aid Box</u></b></p> <p>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</p>	1 no.	LS @5000 Tk. Per box	5,000

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SI no.	Description of item	Quantity	Unit price	Total amount
	throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	<p><b><u>Drinking Water Facilities</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 30,000	30,000
6.	<p><b><u>Traffic Management</u></b></p> <p>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.</p>	1 no.	LS @ Tk. 15,000	15,000
7.	<p><b><u>Personal Protection Equipment for Workers</u></b></p> <p>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</p>	LS	LS @ Tk. 30,000	30,000
8.	<p><b><u>Motivation training</u></b></p>	1 no.	LS @ Tk.	10,000

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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.	<b><u>Waste disposal facility</u></b>  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.	<b><u>Water Test (Drinking Water samples)</u></b>  Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
11.	<b><u>Working labour shed:</u></b>  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.	<b><u>Environmental management</u></b>  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. <a href="#">[One person to be appointed for 11 roads]</a>	Each	@ Tk. 35000	35,000
	<b>Total Bill of Environmental facilities for this road</b>			<b>290,709.52</b>



**Existing Surroundings of the Sub-Project**

**ANNEXURE 2:  
ATTENDANCE OF CONSULTATION MEETING**





















Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project  
 Local Government Engineering Department (LGED)  
 Public Consultation with Stakeholders

Name of Community Road: Kooler more U2R/1002 to Vhaulagang  
 Date: 08.04.2026  
 Road ID: 173154036  
 Place of Consultation: Nijvaghabari bazar.  
 Village: Parnachapara Ward No.: 05 Union: Nijvaghabari Upazila: Domail.  
 District: Nilphamari

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
1.	Riazul Islam,	Male	52	Charman	Nijvaghabari		[Signature]
2.	Mijanur Rahman	"	60	Ex: member	"		[Signature]
3.	Lathiful Alam	"	52	Farmer	"		[Signature]
4.	Abdur Rob	"	52	Member	Vaghabari		[Signature]
5.	Firoj Kobir	"	32	Businessman	Nijvaghabari		[Signature]
6.	Rubel Hosen	"	30	Farmer	"		[Signature]
7.	Riyad Mahmud	"	28	student	"		[Signature]
8.	Alamin	"	24	"	"		[Signature]
9.	Biplup Hosen	"	33	Business	"		[Signature]
10.	Anwarul Haq	"	70	Ex: Postman	"		[Signature]
11.	Mojammel	"	40	farmer	"		[Signature]