



ENVIRONMENTAL ASSESSMENT REPORT

of

Development Drainage Rehabilitation and Communication Network System

Dhaka Integrated Urban Development Project

Dhaka North City Corporation (DNCC)

Gulshan-2, Dhaka

Bangladesh Municipal Development Fund (BMDF)

Municipal Governance and Support Project (MGSP)

Ministry of Local Government, Rural Development and Cooperatives

Government of the People's Republic of Bangladesh

July 2018

ABBREVIATIONS

BC	Bituminous Carpeting
BDT	Bangladesh Taka
BMD	Bangladesh Meteorological Department
B MDF	Bangladesh Municipal Development Fund
BNBC	Bangladesh National Building Code
CC	Cement Concrete
CASE	Clean Air Sustainable Project
DNCC	Dhaka North City Corporation
DoE	Department of Environment
EA	Environmental Assessment
ECoP	Environmental Code of Practice
ECA	Ecologically Critical Area
ECR	Environment Conservation Rules
EIA	Environmental Impact Assessment
EMIS	Environmental Management Information System
EMP	Environmental Management Plan
FGD	Focus Group Discussion
GoB	Government of Bangladesh
GRC	Grievance Redress Committee
IEE	Initial Environmental Examination
IEF	Important Environmental Features
LGED	Local Government Engineering Department
MGSP	Municipal Governance and Services Project
MoEF	Ministry of Environment and Forest
NGO	Non-Government Organization
OHS	Occupational Health and Safety
OP	Operational Policy

PAP	Project Affected Person
PCAIP	Public Consultation and Access to Information Plan
PD	Project Director
PM	Particulate Matter
PM ₂₅	Particulate Matter with Aerodynamic ≤ 2.5 micrometers
PM ₁₀	Particulate Matter with Aerodynamic ≤ 2.5 micrometers
PMO	Project Management Office
PWCSP	Primary Waste Collection Service Provider
RCC	Reinforced Cement Concrete
SECs	Special Environmental Clauses
SEG	Small Ethnic Group
SPM	Suspended Particulate Matter
TDS	Total Dissolved Solids
ULB	Urban Local Bodies
WB	World Bank
WMD	Waste Management Department

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Executive Summary

To enhance the capacity of urban local bodies (ULB) in development and management of urban infrastructure, to improve municipal governance & services, the Government of Bangladesh is implementing Municipal Governance and Services Project (MGSP) through the Local Government Engineering Department (LGED) and the Bangladesh Municipal Development Fund (BMDF). The project is financed by IDA with GoB contribution for land acquisition, management and Municipality equity for accessing BMDF competitive finance. Under the MGSP the LGED will implement about 20 types of sub-projects in 26 ULBs, which include 22 Pourashava and 4 City Corporations; while the BMDF will implement about 13 types of sub-projects in 119 Pourashava.

‘Dhaka Integrated Urban Development Project’ is implementing by Dhaka North City Corporation (DNCC) taking both financial and technical assistance from Bangladesh Municipal Development Fund (BMDF).

The specific objectives of this EA are to assess the existing environmental conditions of the sub-project and its influence area; to identify and assess impacts resulting from the sub-project during its construction phase and operation phase; to develop an environmental management plan with recommendations for mitigating impacts and enhance positive impacts; and to summarize environmental monitoring requirements.

The sub-project has been identified by the Uttara Zonal Office of Dhaka North City Corporation (DNCC) as Urban Local Bodies (ULB) prioritizing the need of local targeted beneficiaries and consultation with respective Ward Counselor. Specific road/street has been selected based on discussion with local elected ward counselor, respective Engineers, informal public consultation and site visit. The sub-project specific areas are sector 3, 11 and 12 of Uttara. Total 5.70 km road, 11.40 km drain, 11.40 km footpath and 2.10 km road median have been included under this sub-project.

Table 1: Key information of sub-project

Name of the Sub-project	“Development drainage rehabilitation and communication network system”.
Location of the sub-project	This sub-project is located at sector-3, sector-11 and sector-12 of Zone-1 under Uttara model town. Sub-project located at road number 2, 8, 13, 13/a, 14 & 20 of sector 3, Sonargaon Janopath road, Shahmakdum road & by lanes (by lane-3,3/a, 3/b), road no. 6/c, 13 & 14 of sector 11 & 12.
Name of the package	Package-1: Improvement of Sonargaon Janopath road & construction of drain, footpath & median (from Jamjam tower to Diabari bridge) at Uttara, sector-11 & 12 under Dhaka North City Corporation, Zone-1. Package-2: Improvement of Shahmakdum road & by lanes (by lane-3, 3/a, 3/b) at Uttara, sector-12 and road-8,13,13/a at sector-3 and construction of drain, footpath & median Uttara, under Dhaka North City Corporation, Zone-1 and

	Package-3: Improvement of different roads & by lanes (road- 6/c, 13,14 at sector-12 and road -2, 14, 20 at sector-3) and construction of drain, footpath & median at utara under DNCC zone-1.
Structural design option	Bituminous carpeting road, RCC covered drain at both sides of the road; footpath both side of the roads and construction of median.
Total length and width of the drain, footpath & median	Total length of the road is 5.7 km, drain 11.4 km, footpath 11.4 km. & median 2.1 km. Total width of the Sonargaon Janopath road is 36.60 meters, Shahmakdum road 30.47 meters, others road on an average 11 meters and by lanes on an average 10 Meters, Width of the drain is 0.90 meters and width of the footpath of Sonargaon Janopath road is 2.44 meters and footpath of other roads are 1.2 meters.
Estimated cost	733.87 Million BDT
Sub-project Duration	13 months
Ave. Beneficiary	15 lac

Considering the anticipated environmental impacts, the proposed sub-projects fall under Orange “B” as per ECR 1997 of DoE and WB.

The proposed sub-project will not create significant negative impact on ecological, physico-chemical aspect during construction period but it will be helpful to enhance positive socio-economic impact during operation period by improving traffic, drainage and safety of travelling. Suggested minor adverse environmental impacts are subject to mitigation and will be addressed through proper mitigation and enhancement measures during the implementation period.

Recommendations made for the sub-project development on the basis of EA study are to proposed environment management plan should be implemented according to EA both during operation and construction phase of the project; to quick disposal of solid waste materials and completion of work is highly suggested; and to do environmental monitoring properly.

1.0 INTRODUCTION

1.1 Background

The Government of Bangladesh (GoB) is implementing Municipal Governance and Services Project (MGSP) to enhance the capacity of urban local bodies in development and management of urban infrastructure, and improve municipal governance and services in selected Pourashavas and City Corporations. The Local Government Engineering Department (LGED) and the Bangladesh Municipal Development Fund (BMDF) under the Ministry of Local Government, Rural Development and Cooperatives is implementing the project with participation of the selected ULBs. The project is providing performance-based infrastructure improvement block grants and pilot O&M grants to approximately 200 urban local bodies (ULBs), comprising Pourashavas and City Corporations, located along the growth corridors.

Under the MGSP Sub-component 1.1 of Component 1 (Municipal Governance and Basic Urban Services Improvement), the LGED will implement 20 types of sub-projects in 26 ULBs, which include 22 Pourashavas and 4 City Corporations. Under MGSP Sub-component 2.1 of Component 2 (BMDF Operation and Institutional Improvement), the BMDF will implement about 13 types of sub-projects in 119 Pourashavas. The LGED and the BMDF intends to ensure that the proposed infrastructure takes environmental concerns into account.

Both the LGED and the BMDF intends to ensure that the proposed infrastructure takes into account the environmental concerns in accordance with the Environment Conservation Rules 1997, and the World Bank Safeguard Policies. Considering this, MGSP has framework approach for Environmental Assessment (EA); the EA has two major components: (a) overall environmental assessment, and (b) development of Environmental Management Framework (EMF). So, to meet the regulatory requirement EA is mandatory to implement any sub-project under MGSP.

‘Dhaka Integrated Urban Development Project’ is implementing by Dhaka North City Corporation (DNCC) taking both financial and technical assistance from Bangladesh Municipal Development Fund (BMDF).

1.2 Objective of the study

This assessment report presents the finding of Environmental Assessment (EA) of “development drainage rehabilitation and communication network system” sub-project. The objective of the study is to provide an examination and assessment of the principal environmental impacts of the sub-project activities. The outline of an environmental management plan also suggested with an indication of the extent of work to be done to keep the development and environment compatible. In this context, it should be noted that the term “environment” and its derivatives have been used in a wide sense, which covers not only physical and chemical aspect, but also the human dimension. The specific objectives of this EA are to:

- To assess the existing environmental conditions of the sub-project and its influence area;
- To identify and assess impacts resulting from the sub-project during its construction phase and operation phase;
- To develop an environmental management plan with recommendations for mitigating impacts and enhance positive impacts;
- To summarize environmental monitoring requirements.

1.3 Scope and method of the study

The EA report was prepared on the basis of proposed engineering works, field investigations, stakeholder consultation, primary and secondary data collection, screening of all baseline environmental parameters, environmental quality baseline monitoring, and review of other similar IDA funded project reports like; MGSP, LGSP etc. The study conducted on June 2018. The EA covers the general environmental profile of the sub-project area including physical, ecological, environmental, social, cultural and economic resources. The EA includes an overview of the potential environmental impacts and their severity, proposes necessary mitigation measures and environmental management plan for each of the identified and anticipated impacts.

The methodology used for this study is based on the procedures described in Environmental Guidelines, (Volume 1 and 2) published by Local Government Engineering Department (LGED) and Bangladesh Municipal Development Fund (BMDF) and the other relevant regulation of Bangladesh as well as World Bank Guidelines for Environmental and Social Considerations. Analysis of collected data has been done. Documentation of baseline conditions has conducted by on site environmental monitoring. Analysis and assessment of various alternatives have been done. Identification and assessment of various impacts along with formulation of mitigation, and avoidance measures have done for identified impacts.

2.0 SUB-PROJECT DESCRIPTION

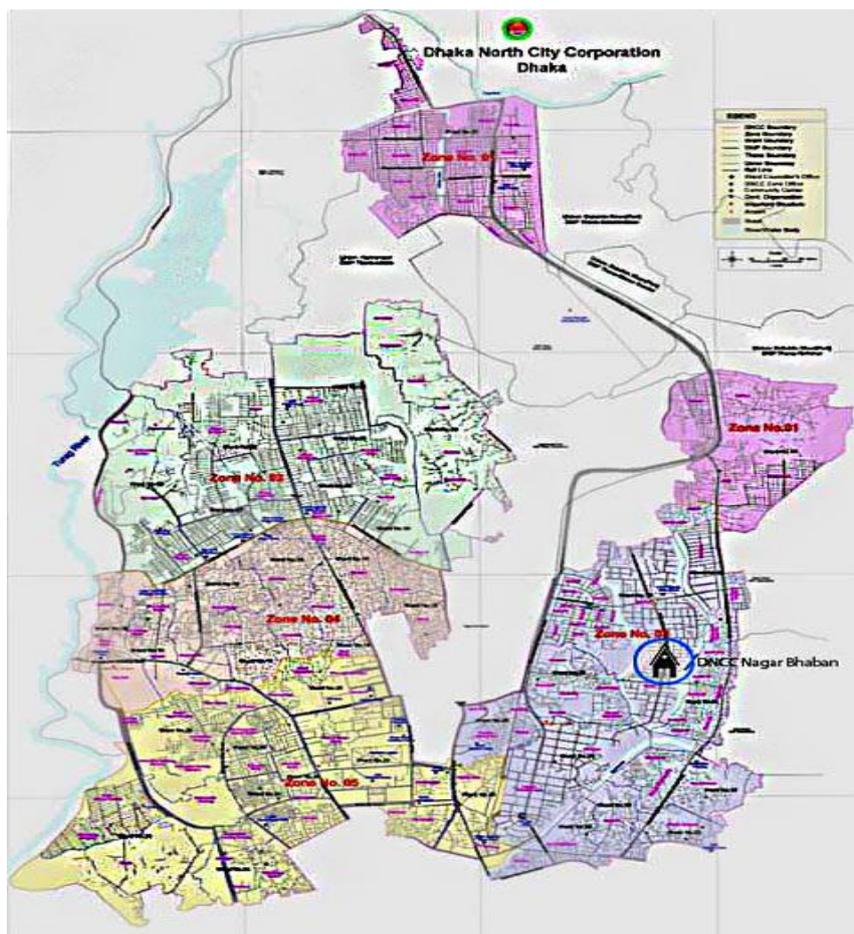
2.1 Background of Dhaka North City Corporation

Dhaka became the capital of Bangladesh with the independence in the year 1971. City area was divided into 50 wards and election of Ward Commissioners was held in 1977 with the introduction of “Pourashava Ordinance, 1977”. Ward Commissioners elected one of their members as the Chairman of the Municipality. In 1978, Dhaka Municipality was awarded the status of Corporation and the existing Chairman became the Mayor of the Corporation. Municipal Corporation was superseded by the promulgation of Martial law in March, 1982. Two adjacent municipalities, namely Mirpur and Gulshan Municipalities were merged with Dhaka Municipality in the same year. As a result the number of wards increased to 56. The corporation was statute with the introduction of Dhaka Municipal Corporation Ordinance, 1983, repealing the application of Pourashava Ordinance, 1977. Later, number of wards was

increased to 75 and Administrators/Mayors were appointed by the Govt. till 1994. In 1990, Dhaka Municipal Corporation was renamed as Dhaka City Corporation and was divided into 10 zones. In 1993, the Government with a view to democratize the city corporation, made drastic amendment in Ordinance, 1983 and repealing the application of pourashava that the Mayor and the Commissioners will be elected by direct election on the basis of adult franchise. The City area is divided into 90 wards to represent one Commissioner, elected directly, form each ward. The Local Govt. (City Corporation) Act 2009, (Amendment-2011), Dhaka City Corporation has divided as Dhaka South City Corporation (DSCC) and Dhaka North City Corporation (DNCC).

DNCC is located between $23^{\circ}44'$ and $23^{\circ}54'$ latitude and between $90^{\circ}20'$ and $90^{\circ}28'$ longitude. The DNCC area is surrounded by Gazipur City Corporation in north, DSCC in south, Savar in the west and Rupgonj Upazila in the east. DNCC is divided into 5 zones; total area is 82.638 sq. km. consisting of 36 wards approximately with total population of 3957302 (source: population and housing census, 2011) among which 2201051 are male and 1756251 are female with the density of 47887 per sq.km. The total household of the DNCC is 899387 and average household size is 4.4.

Map 1: Geographical location and area of Dhaka North City Corporation



Dhaka North City Corporation is implementing different kind of development projects like Internal Drainage Improvement Project (IDIP), Urban Resilience Project (URP) funded by World Bank, construction of road, drain & footpath, construction of housing building for shebok at Gabtali, etc. with the support of ADP allocated the Bangladesh Government, DNCC own generated fund and other donor supported fund. ‘Development Drainage Rehabilitation and communication network system’ sub-project has been co-funded by the Bangladesh Municipal Development Fund (BMDF).

2.2 Background of Sub-Project

‘Dhaka Integrated Urban Development Project’ is implementing by Dhaka North City Corporation (DNCC) taking assistance from Bangladesh Municipal Development Fund (BMDF). The project is supported by the World Bank.

The sub-project has been identified by the Uttara Zonal Office of Dhaka North City Corporation (DNCC) as Urban Local Bodies (ULB) prioritizing the need of local targeted beneficiaries and consultation with respective Ward Counselor. Specific road/street has been selected based on discussion with respective Engineers and site visit. The sub-project specific areas are sector 3, 11 and 12 of Uttara. Total 5.70 km road, 11.40 km drain, 11.40 km footpath and 2.10 km road median have been included under this sub-project.

Table 2: Brief information of sub-project

Name of the Sub-project	“Development drainage rehabilitation and communication network system”.
Name of District	Dhaka
Name of ULB	Dhaka North City Corporation
Location of the sub-project	This sub-project is located at sector-3, sector-11 and sector-12 of Zone-1 under Uttara model town. Sub-project located at road number 2, 8, 13, 13/a, 14 & 20 of sector 3, Sonargaon Janopath road, Shahmakdum road & by lanes (by lane-3,3/a, 3/b), road no. 6/c, 13 & 14 of sector 11 & 12.
Name of the package	<p>Package-1: Improvement of Sonargaon Janopath road & construction of drain, footpath & median (from Jamjam tower to Diabari bridge) at Uttara, sector-11 & 12 under Dhaka North City Corporation, Zone-1.</p> <p>Package-2: Improvement of Shahmakdum road & by lanes (by lane-3, 3/a, 3/b) at Uttara, sector-12 and road-8,13,13/a at sector-3 and construction of drain, footpath & median Uttara, under Dhaka North City Corporation, Zone-1 and</p> <p>Package-3: Improvement of different roads & by lanes (road- 6/c, 13,14 at sector-12 and road -2, 14, 20 at sector-3) and construction of drain, footpath & median at Uttara under DNCC zone-1.</p>

Service areas	Overall Uttara model town, specifically the people living at Zone-1 will avail the facilities.
Beneficiary population	All the people of Zone-1 of Uttara model town.
Small Ethnic Group (SEG)	No specific small ethnic group settlement is under sub-project area
Structural design option	Bituminous carpeting road, RCC covered drain at both sides of the road; footpath both side of the roads and construction of median.
Total length and width of the drain, footpath & median	Total length of the road is 5.7 km, drain 11.4 km, footpath 11.4 km. & median 2.1 km. Total width of the Sonargaon Janopath road is 36.60 meters, Shahmakdum road 30.47 meters, others road on an average 11 meters and by lanes on an average 10 Meters, Width of the drain is 0.90 meters and width of the footpath of Sonargaon Janopath road is 2.44 meters and footpath of other roads are 1.2 meters.
Land acquisition	All land owned by the DNCC and mostly improvement of existing work, so no land acquisition is needed.
Estimated cost	733.87 Million BDT
Sub-project Duration	13 months
Ave. Beneficiary	15 lac

Table 3: Key information on proposed packages

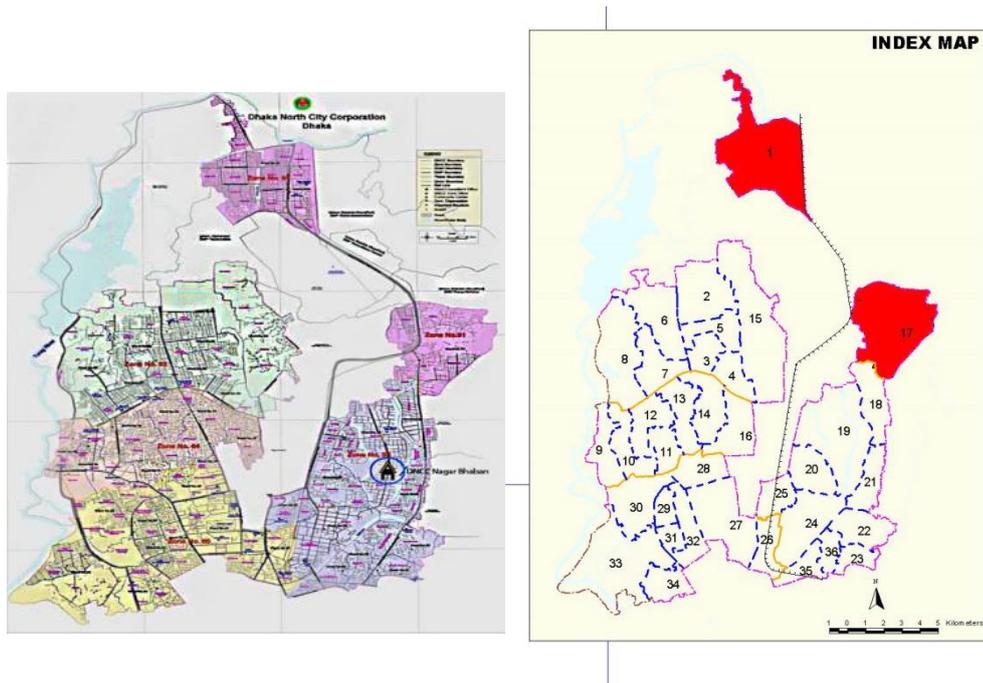
Sl.	Ward no.	Package name	Estimated budget (lac)	Structural measurement			
				Road	Drain	Footpath	Road median
1	1	Improvement of Sonargaon Janapath Road and construction of drain, footpath and median (from Jamjam Tower to Diabari Bridge) of sector-11 & 12 under zone1 at Uttara. Package No-W-01	BDT 2208.80	1.20	2.40	2.40	1.20
2	1	Improvement of Shah Makhdam road & bylanes (bylane 3, 3/A, 3/B) of sector 12 and road 8, 13, 13/A of sector 3 under zone-1 at Uttara. It includes construction of drain, footpath & median.	BDT2491.24	2.00	4.00	4.00	0.50

Sl.	Ward no.	Package name	Estimated budget (lac)	Structural measurement			
				Road	Drain	Footpath	Road median
		Package No-W-02					
3	1	Improvement of roads and construction of drain, footpath and median of bylanes (road no. 6/C, 13 & 14) of sector 12 and road 2, 14, 20 of sector 3 under Zone-1 at Uttara. Package No-W-03	BDT 2492.52	2.50	5.00	5.00	0.40
Total:			BDT 7192.56	5.7	11.4	11.4	2.1

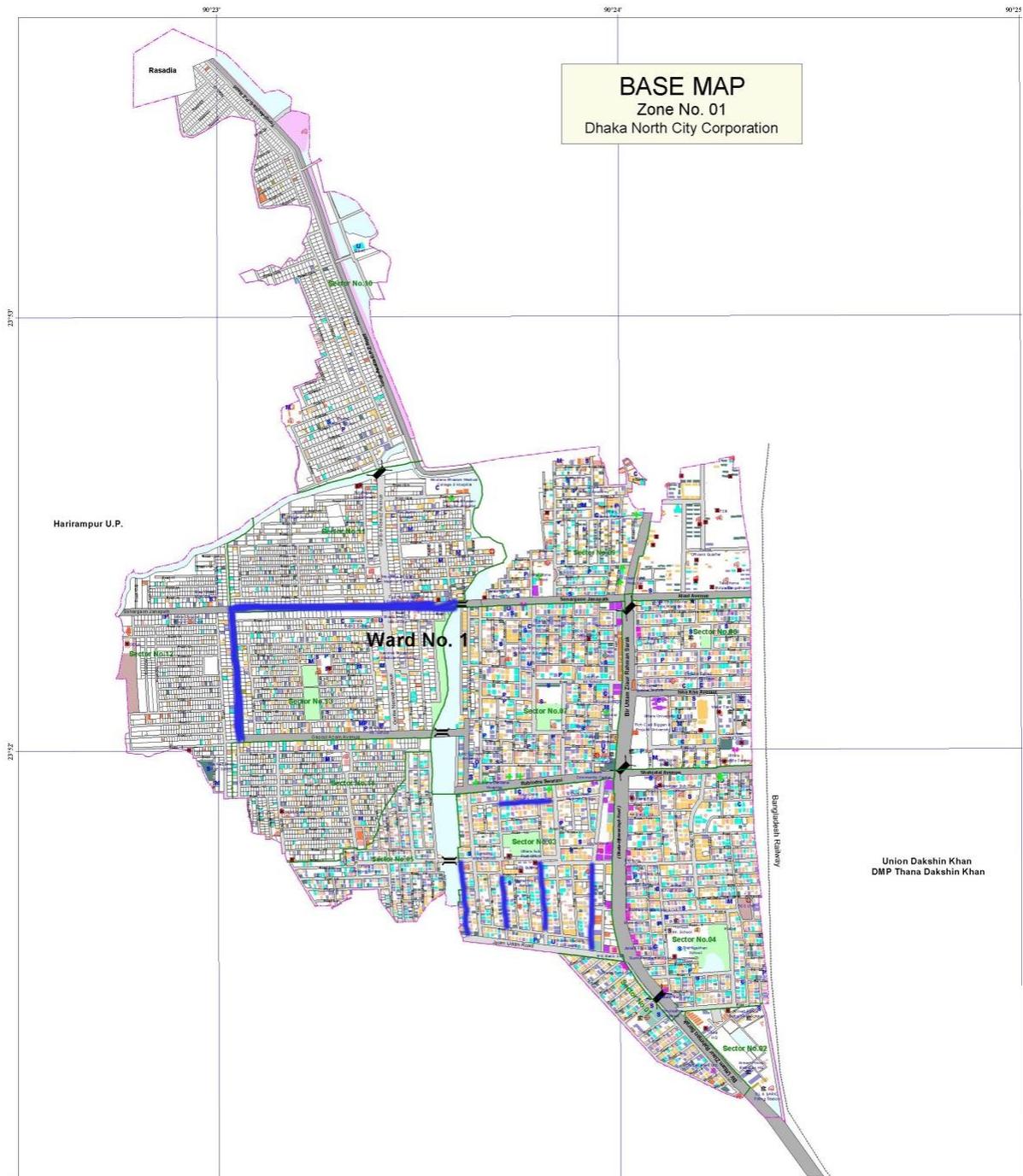
2.3 Location of proposed sub-project

The proposed sub-project goes over the areas of sector number 3, 11 & 12 under ward number-1. Sonargaon Janopath road is started from Jamjom tower and ended at Diabari bridge. Shah Makdum road & road number 13 & 14 is connected with Sonargaon Janopath road and other by lanes also connected with the Sonargaon Janopath road. All road of the sector 11 & 12 is connected with Sonargaon Janopath road. Road number 2,8 , 13,13/a, 14 & 20 is internal road of the sector 3 and connected with other sectors. Location map and lay out plan of the proposed sub-project are given below:

Map 2: Geographic location of Dhaka North City Corporation



Map 3: Location map (marked at blue color) of proposed sub-project

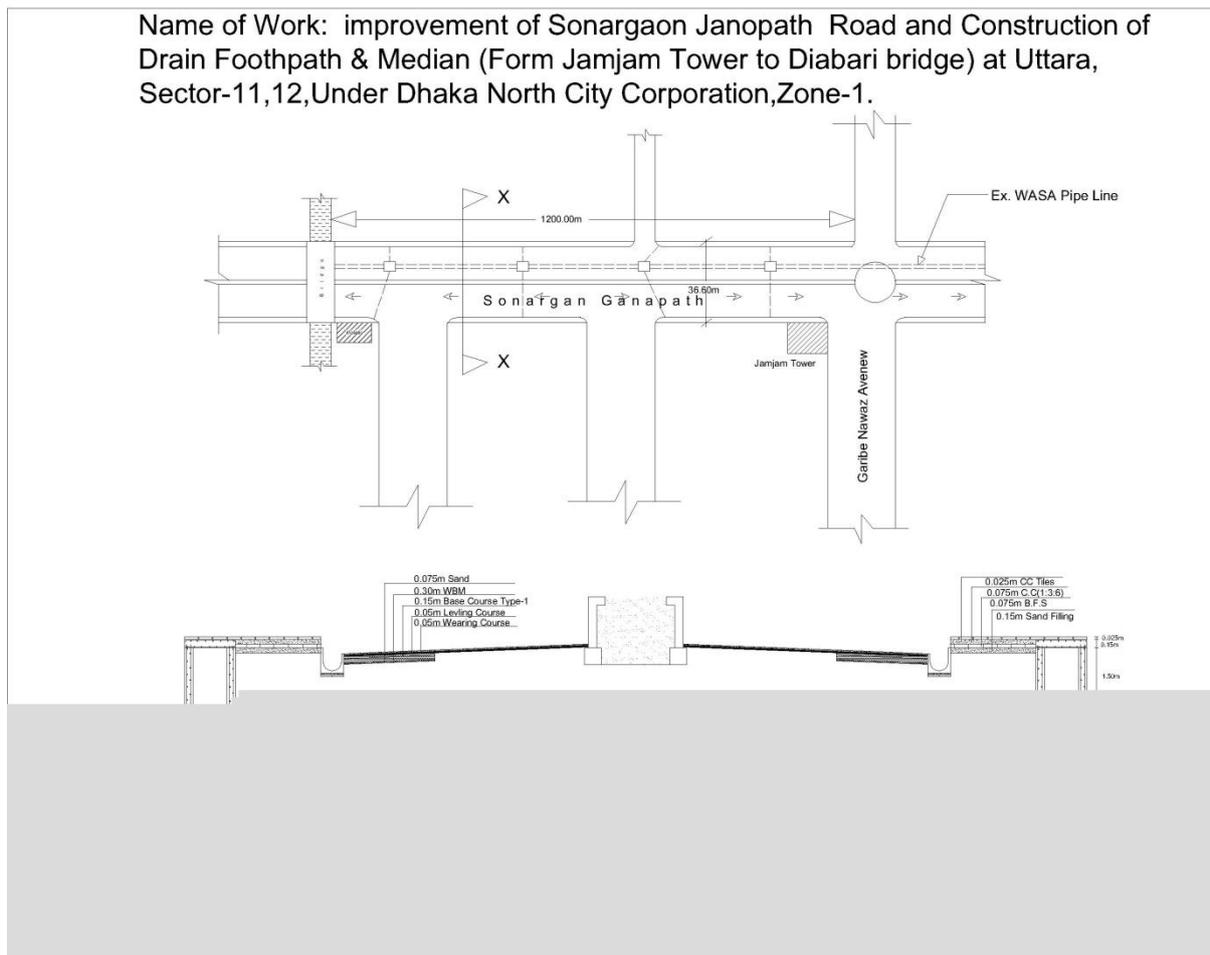


2.4 Layout of the sub-project

Proposed layout of package-1 (No-W-01)

Improvement of Sonargaon Janapath Road and construction of drain, footpath and median (from Jamjam Tower to Diabari Bridge) under Uttara sector-11 & 12.

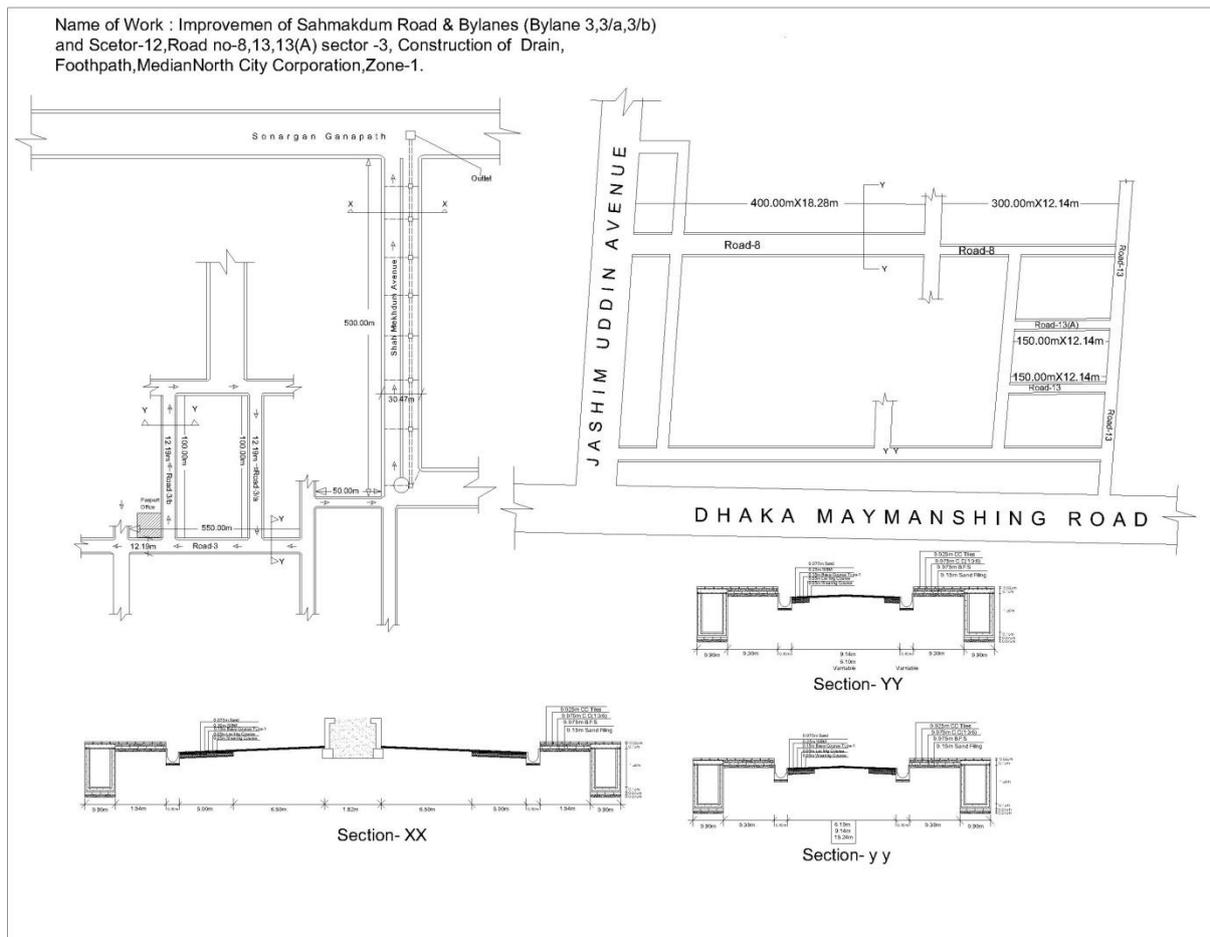
Figure1: Layout of package 1



Proposed layout of package-2 (No-W-01)

Improvement of Shah makhdam road & bylanes (bylane 3, 3/A, 3/B) of sector 12 and road 8, 13, 13/A of sector 3 under Uttara. It includes construction of drain, footpath & median.

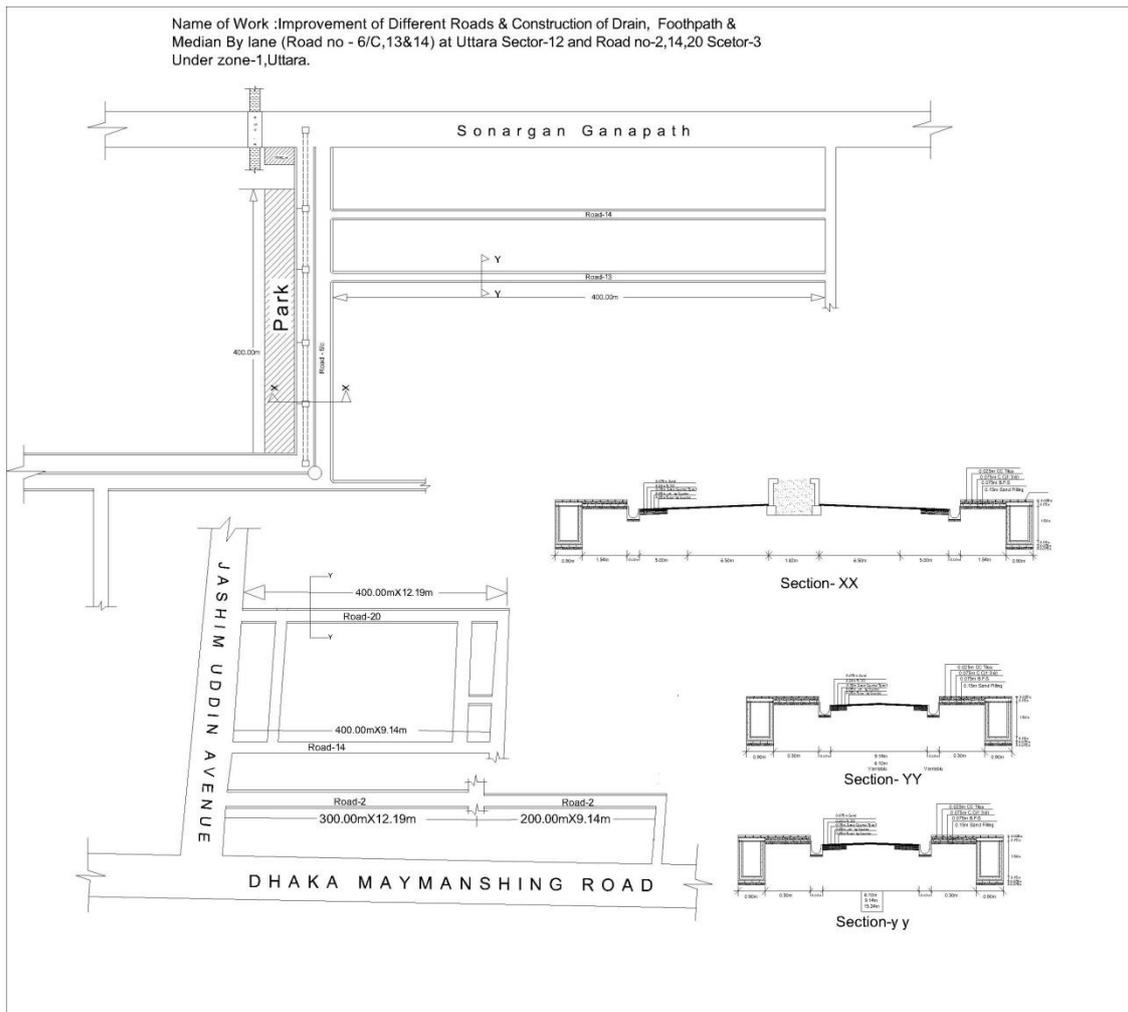
Figure 2: Layout of package 2



Proposed layout of package-3 (No-W-03)

Improvement of roads and construction of drain, footpath and median of bylanes (road no. 6/C, 13 & 14) of sector 12 and road 2, 14, 20 of sector 3 under Zone-1, Uttara.

Figure-3: Layout of package 3



2.5 Ownership of sub-project

The proposed sub-project is mainly improvement of existing one and land owned by (ULB) Dhaka North City Corporation.

As all the sub-project activities are on existing road alignments and right of way (ROW), no further land is needed.

2.6 Brief description of sub-project site

Infrastructure status and socio economic characteristics:

Uttara had a population of 345,097. According to 1991 figures, males constitute 54.41% of the population and females 45.59% and about 60% of the Uttara's population are adults. Uttara has an average literacy rate of 61% (7+ years) (2001 Bangladesh census). Roads, drains, culverts, bridges, water supply facilities, public sanitation system, markets, community centers, parks, street lights, houses etc. are the main infrastructures of sub-project area. The Dhaka North City Corporation has 1337.913 km. road networks for internal communication of the city. In addition, there is 58.11 km. median and 45 nos. foot over bridge/underpass within the city area. Dhaka City Corporation has two types of drainage system storm water drainage system and household waste water drainage system. Dhaka Water Supply Sewerage Authority (DWASA) is responsible for storm water drainage system and City Corporation is responsible for household waste water drainage system. The City Corporation has 1201.565 km. drainage network to run out the household waste water and storm water. Dhaka Water Supply and Sewerage Authority (DWASA) are mainly responsible for water supply to the household level including the commercial areas. Dhaka WASA has almost 100% water coverage and the water demand in Dhaka city is 2.25 million cubic meters per day (2250 MLD), which slightly exceeds the present supply of almost 2.11 million cubic meters per day (2110 MLD). At present 87% of the supplied water is from ground water abstraction from Dhaka WASA's 605 deep tube wells. The remaining 13% water comes from surface water treatments. DNCC has 37 numbers of public toilets within which 6 of those are situated within sub-project area. There is 3 bus/truck terminals, 43 markets, 13 community centers, 28 recreational parks in DNCC area.

Waste Management Department (WMD) of DNCC has systematic solid waste collection procedure from primary level (household) to secondary level (Secondary Transfer Station) to Landfill area. Primary Waste Collection Service Provider (PWCSP) coordinates collection from households to secondary transfer station. According to DNCC waste report 2016-2017, 340 private operators were registered with the PWCSP. Assigned vehicles under DNCC collect solid waste from STS and do crude dumping at Amin Bazar land fill. Medical wastes are managed by prism Bangladesh, a private organization. Dhaka WASA is responsible for management of fecal sludge in the Dhaka city. No proper sludge management (emptying & treatment) is available in Dhaka city. There is limited use of emptying services by the some private organization which is not easily available and affordable for all. As a result high rate of fecal sludge is discharging in to the storm water drain.

Flood characteristics of Dhaka

Generally inundation occurs in Dhaka in such a way that rising water levels in the three major rivers cause back flows in the tributaries, which in turn make it difficult to drain the surface water, thus resulting in inundation in the wetlands and in the surrounding areas in the hinterland. Major inundations occurred in 1988 and in 1998, bringing about significant damages. During these inundations, water level in Buringanga River in the western part of Dhaka exceeded 7.0 m.

Land use planning of Dhaka

Dhaka City consists of 90 wards within the 21 Thanas in Dhaka Metropolitan Area (DMA). Most of this area is already urbanized. The total administrative area is 15,768 hectare (38,963 acre, 157.68 Sq. Km.). The total population of this area has been increased from 2,464,504 inhabitants in 1981 to 3,583,480 inhabitants in 1991 and 5,333,571 inhabitants in 2001. From 1991 to 2001 the population has been increased by 1,750,091 persons. The average population density was about 338 persons per hectare in 2001.

Table 4: Land use composition in Dhaka City Corporation area

Land use category	Area (ha)	Ration (%)	Land use category	Area (ha)	Ration (%)
Residential area	5722.16	44.35	Park/playground/urban green area	154.78	1.20
Commercial	553.06	4.29	Restricted area/brick field	1086.30	8.42
Industrial area	259.16	2.01	Cultivated land/open space/forest	1015.36	7.87
Mixed use area	535.52	4.15	Swamp/marsh/char/island/water bodies	1194.74	9.26
Public facilities	1027.8	7.97	Not available	3.42	0.03
Road/railways	1350.05	10.45			

(Source: Dhaka urban transport network study)

Environmental features

Uttara Model Town is a northern Thana and a suburb of Dhaka, the capital of Bangladesh. It lies on the road to Gazipur, and adjoins Shahjalal International Airport. Uttara is primarily planned square grid residential suburb, geographically elevated from southern Dhaka saving it from floods, and is divided into several "sectors". A good number of shopping complexes, shops, and schools & colleges are situated here. Uttara is planned by RAJUK and divided into 14 sectors, starting from sector 1 to sector 14. Originally it was planned that the odd-numbered sectors (1, 3, 5, 7, 9) were to be situated on the west side of Dhaka-Mymensingh Highway, and the even-numbered sectors (2, 4, 6, 8) on the east side. Due to increase in population, new sectors were planned but this order was not upheld and they were all developed on the west side. Uttara Residential Area (3rd Phase) project is now underway.

Environmentally Critical Area

In addition to protected areas, the 1995 Bangladesh Environment Conservation Act includes provision for Ecologically Critical Area (ECA) declarations by the director general of the Department of the Environment in certain cases where the ecosystem is considered to be in danger of reaching a critical state. There are two environmentally sensitive areas within RAJUK; Gulshan Banani-Baridhara Lake and River ECAs (Buriganga, Turag, Balu and Shitalakshya). Conservation of water bodies is essential to protect the eco-system, which, in

turn, will clean up the city's environment. The lakes of Dhaka City should be conserved properly, because they help reduce water logging, improve the drainage system, provide fresh water, and increase water retention capacity, among others, during monsoon. The lakes also help preserve biodiversity and recharge groundwater.

2.7 Key activities of sub-project

The general activities for the sub-project includes road, drain, footpath and median construction. The proposed sub-project will be consisted of bituminous carpeting of road, RCC covered drain, construction of footpath and median. The total length of the road is 5.7 km, total drain is 11.4 km both sides of the road, total footpath 11.4 km and total median 2.1 km. The drain will be constructed along all roadways on both sides of the road. The drain will be reinforced concrete slot drain with concrete cover plate.

The major activities to be carried out during pre-construction phase of road improvement, construction of drain, footpath and median include:

- Site cleaning and grabbing works;
- Construction of separate labor shed with water supply and latrine facilities for male and female;
- Conduct community meeting and FGD in the sub-project area;
- Construction of pucca platform for stocking construction materials;
- Construction of site office;
- Construction of temporary fence around the labor shed and stockyard;
- Relocation of electric poles and GI poles.

The electric poles will be relocated at the road side and DESA & PDB will be consulted to relocate it. DESA and PDB will be suggested to relocate electric poles in such a way that the angles of the electric poles remain over the top of the house and inclined to the road to avoid accident from shot-circuit.

Following are the major activities to be carried out during the construction phase of road improvement

- Loosing, leveling and dressing of the damaged BC road;
- Sand filling on the existing road bed and on the extended portions at the both sides;
- Construction by sand and aggregated;
- Box cutting;
- Mechanical compaction;
- Laying of polythene sheet and
- Casting of pavement by RCC mixture or bituminous mixture.

Following are the major activities to be carried out during the construction phase of drain

- Earth work in excavation of the foundation;
- Pumping and bailing out of water as per requirement;
- Laying of polythene sheet;
- Sand filling for the preparing foundation bed;
- Plain cement concrete work in foundation;
- Placing of CC blocks;
- Reinforced cement concrete work;
- Construction of collection box or hole;
- Construction of drain slabs and
- Placing of pavement tiles on the top of the footpath.

Following are the major activities to be carried out during the construction phase of median

- Alignment of median;
- Earth cutting
- Base preparation
- Reinforced cement concrete work for median boundary construction;
- Earth filling work and
- Plantation.

Subproject Schedule:

The tentative schedule of construction of the subproject is:

- (a) Subproject duration (months): 13 months
- (b) Tentative start date : February 2019
- (c) Tentative completion date : March 2020

The daily construction hours will normally include regular working time. However, daily working hours may vary based on the on-site condition. The detailed work program will be prepared by the contractor with the assistance of the PIU, DNCC. Then it will be shared with the PMU, BMDF. In addition, the detailed work program will also be shared with the Bank.

2.8 Potential benefit from sub-project

The sub-project infrastructure activities will help to reduce traffic congestion and water lodging during heavy rainfall. Construction of road median will also improve the esthetic view and reduce the risk of accident.

All the people of zone-1 of Uttara model town will be benefitted from this sub-project activity. Target number of direct beneficiaries are fifteen lac and indirect are fifty lac.

The proposed roads are one of the key roads of the Uttara model town under zone-1 of DNCC to travel to various part of Dhaka. Sonargaon Janopath road is connected with Dhaka Mymensingh high way road. All selected roads are less developed or damaged and ineffectual for the movement of vehicles and people. Due to long time use by the heavy vehicles the BC road is severely damaged containing cracks, pot holes, edge broken and depressions. BC pavement is found almost all over the road. Stagnant water and soil clay are found on roads.

The existing road width is not adequate to accommodate the growing traffic resulting to severe traffic jams, slow movement and frequent accidents. After implementation of the sub-project the problems will be reduced and road users will be benefitted. The existing road will be widened along with footpath to reduce traffic volume, accident, traffic congestion, travel time and will enhance the connectivity of the road network to meet the growing traffic targets.

Drainage facility is also inadequate for draining rain water as well as household waste water properly. As a result water logging is one of the key problems during rainy season. Therefore, the construction of a people friendly covered drain at both sides of roads is highly important to mitigate the inundation problem of sub-project area.

Footpath is very important for residents to move from one place to another. Right now no proper footpath is existing at sub-project area. In some cases, existing footpath is occupied by surrounding residents constructing individual ramp for vehicle movement and plantation. So, people friendly footpath is required for smooth mobility at sub-project area.

The median can control traffic and reduce accident during transportation. At present there is no median on proposed road under sub-project activities. Median will allow one way vehicle movement on Sonargaon Janapath and Shah Makhdam road. It will also enhance the beauty through plantation and ensure street lighting.

The sub-project has significant environment, social and economic benefits for the community. It will reduce after completion of the activities, the road sub-project will provide uniform width for the safe movement of inhabitants and vehicles which will reduce the risk of accidents. By constructing smooth road surface and footpath over the drain, it will provide better, easy and safe movement facilities for the travelers. On the contrary, new drains will minimize the drainage congestion and water logging problem. In addition, the proposed sub-project will significantly enhance the business facilities and hence increase the income of the people, businessmen. It will also add the commercial and aesthetic value of the area. Therefore, considering the benefits that will derive, the sub-project is selected for implementation.

So, the proposed sub-project has significant importance for the communication of citizen in Dhaka reducing traffic congestion, water lodging during heavy rainfall and risk of accident.

Picture 1: Present status of road number 2 and 8 at sector 3 of Zone 1, Uttara



Picture 3: Present status of road number 13 & 13/A at sector 3 of Zone 1, Uttara
 Picture 2: Present drainage condition of road number 13 & 14 at sector 12 and Sonargaon Janopath, Zone 1 of Uttara



Picture 4: Present status of road number 13 & 14 at sector 12 of Zone 1, Uttara



Picture 5: Present status of road number 20 at sector 3 of Zone 1, Uttara

Picture 6: Present condition of footpath, road & median of Sonargaon Janopath road & Shahmakdum road of sector 11 &12 under Uttara



3.0 PUBLIC CONSULTATION

Public consultation about the planning, design, implementation and operation is done at different stages following several participatory methods. The methods followed in public consultation are: (a) consultative meeting with different stakeholders, (b) focus group discussion with community people through the participation of male participants, (c) focus group discussion with community people through the participation of female participants, girls and boys, and disable people, and (d) key informant interview with relevant persons of City Corporation and local elites.

Two consultation meetings were organized at Kallayan Somittee office of sector 3 and 11 community where local leaders, representative from elite community, representatives of Kallyan Samitee, representatives of local traders were present. The participants were informed about the detail design, activities of sub-project going to be implemented. They were asked to share their opinion, feedback and suggestions on potential social and environmental impacts of the sub-projects as well as on the mitigation measures to avoid or reduce the potential impacts. All the participants provided their opinions spontaneously. Two focus group meetings were organized at sector 3 and 11 of Uttara zone-1.

Photo 7: Community Consultation



Key findings of community consultation and FGD

Following recommendation and concerns have been raised by the participants-

- All type of community people (school going children, pedestrians, officials, businessmen etc.) informed that the proposed roads and drains are highly required for the community people;
- The road should be expanded at the both sides maintaining an equal distance from the middle or center of the existing road;

- Covered drain should be constructed at both sides keeping the walking provision for the pedestrians;
- People suggested to reduce tree cutting as much as possible;
- Proper slop should be maintained during road construction to avoid water lodging during rainy season;
- The construction debris/rubbish should be removed as early as possible to continue easy movement of community people;
- The construction work should be completed within the contract time frame;
- City Corporation should strongly monitored to ensure the quality of work according to work order and structural design;
- Considering the residential area, the Contractor should avoid work at night, specifically after 10:00 pm.;
- Community prefer single lane working, by day and by night, and all other items to ensure the smooth and safe flow of traffic;
- Noise and air pollution should be controlled so that its impact might be minimum on community people;
- The speed of the vehicles should be controlled by engaging traffic control authority, community traffic police and constructing speed breakers at certain interval of the road and at different vulnerable points like schools, markets etc, to avoid the accidents;
- Proper traffic control mechanism including sign of speed, sign of turning, community traffic police with flag at important points etc. should be ensured;
- Street light should be given along all roads. It can be given with electric poles of DESA & PDB;
- The drain should be constructed in such a way that the household waste water can discharge easily to drain and no water can over flow the road to hamper community people and environment pollution;
- Community people and shop keepers should be mobilized through awareness campaign, so that they can keep generated solid waste in own waste bin and no waste is thrown on the road and drain. The City Corporation should ensure the collect, disposal of solid waste properly.
- Disable people are integral part of our society and they will move different places especially at markets for buying their necessary goods. Hence, design of the road, drain and footpath should be disable friendly. They should also be involved at planning and design stage, if possible. There should be a provision of ramp from road to markets for the movement of the disable people.

4.0 BASELINE ANALYSIS OF ENVIRONMENTAL CONDITION

Uttara model town is situated within Dhaka city. Part of the Dhaka is covered by Pleistocene Madhupur Clay and Holocene sediments of the Ganges- Brahmaputra floodplain. The Madhupur Clay is situated in north-west part and lies elongated from the middle of the north to south of the project area and these are oxidized Pleistocene sediments. In the east, south and western half of the Dhaka area are covered by the Ganges-Brahmaputra floodplain sediments. The area has been divided into 6 geological units and these are: i) Chandina Alluvium, ii) Alluvial Silt and Clay, iii) Alluvial Sand, iv) Alluvial Silt, v) Marsh Clay and Peat and vi) Madhupur Clay Residuom.

4.1 Physical/abiotic environment

4.1.1 Lithosphere

Soil characteristics:

Dhaka district conceives greater variety of soils than any other district of Bangladesh. The soils of the Dhaka area are described under the headings of the six major geomorphologic units within which the different parent material occur, viz.-i) Madhupur Tract, ii) Arial Beel, iii) Ganges floodplain, iv) Old Brahmaputra floodplain, v) Jamuna floodplain, and vi) Middle Meghna floodplain. There are three layers in most soils: topsoil, sub-soil and substratum. Topsoil is usually a ploughed layer 5 cm to 80 cm thick. The floodplain topsoil varies in thickness from 5 cm to about 15 cm. The subsoil is the layer undisturbed by tillage. In the floodplains it ranges from 15 cm to 45 cm. The topsoil grades uniformly into the substratum which may range from loose sand to Madhupur clay (Soils Resource Development Institute). Most parts of Dhaka City and surrounding area have already been occupied. As a result, the city is expanding on reclaimed sites. Most of these sites are developed by filling lowlands (3~12 m) using dredge materials.

Seismology

The National Seismic Zoning Map divides the country into three regions. The city of Dhaka falls within the medium-risk zone (zone 2). In the medium risk zone, shocks of moderate intensity are possible, with a probable maximum magnitude of 6-7 on the Richter scale. This map clarifies the seismological status of the various regions of the country. The earthquake risk factor for this zone 2 is 0.15, while the risk factors for zone 1 and zone 3 are 0.075 and 0.25 respectively. More than 20 large earthquakes have been recorded in and around Bangladesh over the last 130 years (MPO, 1987). A recent study by Comprehensive Disaster Management Program (CDMP) on the liquefaction susceptibility of Dhaka indicates that the city's eastern

and south-western parts lie within the high to very high liquefaction susceptibility range. These parts are recently filled and developed marshy lands. Liquefaction is a physical process of ground failure that takes place during earthquake.

4.1.2 Hydrosphere

River water level

Dhaka is surrounded by tributaries and branches of the three major rivers. The urban district of Dhaka is delimited by Turag River, Buriganga River, etc. on the east, and Balu River, Situlakhya River, etc. on the west. Water levels in these rivers vary in sync with the water level in the major rivers, and rise as high as 5.0 to 6.0 m in an ordinary rainy season, but are about 1.0 to 2.0 m in the dry season.

Precipitation

Dhaka has yearly precipitation of 1,400 to 2,400 mm, 80% of which concentrated in the rainy season (June to September). Since the river water levels rise in the rainy season, an intense rainfall may easily cause flood damage due to drainage failure in the city of Dhaka.

Groundwater Table of Dhaka City

There are various reasons that are responsible for gradual declination of groundwater level in Dhaka city of which high groundwater withdrawal from the aquifer is the most crucial. In addition, rapid urbanization including construction of roads, buildings, other engineering structures, flood protection dams, and embankments are continuously hindering the natural groundwater recharges from rainfall and perennial water sources existing in and around the city (Rahman and Alam, 2005). A network of 22 lakes, canals, and small rivers facilitate the natural drainage for the floodwaters and groundwater recharge in this city. Illegal encroachment and disappearances of them also depreciated groundwater recharge over the last four decades. In Bangladesh, the depth of water tables varies from less than a meter to more than 30m. The shallowest water table occurs in the coastal region whereas the deepest water table occurs in the Barind Tract and Dhaka City (more than 30m from the ground surface) (Banglapedia, 2006). The depth to the water table moves seasonally with annual recharge and discharge conditions. The amount of seasonal fluctuation varies from less than a meter to more than 10m depending on the local hydro geological conditions, amount of groundwater abstraction and natural discharge of groundwater. In recent years, there is a declining trend in the water table due to larger amount of groundwater withdrawal. Some scientific studies on the groundwater of the city revealed that the aquifer piezometric level which is the natural water level of a confined aquifer of the city main aquifer, has gone down significantly in last few years due to over-withdrawal of groundwater (Akther, Ahmed and Rasheed, 2009).

Wetland

Dhaka city play important roles of flood control and environment protection, by performing various functions as listed below. However, wetlands have been in an irreversible course of disappearing in recent years, as poorly planned development projects are rampant, while

relevant regulatory agencies remain poorly coordinated. Wetlands retention flood water mitigates the inundation damage by temporarily retaining the flood water coming from rivers. Rain water falling in Dhaka is stored in wetlands in the surrounding areas, while rain water falling in the urban district is discharged through drainage and khals into rivers.

4.1.3 Atmosphere

Ambient Air Quality

Like other major metropolises in developing countries, deterioration of air quality in the Dhaka area is a key environmental concern. The main air pollutants in Dhaka are Nitrogen Oxides (NO_x), Sulfur Dioxide (SO₂), Particulate Matter (PM), usually expressed as PM with diameter of 10 microns or smaller: PM₁₀, or PM_{2.5} microns or smaller: PM_{2.5}, Carbon Monoxide (CO), Ozone, and Lead. The motor vehicles and traditional brick kilns contribute predominantly to the air pollution. The motor vehicles are major source of PM pollution that contributes to the risk of developing cardiovascular and respiratory diseases, as well as lung cancer. Most of the PM pollution comes from the diesel-run vehicles. Hundreds of brick kilns operate during the dry season from November to April in the low agricultural land surrounding Dhaka City and generate smoke dust including SO₂, NO_x and hydrocarbons that contribute to worsening the ambient air and damage of public health.

Table 5: National ambient air quality standards for Dhaka

Pollutant	Objective	Average
CO	10 mg/m ³ (9 ppm)	8 hours (a)
	40 mg/m ³ (35 ppm)	1 hours (a)
Pb	0.5 µg/m ³	Annual
NO _x	100 µg/m ³ (0.053 ppm)	Annual
PM ₁₀	50 µg/m ³	Annual (b)
	150 µg/m ³	24 hours (c)
PM _{2.5}	15 µg/m ³	Annual
	65 µg/m ³	24 hours
O ₃	235 µg/m ³ (0.12 ppm)	1 hour (d)
	157 µg/m ³ (0.08 ppm)	8 hours
SO ₂	80 µg/m ³ (0.03 ppm)	Annual
	365 µg/m ³ (0.14 ppm)	24 hours (a)

Note: NAASQ-National Ambient Air Quality Standards; DNA-Data not available; PM-Particulate matter.
(Source: Monthly air quality monitoring report, June 2018, CASE Project, DoE)

Table 6: Air quality status of selected points of Dhaka city

Parameter	Unit	NAAQS	Summary	Period	Location		
					Sangshad Bhaban, Sher-e-bangla Nagar (23.76N; 90.39E)	Farmgate (23.76N; 90.39E)	Darus-salam (23.78N; 90.36E)
SO ₂ -24 hours	ppb	140	Average	July 2018	DNA	DNA	DNA
			Max		DNA	DNA	DNA

Parameter	Unit	NAAQS	Summary	Period	Location		
					Sangshad Bhaban, Sher-e-bangla Nagar (23.76N; 90.39E)	Farmgate (23.76N; 90.39E)	Darusalam (23.78N; 90.36E)
			Min		DNA	DNA	DNA
			Average	2013	5.05	7.74	10.3
			Average	2014	4.93	6.44	9.95
			Average	2015	DNA	6.63	7.89
NO _x -24 hours	ppb	53 (annual)	Average	July	DNA	DNA	5.34
			Max	2018	DNA	DNA	9.37
			Min		DNA	DNA	1.33
			Average	2013	33.0	104	49.4
			Average	2014	33.5	153	45.4
			Average	2015	32.7	143	45.4
CO-1 hr	ppm	35	Average	July	DNA	1.54	2.81
			Max	2018	DNA	6.72	5.43
			Min		DNA	0.05	2.20
			Average	2013	1.09	1.15	2.62
			Average	2014	1.15	1.92	2.08
			Average	2015	0.68	2.66	1.96
O ₃ -1hr	ppb	120	Average	July	DNA	5.59	1.78
			Max	2018	DNA	23.8	8.05
			Min		DNA	0.08	0.51
			Average	2013	4.51	15.7	6.45
			Average	2014	2.50	6.98	5.63
			Average	2015	0.99	6.64	12.2
PM _{2.5} -24 hr	µg/m ³	65	Average	July	DNA	47.8	37.5
			Max	2018	DNA	78.4	90.6
			Min		DNA	26.2	9.47
			Average	2013	81.6	85.7	90.2
			Average	2014	72.6	130	96.8
			Average	2015	78.0	78.3	88.4
PM ₁₀ -24hr	µg/m ³	150	Average	July	DNA	71.8	77.7
			Max	2018	DNA	122	124
			Min		DNA	37.4	33.7
			Average	2013	148	123	156
			Average	2014	139	94.4	160
			Average	2015	131	152	162

(Source: Air quality monitoring report, CASE Project, DoE)

Noise Environment

Noise level of Dhaka City is now a major concern for the city people because it has exceeded the tolerance level. According to WHO survey at 45 locations of Dhaka City, most of the traffic points and many of the industrial, residential, commercial, silent and mixed areas are suffering noises exceeding the standard limits of Bangladesh due to vehicular horns and movement, loudspeakers from processions and meetings, high volume of audio players from roadside small

business enterprises and others. Noise exposure is a threat to human health, especially for elderly people and children. On the other side, the traffic personnel, rickshaw pullers, open vehicle drivers, road side workers, small scale business enterprise workers etc. are exposed for long-term noise pollution which might cause severe mental and physical health problems. The examples of noise pollution in Dhaka city is presented at following tables.

Table 7: Noise standards of Bangladesh and WHO guideline

Category of areas	Bangladesh noise standards (equivalent sound level in dBA)		Guidelines for community noise (WHO, 1999)	
	Day (6:00-21:00)	Night (21:00-6.00)	Day (7:00-21:00)	Night (22:00-7.00)
Silent zone	45	35	-	-
Residential area	50	40	55	45
Mixed area	60	50	-	-
Commercial area	70	60	70	70
Industrial area	75	70	70	70

(Source: DHUTS. Phase-II, Environmental Assessment Study, November 2015)

Table 8: Result of noise pollution in selected areas of Dhaka city

Location	Noise level (Equivalent sound level in dBA)	
	Day (6.00-21.00)	Night (21.00-6.00)
Pallabi near to police station, Mirpur	83	78
South side of Farmgate on ground level, Farmgate	90	85
South side of firmgate on foot over bridge (7m above ground), Farmgate	89	85
South side of Bangla Academy along Sir Sayed road	76	68
South side of Banga Bhaban along Folder street	91	89

(Source: DHUTS. Phase-II, Environmental Assessment Study, November 2015)

4.2 Biological/biotic environment

Ecosystems

The ecosystems of Bangladesh could be categorized into two major groups, i.e. (i) land based and (ii) aquatic. The land-based ecosystems include forest and hill ecosystems, agro-ecosystem and homestead ecosystem; while seasonal and perennial wetlands, rivers, lakes, coastal mangroves, coastal mudflats and chars, and marine ecosystem fall into the aquatic category. Each of the ecosystems has many sub-units with distinct characteristics as well.

Moist Deciduous Forest (Sal Forest), Agro-ecosystem, Homestead Ecosystem and Wetland Ecosystem are observed within Dhaka city

Floral

The proposed sub-project is in a residential area and limited open spaces at surrounding area. This includes homesteads, roadside plantation, natural vegetation, fruit trees and ornamental plants. Due to high price residential area, floral diversity is poor here.

Faunal

Wet land is limited in and around sub-project area. Still some minor and catfishes categories local and cultured fish are available during rainy season. Birds like crow, sparrow etc. are available. The common types of reptiles are found in the area, water snake, house lizard, soft-shell, turtle etc.

5.0 ENVIRONMENTAL SCREENING

According to Environmental Management Framework (EMF) of Municipal Governance and Services Project (MGSP), all sub-projects are subject to an environmental screening before final selection. Environmental screening helps to get primary idea on sub-project, to reduce negative environmental impact and to enhance potential environmental impact. The environmental screening helps to assess the impact of ecological, physic-chemical and socio-economic environment of surrounding areas of sub-project named ‘Development Drainage Rehabilitation and Communication Network’.

5.1 Potential environmental impact during construction phase

5.1.1 Ecological impacts

- Felling of trees Significant Moderate **Minor** No. of trees
- Clearing of vegetation Significant Moderate **Minor** **9 medium & 56 small plants/herb**

- Potential impact on species of aquatic (i.e., water) environment Significant Moderate **Minor**

All proposed roads and most of the drains are under improvement work which will not require any new land. Thus ecological impact is minor. Assume that maximum nine ornamental trees medium in size and 56 small ornamental plants (appr) will be needed to cut down to improve the drainage system.

As the sub-project is mainly improvement work, there is no specific way to clear vegetation.

There is no water body near the sub-project area and no probable way for potential impact on aquatic environment.

5.1.2 Physic-chemical impacts

- | | | | |
|---|--------------------------------------|---|--|
| • Noise pollution | Significant <input type="checkbox"/> | Moderate <input checked="" type="checkbox"/> | Insignificant <input type="checkbox"/> |
| • Air pollution | Significant <input type="checkbox"/> | Moderate <input type="checkbox"/> | Insignificant <input checked="" type="checkbox"/> |
| • Drainage congestion | Very likely <input type="checkbox"/> | Likely <input checked="" type="checkbox"/> | Unlikely <input type="checkbox"/> |
| • Water pollution | Significant <input type="checkbox"/> | Moderate <input type="checkbox"/> | Insignificant <input checked="" type="checkbox"/> |
| • Pollution from solid/
construction waste | Significant <input type="checkbox"/> | Moderate <input checked="" type="checkbox"/> | Insignificant <input type="checkbox"/> |
| • Water logging | Significant <input type="checkbox"/> | Moderate <input type="checkbox"/> | Insignificant <input checked="" type="checkbox"/> |

The sub-project sites are located at three different sectors of Uttara. Due to movement of construction equipment, concrete mixer, the sub-project will create temporary and localized moderate level of noise pollution. The probable impact on noise from this sub-project activity is manageable because impacts are site specific and context of impact is limited.

Sub-project includes mainly improvement work and location specific, so air pollution due to construction work will be insignificant.

Concrete waste and debris will be generated which may cause limited scale drainage congestion for open drainage system. To manage that problem, construction waste like soil, concrete, stone etc. debris will be cleared soon after generation according to DNCC policy.

There is no water body within sub-project area to create water pollution.

The sub-project is mainly improvement work and existing drainage is visible at many places to out waste water. There is no specific way to create water logging during construction of sub-project.

Due to movement of construction equipment, concrete mixer, the sub-project will have temporary and localized moderate level of negative impact for noise and solid construction waste.

5.1.3 Socio-economic impact

- | | | | |
|--|--------------------------------------|---|--|
| • Traffic congestion | Very likely <input type="checkbox"/> | Likely <input checked="" type="checkbox"/> | Unlikely <input type="checkbox"/> |
| • Health and safety | Significant <input type="checkbox"/> | Moderate <input checked="" type="checkbox"/> | Insignificant <input type="checkbox"/> |
| • Impact on archaeological
and historical | Significant <input type="checkbox"/> | Moderate <input type="checkbox"/> | Insignificant <input checked="" type="checkbox"/> |
| • Employment generation | Significant <input type="checkbox"/> | Moderate <input checked="" type="checkbox"/> | Insignificant <input type="checkbox"/> |

Both Sonargaon Janapath and Shah Makhdam roads are moderately important and busy. Improvement of road under that sub-project will create traffic congestion. But DNCC will not work on entire road at a time. To minimize traffic congestion and to continue transportation, DNCC will do road construction work part by part and half portion of road. On the other hand, all the roads have adequate connectivity. So impact on traffic congestion will be 'likely'.

Anticipated impact on health and safety is moderate because the sub-project related activities do not require heavy equipment. On the other hand, according to DNCC policy, assigned contractor need to bear necessary health insurance of labor.

There is no archaeological and historical site within the sub-project area.

The sub-project has moderate impact by generating work opportunities for few local poor people as labor.

5.2 Potential environmental impact during operational phase

5.2.1 Ecological impacts

- Potential impact on species of aquatic (i.e., water) environment Significant Moderate **Minor**

There will be minor ecological impact during operation period of sub-project. Drains will discharge waste water to main drain outlet of WASA, so there will not any impact on the aquatic environment if drains are used and maintained properly. On the other hand, all drains will be covered to make footpath so possibility of dumping of solid waste directly into the drains will not be possible.

5.2.2 Physicochemical impacts

- Potential air quality and noise (especially for road) Improvement No-improvement **Deterioration**
- Drainage congestion (especially for drain) Improvement Minor Improve **No Impact**
- Risk of Water pollution (especially for storm drain and jetty) Significant Moderate **Minor**
- Pollution from solid waste (especially for SWM, and market) Improvement No-improvement **Deterioration**

Sonargaon Janapath has possibility to increase transportation and traffic during operation phase which may degrade the noise pollution and present air quality. Using of hydraulic horn should be strictly protected.

The improved and newly constructed covered drain will reduce the drainage congestion and water lodging problem during rainy season.

Under that sub-project, all the drains will be covered, so, risk of water pollution is minor.

Under that sub-project, all the drains will be covered and pollution of solid waste is not possible.

5.2.3 Socio-economic impacts

- Traffic (especially for road, bridge, box culvert, bus/truck terminal) **Improvement** No-improvement Adverse
- Safety **Improvement** No-improvement Adverse
- Employment generation **Significant** **Moderate** **Minor**

After completion, all the roads will help to improve the transportation facilities significantly. Median will help to convert the Sonargaon Janapath as one way road. Improvement of road and drainage system will reduce water logging and smooth people's movement on footpath. New drain will also improve drainage facilities and prevent the accumulation of the stagnant water on the road surface.

Picture 8: Disable friendly tiles to use for footpath construction



Construction of median at Sonargaon Janapath road will improve the safety for vehicle movement. Improved footpath will be constructed on covered drain to improve safety of people's movement. To make disable friendly pathway, disable friendly tiles will be used for footpath.

There is no specific possibility of employment generation for these sub-project activities during operation period.

5.3 Summary of possible environmental impacts of the schemes

The environmental assessment of sub-project named 'Development Drainage Rehabilitation and Communication Network System' have been conducted and observed that there will be no significant adverse environmental impacts.

Sub-project specific activities are mainly improvement of existing road, footpath and drain. Hence, ecological impact is very limited. Only nine ornamental small trees will be cut down to improve the proposed footpath. Moderate level of noise pollution and construction waste will be generated which are also local specific and having low magnitude. To minimize those, debris will be dumped at DNCC dumping field of Aminbazar soon after the work. Most of the roads (except Sonargaon Janapath) are situated within residential area and public service is not highly visible. Road construction work will be done part by part to minimize traffic congestion and to continue transportation.

On the other side, drainage congestion and pollution from solid waste will be reduced due to improvement of drainage. Traffic will be much improved along with safety of vehicle movement. Disable people will also be under consideration for selection of construction materials.

All potential environmental features have been closely observed and shared with local communities. After reviewing and analysis of all observations and findings, it has been assumed that the proposed sub-project will not create significant negative impact on ecological, physio-chemical aspect during construction period. Rather than, it will be helpful to enhance

positive socio-economic impact during operation period by improving traffic, drainage and safety of travelling.

As assumed, some insignificant/moderate/minor adverse environmental impacts are subject to mitigation and would be addressed through proper mitigation and enhancement measures during the implementation period. Proper and quick disposal of solid waste, limiting the air pollutant, maintenance health & safety of workers, maintenance of traffic have been prescribed for the mitigation of likely impacts

Construction activities with environmental safeguard related orientation of concerned DNCC staffs will be undertaken to implement appropriately all recommended mitigation measures.

5.4 Category of sub-project

According to ECR 1997 : Green / Orange A / **Orange B** / Red / Not Listed

According to WB classification : **Category B** / Category C

5.5 Proposed mitigation measure

The impacts, which are likely to be occurred in different phases of the sub-project, are identified and evaluations of those impacts have been done along with possible mitigation/enhancing measures.

5.5.1 Potential impacts and mitigation measures at construction phase

5.5.1.1 Causes of impact at construction phase

Demolish works:

The proposed sub-project is mainly the improvement of existing road, drain and footpath. The demolition works need simple procedure and manual equipment like; hammer, mechanical drill machine, etc. Single lane demolition work of road will be done to ensure safe flow of traffic. There will have barricade for construction site to avoid any accident due to demolishing work. And demolition work will avoid school time, office time and night. The workers will use hand gloves, spectacles for eye protection, helmets, masks, visible jacket, ear plug and safety boots during demolishing work. On the other hand, first aid box will be readily available at labor shed.

Due to small scale demolish work, the impact will be less but need to manage the demolition materials properly. Some creation of dust and noise will be there during the demolition works. Solid waste materials/debris should be disposed quickly because those can congest the drainage system, reduce aesthetic value and disturb traffic.

Solid waste generation:

Demolition of road will generate concrete solid waste. Quick removal of solid waste will be done soon after the demolition work. To do that adequate dumping bin/hand cart will be readily available at construction site for primary collection of construction waste. Then the waste will

be dumped at secondary dumping station available near the construction site. As like other areas, all construction waste will be carried to Amin Bazar land fill by DNCC vehicle.

A few amount of solid waste will be generated from the labor's shed due to cooking, mobile toilet and so on. Cooking related waste will be dumped at provided bin at primary level, then to STS by hand cart resulting to crude dumping at Amin Bazar land fill by DNCC vehicles. Whereas available; Mobile Toilet will be connected directly with sewerage drainage system. The container will be used with mobile toilet where sewerage line is not available and into nearest sewerage line by the mobile toilet providers.

Construction works:

Construction works need concrete work, transportation of materials, bituminous work etc. appropriate work schedule, management of works, alternative path of travel and drainage etc. are needed for construction work.

5.5.1.2 Potential impacts and mitigation measures at construction phase

Drainage congestion

There is possibility of drainage congestion during reconstruction and demolition of concrete structure.

Mitigation measure:

- Diversion drainage channel will be opened before construction;
- Provision of pumping of congested water will be ensured (if required);
- As construction work will be started during wet season, adequate drainage facility will be ensured.

Air pollution

Both demolish and construction work will generate dust and create air pollution at local level. Air will also be polluted during bituminous melting for road carpeting.

Mitigation measure:

- Water will be sprayed on dry surface/dust/unpaved roads regularly to reduce dust generation;
- Adequate moisture will be maintained during concrete waste transportation;
- DNCC will avoid some equipment at site like, stone crushers produce significant amount of particulate matters;
- DNCC will strictly prohibit using fuel wood for heating bitumen.

Traffic congestion

Traffic congestion will be created for the whole period of sub-project implementation especially during road demolition and construction.

Mitigation measure:

- Avoid road side storage of the construction materials;
- Ensure disposal of the wastes to DNCC landfill area quickly after the work;
- Proper traffic control plan will be prepared before starting of work. Single lane demolition and construction work of road will be done to ensure smooth and safe flow of traffic;
- All needed materials/equipment delivery will be scheduled during off pick hour;
- Adequate flag/road sign will be used for traffic control;
- Reflecting marking will be used to mark unpaved roads during night to ensure traffic and pedestrian safety.

Noise pollution

Both demolition and construction work will generate noise at local level.

Mitigation measure:

- Workers will avoid prolonged exposure of noise produced by equipment;
- All the construction work will be limited by daytime to avoid noise pollution during night;
- DNCC will regulate use of horns and hydraulic horns of their vehicles at project site.

Felling of trees

Only nine medium size ornamental trees and 56 small plants/herbs (approx.) may be needed to cut down due to sub-project activities. No other vegetation will be lost and ecological impact is very insignificant.

Mitigation measure:

- DNCC will plant fruit and flower plants around 2250 in number to decorate road medians.

Occupational health and safety

Construction works have opportunity of facing accident of workers during demolition, construction and bituminous carpeting.

Mitigation measure:

- There will be arrangement of temporary labor sheds, toilet facilities and safe water supply for both male and female labors near the proposed sub-projects
- DNCC will follow standard safety protocol of Bangladesh government.
- Contractors will make available the first aid box for workers;

- Workers will use personal protective equipment (PPE) like, hand gloves, helmet, boots etc.
- Workers will be oriented on health and safety by the contractors and Safeguard Specialist of DNCC.

Accident

Construction works have opportunity of facing accident during demolition, construction and bituminous carpeting.

Mitigation measure:

- There should have some kind of marking or barricade for construction site to avoid any accident;
- Demolition work shall avoid school time, office time and dark night.

5.5.2 Potential impacts and mitigation measures at operation phase

5.5.2.1 Causes of impact and mitigation measures at operation phase

Increase of traffic speed and accident

In case of Sonargaon Janapath and Shahmakhdam Road, traffic may be increased with the probability of road accident.

Mitigation measure:

- DNCC can request for better traffic management. To do that a Adequate number of speed-breaker will be designed on above mentioned roads, especially in front of each vulnerable institution such as schools and markets;
- Relocate business establishments keeping minimum two feet distance from the road.

Damage and spillage of water to bitumen road surface

Heavy vehicle movement can create damage and spillage of bitumen road surface of Sonargaon Janapath and Shahmakhdam Road.

Mitigation measure:

- DNCC can control heavy traffic movement or speed constructing speed breakers.

Blockage of drain

Open drains can be blocked due to disposal of solid waste.

Mitigation measure:

- Regular cleaning of drain will be suggested.

Pollution of downstream water

Pollution of downstream water body through sewerage system due to disposal of polluted water from drain

Mitigation measure:

- Stop connecting sanitation facilities directly to water drainage system.

5.6 Overall comments

The proposed sub-project will not create significant negative impact on ecological, physio-chemical aspect during construction period but it will be helpful to enhance positive socio-economic impact during operation period by improving traffic, drainage and safety of travelling. Suggested minor adverse environmental impacts are subject to mitigation and will be addressed through proper mitigation and enhancement measures during the implementation period.

6.0 ANALYSIS OF ALTERNATIVE

The analysis of alternatives is done to examine the proposed sub-project site, technology, design and operation in terms of their potential environmental impacts and the feasibility of mitigating these impacts. It also states the basis for selecting alternative options for the component. The analysis of alternatives for the sub-project components have been carried out as a part of the feasibility study and have been taken forward.

6.1 Analysis of alternative routes

Analysis of alternative roads:

This is a reconstruction or improvement sub-project where the existing Bituminous Carpeting road will be replaced by the new BC using the same alignment. Therefore, analysis of alternatives routes/alignment is not really applicable.

Analysis of alternative routes of storm drain:

This is a reconstruction or improvement sub-project where the existing Bituminous Carpeting road will be replaced by the new BC using the same alignment. Covered drain will be constructed on two sides of roads. Therefore, analysis of alternatives routes/alignment is not really applicable.

Analysis of alternative median:

This is a reconstruction or improvement sub-project where the existing Bituminous Carpeting road will be replaced by the new BC using the same alignment. The median will be constructed at the middle on larger roads named Snargaon Janapath and Shah Makhdam. So analysis of alternatives routes/alignment is not applicable.

6.2 Analysis of alternative designs

6.2.1 Analysis of alternative designs

For a road sub-project, alternative designs may include asphalt road and RCC road. Through a comparative study considering the advantages of the BC road and Reinforced Cement Concrete (RCC) road, the consultants examined which one is feasible. General advantage and disadvantage of the BC, CC and RCC roads are shown in following table.

Design	Advantages	Disadvantage
<u>Alternative 1:</u> Bituminous Carpeting (BC) Road	<ul style="list-style-type: none"> • Low Construction cost; • Provide smooth surface; • Aesthetic value is high. 	<ul style="list-style-type: none"> • Frequency of maintenance is relatively high; • Possibility of early damaged in heavy rainfall
<u>Alternative 2:</u> CC Road	<ul style="list-style-type: none"> • Do not require frequent repairing like BC roads; • Durability is more than BC road but less than RCC road. 	<ul style="list-style-type: none"> • Concrete roads do not require frequent maintenance but if damaged the whole concrete slab needs to be replaced. • Costly higher than BC road
<u>Alternative 3:</u> RCC road	<ul style="list-style-type: none"> • Capacity of passing heavy loaded vehicles • RCC road is not damaged in heavy rainfall • Frequency of maintenance is relatively low. 	<ul style="list-style-type: none"> • High construction cost • Provide relatively less smooth surface

Selected Design is **Alternative-1** which is BC road because it is comparatively cheaper and city people prefer for smooth vehicle journey.

6.2.2 Analysis of alternative designs

For a RCC drain sub-project, alternative designs may include RCC drain, brick drain and pipe drain. The following table discusses the general advantages and disadvantages of RCC drain, brick drain and pipe drain.

Route/Alignment	Advantages	Disadvantage
Alternative 1: RCC drain	<ul style="list-style-type: none"> • Not prone to encroachment • Area above RCC drain could be used as a part of road/footpath 	Higher cost of construction
Alternative 2: Brick drain	Less construction cost	Less strength to carry load of surrounding structures
Alternative 3: Pipe drain	Require less time to construction	Maintenance is difficult

Selected Design is **Alternative 1**. The selected design is RCC drain because need to be more strength to be converted as footpath. Old exiting pipe drain and RCC drain will be replaced by the new RCC drain.

6.2.3 Analysis of alternative designs

Alternative designs for a median man hide divider, barrier median, wide divider and divider. Comparative study among those medians can help to identify the feasible one. General advantage and disadvantage of the barrier median, man hide median and wider median are shown in following table.

Design	Advantages	Disadvantage
<u>Alternative 1:</u> Barrier median	<ul style="list-style-type: none"> • Vehicles cannot approach is known as barrier median; • It is made up of concrete or steel and relatively cheaper. 	<ul style="list-style-type: none"> • Aesthetic value is less; • Not effective for street lighting, plantation and decoration.
<u>Alternative 2:</u> New Jersey median	<ul style="list-style-type: none"> • Minimize vehicle damage in cases of incidental contact 	<ul style="list-style-type: none"> • It can temporary rerouting of traffic
<u>Alternative 3:</u> Wide median	<ul style="list-style-type: none"> • Can enhance aesthetic value by plantation and other decoration; • People can cross the road easily; • Street light easily can be installed. 	<ul style="list-style-type: none"> • Traffic interruption may happen as people can cross roads easily.

Selected Design is **Alternative-3** which is wide median because it is more suitable for sub-project locality.

6.3 Analysis of Alternative Technologies

Method of the construction should be selected based on the available technologies in Bangladesh. However, to minimize occupational health and safety risks and for effective use of the human labors, it is highly recommended to adapt mechanical system where as possible.

7.0 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Environmental management plan (EMP) is to record environmental impacts resulting from the sub-project activities and to ensure implementation of the identified “mitigation measures”, in order to reduce adverse impacts and enhance positive impacts. Besides, it would also address any unexpected or unforeseen environmental impacts that may arise during construction and operational phases of the sub-projects. EMP is needed to be taken during both construction and operation phases of a sub-project to eliminate or offset adverse environmental impacts, or reduce them to acceptable levels. It is an integrated part of the project planning and execution. It includes mitigation and enhancement measures, monitoring plan, grievance redress mechanism, estimation of cost of EMP and institutional arrangement for implementation of EMP.

7.1 Mitigation and enhancement measures, monitoring plan

Potential environmental impacts of sub-projects and corresponding mitigation and enhancement measures during construction and operation phase.

Table 9: Table: Anticipated impacts and mitigation measures during construction phase

Activity/ issues	Potential Impact	Proposed Mitigation and Enhancement Measure	Monitoring Method	Frequency of Monitoring	Responsible for Monitoring	
					Implement	Supervision
Preparatory work (site cleaning, construction of labor shed etc.)	Generation of solid waste	Proper ventilation will be ensured at labor shed along with sanitary facility (separate for male and female), waste disposal system and water supply system.	Visual Observation	Regularly	Contractor	Primarily by PIU of DNCC. Secondarily by PMU of BMDF.
General construction work (site cleaning,	Drainage congestion	Diversion drainage channel will be opened before construction;	Visual Observation	Regularly	Contractor	Primarily by PIU of DNCC.

Activity/ issues	Potential Impact	Proposed Mitigation and Enhancement Measure	Monitoring Method	Frequency of Monitoring	Responsible for Monitoring	
					Implement	Supervision
demolition work etc.)		Provision of pumping of congested water will be ensured (if required); As construction work will be started during wet season, adequate drainage facility will be ensured.				Secondarily by PMU of BMDF.
	Air pollution	Water will be sprayed on dry surface/dust/unpaved roads regularly to reduce dust generation; Adequate moisture will be maintained during concrete waste transportation; DNCC will avoid some equipment at site like, stone crushers produce significant amount of particulate matters; DNCC will strictly prohibit using fuel wood for heating bitumen.	Visual Observation/ Analytical	Regularly	Contractor	Primarily by PIU of DNCC. Secondarily by PMU of BMDF.
	Traffic congestion	Avoid road side storage of the construction materials; Ensure disposal of the wastes to DNCC landfill area quickly after the work; Proper traffic control plan will be prepared before starting of work. Single lane demolition and construction work of road will be done to	Visual Observation	Regularly	Contractor	Primarily by PIU of DNCC. Secondarily by PMU of BMDF.

Activity/ issues	Potential Impact	Proposed Mitigation and Enhancement Measure	Monitoring Method	Frequency of Monitoring	Responsible for Monitoring	
					Implement	Supervision
		<p>ensure smooth and safe flow of traffic;</p> <p>All needed materials/equipment delivery will be scheduled during off pick hour;</p> <p>Adequate flag/road sign will be used for traffic control;</p> <p>Reflecting marking will be used to mark unpaved roads during night to ensure traffic and pedestrian safety.</p>				
	Noise pollution	<p>Workers will avoid prolonged exposure of noise produced by equipment;</p> <p>All the construction work will be limited by daytime to avoid noise pollution during night;</p> <p>DNCC will regulate use of horns and hydraulic horns of their vehicles at project site.</p>	Hearing Observation/ Analytical	Regularly	Contractor	<p>Primarily by PIU of DNCC.</p> <p>Secondarily by PMU of BMDF.</p>
	Felling of trees	DNCC will plant 3 times ornamental trees on road medians .	Visual Observation	Regularly	Contractor	<p>Primarily by PIU of DNCC.</p> <p>Secondarily by PMU of BMDF.</p>
	Occupational health and safety	<p>DNCC will follow standard safety protocol of Bangladesh government.</p> <p>Contractors will make available the first aid equipment for workers;</p>	Visual Observation	Regularly	Contractor	<p>Primarily by PIU of DNCC.</p> <p>Secondarily by PMU of BMDF.</p>

Activity/ issues	Potential Impact	Proposed Mitigation and Enhancement Measure	Monitoring Method	Frequency of Monitoring	Responsible for Monitoring	
					Implement	Supervision
		Workers will use PPE items like, hand gloves, etc. First Aid box will be available at labor shed. Workers will be oriented on health and safety by the contractors.				
	Accident	There should have some kind of marking or barricade for construction site to avoid any accident; Demolition work shall avoid school time.	Visual Observation	Regularly	Contractor	Primarily by PIU of DNCC. Secondarily by PMU of BMDF.

Table 10: Table: Anticipated impacts and mitigation measures during operation phase

Activity/is sues	Potential Impact	Proposed Mitigation and Enhancement Measure	Responsible Parties
Regular operation of road	Increase of traffic speed and accident	Adequate number of speed bump will be designed on above mentioned roads; DNCC can request for better traffic management.	PIU of DNCC.
	Damage and spillage of water to bitumen road surface	DNCC can control heavy traffic movement or speed.	PIU of DNCC.
Regular operation of drain	Blockage of drain	Regular maintenance and cleaning of drain is suggested.	PIU of DNCC.
	Pollution of downstream water	Stop connecting sanitation facilities directly to water drainage system.	PIU of DNCC.

Table 11: Matrix table of monitoring plan (analytical monitoring during construction phase)

Monitoring issues/parameter	Monitoring method	Location of monitoring	Monitoring frequency
Noise level monitoring	Hearing observation	Sub-project site	Two times during construction phase Reporting: once in a month
Ambient air quality	Visual black smoke and visibility of dust	Sub-project site	Two times during construction phase Reporting: once in a month
Solid waste generation	Visual quantity of solid waste and disposal	Sub-project site	Two times during construction phase Reporting: once in a month
Drainage congestion	Visual observation	Sub-project site	Two times during construction phase Reporting: once in a month
Traffic congestion	Visual observation	In and around sub-project site	Two times during construction phase Reporting: once in a month

7.2 Grievance Redress Mechanism

The sub-project-specific Grievance Redress Mechanism (GRM) has been established by the PIU of DNCC to receive, evaluate, and facilitate the solution of affected people's (APs) concerns, complaints and grievances concerning the social and environmental performance of the sub-project with the aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns.

The grievance mechanism is related to resolve the risks and adverse impacts of the sub-project. It addresses APs concerns and complaints promptly, using an understandable and transparent process that is also gender responsive, and culturally appropriate. It is readily accessible to all segments of the affected people at no costs and without retribution. The mechanism should not impede access to the country's judicial or administrative remedies. The affected people will be appropriately informed about the mechanism.

BMDF has its own Grievance Redress Procedure (GRP) and they operate it to address any dissatisfaction and complaints by the local people regarding its activities. This procedure is being applied to address any complaints or grievances through negotiations with the community leaders and representatives of the APs during implementation of the MGSP.

7.3 Grievance Redress Committee (GRC)

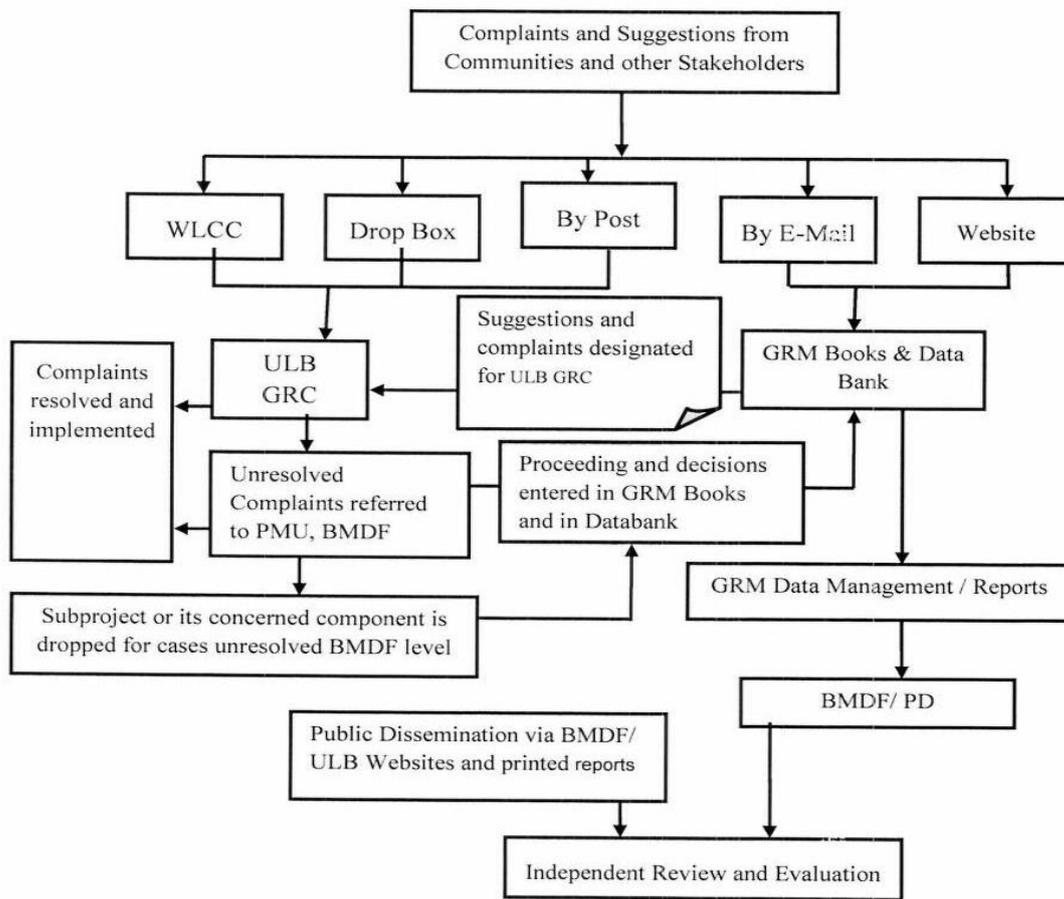
DNCC has formed a Grievance Redress Committee (GRC) headed by the Chief Executive Officer (CEO). Considering the larger governor body, CEO is the Chairman and Project Director is the Member Secretary of GRC of DNCC. CEO nominated GRC members and included representative from the Government Agencies, local NGO, and Civil Society. The GRC nominates a focal person. Complaints will be received through drop box, by post, email and website of City Corporation. The grievance box will be set up at construction site to receive complaints. The grievance response focal point will be available at the DNCC for recording the complaints and necessary response to an aggrieved person. It will receive complaints or suggestions, and produce them to the GRC for hearing and resolution. If any complaint is not resolved at City Corporation level then the complaint will be produced to MD-BMDF. If it is not resolved by the MD-BMDF, then the sub-project will be dropped.

The structure of the GRC and membership are given as below:

- Chairman : Chief Executive Officer of DNCC
- Member-Secretary: Project Director, Dhaka Integrated Urban Development Project
- Member : Representative from local administration
 - : Teacher from a local Educational Institution
 - : Representative of a local NGO
 - : Representative of civil society
 - : Female ward councilor (of respective area)

It is to be noted that if the appellant is still not satisfied, he or she has the right to take the case to the public courts. The DNCC should also publish the outcome of the cases on the public notice boards. All costs involved in resolving the complaints (meetings, consultations, communication, and information dissemination) will be borne by the DNCC. The grievance resolution is a systematic process.

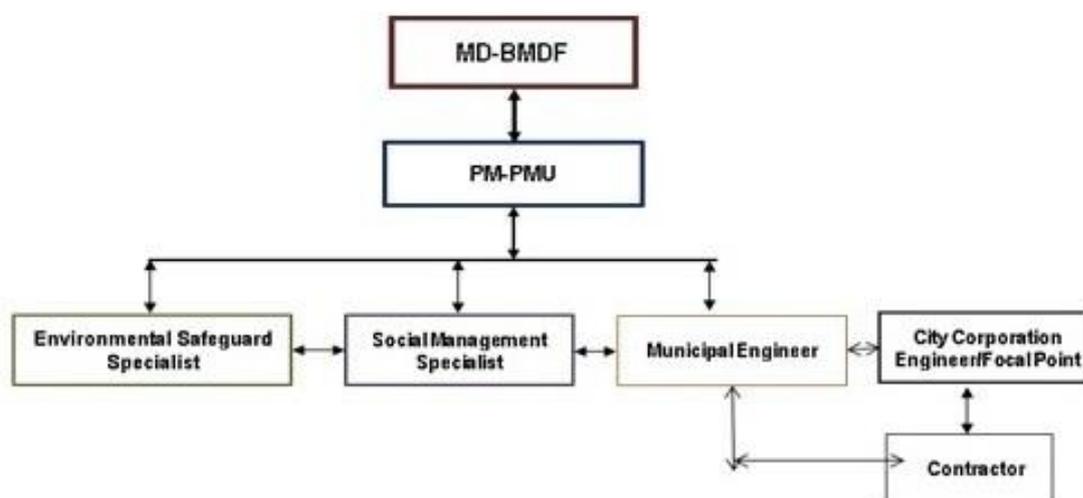
Flow Chart 1: Grievance Redress Process



7.4 Institutional Arrangement for the Safeguard Compliances

In the institutional arrangement procedure, Project Director and Project Manager are directly involved. Both the Director and Manager are supported by an environmental management specialist (as Environmental safeguards specialists) and social management specialist. The City Corporation Officials, especially members of PIU, is responsible for supporting the construction supervision as well as environment and social management with the facilitation of the PMU, BMDF consultants. The contractors will implement these environmental mitigation measures through his technical staffs and with help of PIU-DNCC. The PMU (BMDF), with the facilitation of environment and social management specialist, will submit the monthly and quarterly progress reports on environmental and social compliances to the World Bank. A tentative Environmental and Social Management Team with specific roles has been formed for ensuring environmental safeguard in the overall subproject implementation.

Flow chart 2: Institutional arrangement for Safeguards Compliances



7.5 Estimation of cost of EMP

The estimated cost for Environmental management plan as following table

Table 12: Cost of Environmental Mitigation and Enhancement Works

Item No.	Description of Activities	Approximate Costs (million)
	Establishment of labor camp separate for male (3 no.) and female (3 no.) having drinking water facilities, cooking arrangement, mosquito net, waste bin etc.	0.30
	Provision for temporary roads, structures etc. including warning signs, lights, single walking lane for safe flow of traffic.	0.2307
	Preparation of ground to make ready for plantation properly and spreading surplus earth into low lying area.	0.1947
	Plantation of flower and fruit plants (Bakul, Kadam, Nageshar, Arjun, Thoja, Amra, Beej, Bel, Chalta) at median, 2250 (700+800+750) in numbers for three packages under this sub-project.	0.2700
	First Aid box (3 in numbers)	0.0075
	Sanitary facilities at labor shed (separate for male and female; 6 in numbers for 3 packages)	0.0750
	Waste disposal facility during construction period, collection, transportation and dumping of waste at landfill sites providing sufficient bins	0.0225
	PPE like hand gloves, spectacles for eye protection, helmets, masks, visible jackets, ear plug, safety boots	0.30000

7.6 Capacity building

The PIU has been oriented informally on EMF and assessment of sub-project component by the assigned environmental management specialist of DNCC. PIU of DNCC will be organized an orientation of contractor, workers and other support staff on environmental safeguard issues and mitigation measures to be taken during pre-construction, construction and operational phases before deploying to the work sites in order to achieve the expected standards.

7.7 Access to information and disclosure

The key parts of environmental safeguards assessment report should be translated into Bengali and disseminated locally. The copies of the report (both in English and Bengali) will be sent to all the concerned personnel responsible for sub-project implementation. It will also be made available to the public. The final assessment report (both English and Bangla) will also be uploaded in the Dhaka North City Corporation website, BMDF website and the World Bank website after approval. In addition, a signboard containing all information of the sub-project will be displayed at the different places along the roads so that mass people can know about the sub-project.

8.0 RECOMMENDATION AND CONCLUSION

Recommendation:

Recommendations made for the sub-project development on the basis of EA study are as following

- Proposed environment management plan should be implemented according to EA both during operation and construction phase of the project;
- Ensure labor sheds, toilets, safe water supply, first aid box, PPE at labor sheds;
- Quick disposal of solid waste materials and completion of work is highly suggested;
- Environmental monitoring should be conducted as proposed in environment management plan.

Conclusion:

Environmental assessment is very important for any project for better implementation. The proposed sub-project will not create significant negative impact on ecological, physio-chemical aspect during construction period but it will be helpful to enhance positive socio-economic impact during operation period by improving traffic, drainage and safety of travelling. Suggested minor adverse environmental impacts are subject to mitigation and

will be addressed through proper mitigation and enhancement measures during the implementation period.

9.0 REFERENCES

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10.0 APPENDIX

10.1 Appendix-1: Form-2 ENVIRONMENTAL SCREENING

Form-2 ENVIRONMENTAL SCREENING

Name of ULB: **Dhaka North City Corporation**

Name of Sub-project: **Development Drainage Rehabilitation and Communication Network System**

1) Potential Environmental Impact during Construction Phase:

a) Ecological impacts:

- | | | | | |
|--------------------------|--------------------------------------|-----------------------------------|--|--|
| • Felling of trees | Significant <input type="checkbox"/> | Moderate <input type="checkbox"/> | Minor <input checked="" type="checkbox"/> | Number of trees |
| • Clearing of vegetation | Significant <input type="checkbox"/> | Moderate <input type="checkbox"/> | Minor <input checked="" type="checkbox"/> | 9 medium ornamental trees and 56 small plants/herb |

- Potential impact on species of aquatic (i.e., water) environment Significant Moderate **Minor**

(b) Physicochemical impacts:

- Noise pollution Significant **Moderate** Insignificant
- Air pollution Significant Moderate **Insignificant**
- Drainage congestion Very likely **Likely** Unlikely
- Water pollution Significant Moderate **Insignificant**
- Pollution from solid/construction waste
- water logging Significant Moderate **Insignificant**

(c) Socio-economic impacts:

- Traffic congestion Very likely **Likely** Unlikely
- Health and safety Significant **Moderate** Insignificant
- Impact on archaeological and historical Significant Moderate **Insignificant**
- Employment generation Significant **Moderate** Insignificant

2) Potential Environmental Impact during Operational Phase:

(d) Ecological impacts:

- Potential impact on species of aquatic (i.e., water) environment Significant Moderate **Minor**

(e) Physicochemical impacts:

- Potential air quality and noise level (especially for road) Improvement No-improvement **Deterioration**
- Drainage congestion (especially for drain) Improvement Minor Improve **No Impact**
- Risk of Water pollution (especially for storm drain and jetty) Significant Moderate **Minor**
- Pollution from solid waste (especially for SWM, and market) Improvement No-improvement **Deterioration**

(f) Socio-economic impacts:

Traffic (especially for road, bridge, box culvert, bus/truck terminal)	Improvement <input checked="" type="checkbox"/>	No-improvement <input type="checkbox"/>	Adverse <input type="checkbox"/>
Safety	Improvement <input checked="" type="checkbox"/>	No-improvement <input type="checkbox"/>	Adverse <input type="checkbox"/>
Employment generation	Significant <input type="checkbox"/>	Moderate <input type="checkbox"/>	Minor <input checked="" type="checkbox"/>

3) Summary of Possible environmental impacts of the Schemes :

The environmental assessment of sub-project named ‘Development Drainage Rehabilitation and Communication Network System’ have been conducted and observed that there will be no significant adverse environmental impacts.

Sub-project specific activities are mainly improvement of existing road, footpath and drain. Hence, ecological impact is very limited. Only nine ornamental small trees will be cut down to improve the proposed footpath. Moderate level of noise pollution and construction waste will be generated which are also local specific and having low magnitude. To minimize those, debris will be dumped at DNCC dumping field of Aminbazar soon after the work. Most of the roads (except Sonargaon Janapath) are situated within residential area and public service is not highly visible. Road construction work will be done part by part to minimize traffic congestion and to continue transportation.

On the other side, drainage congestion and pollution from solid waste will be reduced due to improvement of drainage. Traffic will be much improved along with safety of vehicle movement. Disable people will also be under consideration for selection of construction materials.

All potential environmental features have been closely observed and shared with local communities. After reviewing and analysis of all observations and findings, it has been assumed that the proposed sub-project will not create significant negative impact on ecological, physio-chemical aspect during construction period. Rather than, it will be helpful to enhance positive socio-economic impact during operation period by improving traffic, drainage and safety of travelling.

As assumed, some insignificant/moderate/minor adverse environmental impacts are subject to mitigation and would be addressed through proper mitigation and enhancement measures during the implementation period. Proper and quick disposal of solid waste, limiting the air pollutant, maintenance health & safety of workers, maintenance of traffic have been prescribed for the mitigation of likely impacts

Construction activities with environmental safeguard related orientation of concerned DNCC staffs will be undertaken to implement appropriately all recommended mitigation measures.

4) Category of Scheme : (follow Table 1 of EMF)

(a) According to ECR 1997 : Green / Orange A / **Orange B** / Red / Not Listed

(b) According to WB classification : **Category B** / Category C

5) Proposed mitigation measure (follow Table 9 of EMF as appropriate)

The possible impacts of the sub-project are mainly caused by the key activities required during construction and operation phases.

Potential impacts and mitigation measures at construction phase-
Drainage congestion

There is possibility of drainage congestion during reconstruction and demolition of concrete structure.

Mitigation measure:

- Diversion drainage channel will be opened before construction;
- Provision of pumping of congested water will be ensured (if required);
- As construction work will be started during wet season, adequate drainage facility will be ensured.

Air pollution

Both demolish and construction work will generate dust and create air pollution at local level. Air will also be polluted during bituminous melting for road carpeting.

Mitigation measure:

- Water will be sprayed on dry surface/dust/unpaved roads regularly to reduce dust generation;
- Adequate moisture will be maintained during concrete waste transportation;
- DNCC will avoid some equipment at site like, stone crushers produce significant amount of particulate matters;
- DNCC will strictly prohibit using fuel wood for heating bitumen.

Traffic congestion

Traffic congestion will be created for the whole period of sub-project implementation especially during road demolition and construction.

Mitigation measure:

- Avoid road side storage of the construction materials;
- Ensure disposal of the wastes to DNCC landfill area quickly after the work;
- Proper traffic control plan will be prepared before starting of work. Single lane demolition and construction work of road will be done to ensure smooth and safe flow of traffic;
- All needed materials/equipment delivery will be scheduled during off pick hour;
- Adequate flag/road sign will be used for traffic control;
- Reflecting marking will be used to mark unpaved roads during night to ensure traffic and pedestrian safety.

Noise pollution

Both demolition and construction work will generate noise at local level.

Mitigation measure:

- Workers will avoid prolonged exposure of noise produced by equipment;
- All the construction work will be limited by daytime to avoid noise pollution during night;
- DNCC will regulate use of horns and hydraulic horns of their vehicles at project site.

Felling of trees

Only nine (approx.) ornamental trees may be needed to cut down due to sub-project activities. No other vegetation will be lost and ecological impact is very insignificant.

Mitigation measure:

- DNCC will plant 2250 number of fruit and ornamental trees on road medians.

Occupational health and safety

Construction works have opportunity of facing accident of workers during demolition, construction and bituminous carpeting.

Mitigation measure:

- DNCC will follow standard safety protocol of Bangladesh government.
- Contractors will make available the first aid equipment for workers;
- Workers will use protective gear like, hand gloves, etc.
- Workers will be oriented on health and safety by the contractors.

Accident

Construction works have opportunity of facing accident during demolition, construction and bituminous carpeting.

Mitigation measure:

- There should have some kind of marking or barricade for construction site to avoid any accident;
- Demolition work shall avoid school time.

Potential impacts and mitigation measures at operation phase-

- Increase of traffic speed and accident

In case of Sonargaon Janapath and Shahmakhdam Road, traffic may be increased with the probability of road accident.

Mitigation measure:

- Adequate number of speed bump will be designed on above mentioned roads;
- DNCC can request for better traffic management.

Damage and spillage of water to bitumen road surface

Heavy vehicle movement can create damage and spillage of bitumen road surface of Sonargaon Janapath and Shahmakhdam Road.

Mitigation measure:

- DNCC can control heavy traffic movement or speed.

Blockage of drain

Open drains can be blocked due to disposal of solid waste.

Mitigation measure:

- Regular cleaning of drain will be suggested.

Pollution of downstream water

Pollution of downstream water body through sewerage system due to disposal of polluted water from drain

Mitigation measure:

- Stop connecting sanitation facilities directly to water drainage system.

6) Overall Comments

The proposed sub-project will not create significant negative impact on ecological, physio-chemical aspect during construction period but it will be helpful to enhance positive socio-economic impact during operation period by improving traffic, drainage and safety of travelling. Suggested minor adverse environmental impacts are subject to mitigation and will be addressed through proper mitigation and enhancement measures during the implementation period.

7) Prepared by:

Signature with date:

Name: Farhana Sharmin

Designation: Environmental Management Specialist

Mobile Number: 01715121652

Reviewed by:

Signature with date:

Name: Md. Saidur Rahman

Designation: Executive Engineer

Mobile Number: 01552361205

10.2 Appendix-2: Analysis of Alternatives (“Road sub-project)

Form 3: Analysis of Alternatives (“Road” sub-project)

Name of ULB : Dhaka North City Corporation (DNCC)

- **Name of sub-project: Development Drainage Rehabilitation and Communication Network System**

- **Brief description of sub-project:**

Sub-project is named as “development drainage rehabilitation and communication network system” to improve road and construction of drain along with footpath and median. The total length of the road is 5.7 km, drain 11.4 km, total footpath 11.4 km. and median 2.1 km. Sub-project is located at Uttara model town, ward number-1, zone-1. Area of the sub-project comprises sector-3, sector-11 and sector-12 of Uttara and road number-2, 8, 13, 13/a, 14 & 20 is under sector-3, Sonargaon Janopath road, Shahmakdum road & by lanes (by lane-3,3/a, 3/b), road no. 6/c, 13 & 14 under sector 11 & 12.

- **Analysis of alternative roads:**

This is a reconstruction or improvement sub-project where the existing Bituminous Carpeting road will be replaced by the new BC using the same alignment. Therefore, analysis of alternatives routes/alignment is not really applicable

- **Analysis of alternative designs:**

For a road sub-project, alternative designs may include asphalt road and RCC road. Through a comparative study considering the advantages of the BC road and Reinforced Cement Concrete (RCC) road, the consultants examined which one is feasible. General advantage and disadvantage of the BC, CC and RCC roads are shown in following table.

Design	Advantages	Disadvantage
<u>Alternative 1:</u> Bituminous Carpeting (BC) Road	<ul style="list-style-type: none"> • Low Construction cost; • Provide smooth surface; • Aesthetic value is high. 	<ul style="list-style-type: none"> • Frequency of maintenance is relatively high; • Possibility of early damaged in heavy rainfall
<u>Alternative 2:</u> CC Road	<ul style="list-style-type: none"> • Do not require frequent repairing like BC roads; • Durability is more than BC road but less than RCC road. 	<ul style="list-style-type: none"> • Concrete roads do not require frequent maintenance but if damaged the whole concrete slab needs to be replaced. • Costly higher than BC road
<u>Alternative 3:</u> RCC road	<ul style="list-style-type: none"> • Capacity of passing heavy loaded vehicles • RCC road is not damaged in heavy rainfall • Frequency of maintenance is relatively low. 	<ul style="list-style-type: none"> • High construction cost • Provide relatively less smooth surface

Selected Design is **Alternative-1** which is BC road because it is comparatively cheaper and city people prefer for smooth vehicle journey.

(c) Analysis of alternative technologies/methods of construction:

Method of the construction should be selected based on the available technologies in Bangladesh.

However, to minimize occupational health and safety risks and for effective use of the human labors, it is highly recommended to adapt mechanical system where as possible.

(d) No sub-project scenario:

If the road of sub-project is not implemented, it will decline the functional movement of community people. The damaged roads will get worse situation soon and create traffic disruption.

(c) Conclusion: BC road is selected.

10.3 Appendix-3: Analysis of Alternatives (“Drain sub-project)

Form 3: Analysis of Alternatives (“Drain sub-project)

Name of ULB : Dhaka North City Corporation (DNCC)

- **Name of sub-project: Development Drainage Rehabilitation and Communication Network System**

- **Brief description of sub-project:**

Sub-project is named as “development drainage rehabilitation and communication network system” to improve road and construction of drain along with footpath and median. The total length of the road is 5.7 km, drain 11.4 km, total footpath 11.4 km. and median 2.1 km. Sub-project is located at Uttara model town, ward number-1, zone-1. Area of the sub-project comprises sector-3, sector-11 and sector-12 of Uttara and road number-2, 8, 13, 13/a, 14,& 20 is under sector-3, Sonargaon Janopath road, Shahmakdum road & by lanes (by lane-3,3/a, 3/b), road no. 6/c, 13 & 14 under sector 11 & 12.

- **Analysis of alternative routes of storm drain:**

This is a reconstruction or improvement sub-project where the existing Bituminous Carpeting road will be replaced by the new BC using the same alignment. Covered drain will be constructed on two sides of roads. Therefore, analysis of alternatives routes/alignment is not really applicable

- **Analysis of alternative designs:**

For a RCC drain sub-project, alternative designs may include RCC drain, brick drain and pipe drain. The following table discusses the general advantages and disadvantages of RCC drain, brick drain and pipe drain.

Route/Alignment	Advantages	Disadvantage
Alternative 1: RCC drain	<ul style="list-style-type: none"> • Not prone to encroachment • Area above RCC drain could be used as a part of road/footpath 	Higher cost of construction
Alternative 2: Brick drain	Less construction cost	Less strength to carry load of surrounding structures
Alternative 3: Pipe drain	Require less time to construction	Maintenance is difficult

Selected Design is **Alternative 1**. The selected design is RCC drain because need to be more strength to be converted as footpath. Old exiting pipe drain and RCC drain will be replaced by the new RCC drain.

(c) **Analysis of alternative technologies/methods of construction:** Method of the construction should be selected based on the available technologies in Bangladesh. However, to minimize occupational health and safety risks and for effective use of the human labors, it is highly recommended to adapt mechanical system where as possible.

(d) **No sub-project scenario:** If the drain sub-project is not implemented, inadequate drainage facility for removing rain water as well as household waste water of the proposed road will not properly work. The water-logging problem of the locality will further damage the existing road.

(c) **Conclusion:** RCC drain at two sides of the road is selected. The drain will be excavated automatically.

10.4 Appendix-4: Analysis of Alternatives (“Median sub-project)

Form 3: Analysis of Alternatives (“median” sub-project)

Name of ULB : Dhaka North City Corporation (DNCC)

- **Name of sub-project: Development Drainage Rehabilitation and Communication Network System**

- **Brief description of sub-project:**

Sub-project is named as “development drainage rehabilitation and communication network system” to improve road and construction of drain along with footpath and median. The total length of the road is

5.7 km, drain 11.4 km, total footpath 11.4 km. and median 2.1 km. Sub-project is located at Uttara model town, ward number-1, zone-1. Area of the sub-project comprises sector-3, sector-11 and sector-12 of Uttara and road number-2, 8, 13, 13/a, 14, & 20 is under sector-3, Sonargaon Janopath road, Shahmakdum road & by lanes (by lane-3,3/a, 3/b), road no. 6/c, 13 & 14 under sector 11 & 12.

• **Analysis of alternative median:**

This is a reconstruction or improvement sub-project where the existing Bituminous Carpeting road will be replaced by the new BC using the same alignment. The median will be constructed at the middle on larger roads named Snargaon Janapath and Shah Makhdam. So analysis of alternatives routes/alignment is not applicable

• **Analysis of alternative designs:**

Alternative designs for a median man hide divider, barrier median, wide divider and divider. Comparative study among those medians can help to identify the feasible one. General advantage and disadvantage of the barrier median, man hide median and wider median are shown in following table.

Design	Advantages	Disadvantage
<u>Alternative 1:</u> Barrier median	<ul style="list-style-type: none"> • Vehicles cannot approach is known as barrier median; • It is made up of concrete or steel and relatively cheaper. 	<ul style="list-style-type: none"> • Aesthetic value is less; • Not effective for street lighting, plantation and decoration.
<u>Alternative 2:</u> New Jersey median	<ul style="list-style-type: none"> • Minimize vehicle damage in cases of incidental contact 	<ul style="list-style-type: none"> • It can temporary rerouting of traffic
<u>Alternative 3:</u> Wide median	<ul style="list-style-type: none"> • Can enhance aesthetic value by plantation and other decoration; • People can cross the road easily; • Street light easily can be installed. 	<ul style="list-style-type: none"> • Traffic interruption may happen as people can cross roads easily.

Selected Design is **Alternative-3** which is wide median because it is more suitable for sub-project locality.

(c) **Analysis of alternative technologies/methods of construction:**

Method of the construction should be selected based on the available technologies in Bangladesh. However, to minimize occupational health and safety risks and for effective use of the human labors, it is highly recommended to adapt mechanical system where as possible.

(d) **No sub-project scenario:**

If the median of sub-project is not implemented, only road improvement will not smooth traffic. Possibility of accident may be increased for two way road system. It will be difficult to install lighting system, traffic signs/signals.

(c) **Conclusion:** Wide median is selected.

10.5 Appendix-5: Attendance sheet of screening



Name of Sub-Project : Development drainage rehabilitation and communication network system

Name of package : Improvement of different roads & by lane (Road no- 6/C, 13 & 14^{sector 1,2} and road-2, 14, 20 sector -3) and construction of drain footpath & median under Dhaka North City Corporation (DNCC), Zone-1

Package number : 03

Name of ULB : Dhaka North City Corporation (DNCC), Name of District: Dhaka

Name of place : Uttara sector-3, Kallayan samity office Date: 11/06/2018

Level of participants : Local stakeholders, community members, CBO representatives

Attendance of local participants in screening exercise

SL No.	Name	Gender	Social Status	Contact number	Signature
1	ডা. জা. মামুন MD. A. MAJUMDAR	পুরুষ male	ডা. জা. Hd.	01915822932	Handwritten signature
1	J. Seerily 3, Kallayan	male	Hd.	01720832584	Handwritten signature
3.	MD. ABDUS SAMAD	MALE	BUSINESSMAN	01711549775	Handwritten signature
4.	MD. Shajahan	Male	Business	01711542890	Handwritten signature
5.	PADON RAHMAN	MALE	BUSINESS	01707244880	Handwritten signature
6.	M. Emadul Hossain Naha	Male	D. No C.C.	01711561007	Handwritten signature
7	Eng. Kamal Veldin	Male	Eng.	01715-290774	Handwritten signature
8.	A.S. Khairul Anwar Ripon	Male	Business	01971-617995	Handwritten signature
9	Dr Anwar H. Deer	Male	Engineer	01711527451	Handwritten signature
10.	Taslima Hossain Sumi	Female	Business	01818024366	Handwritten signature
11	Ruksana Begum	Female	Consultant	01711824537	Handwritten signature
12	Fahana Shannub	Female	consultant	01711266193	Handwritten signature

Handwritten signature and date: 11/06/2018

নাজিম আহমেদ খান
সহকারী প্রোগ্রামার (পূর্ব)
অফিস: ইন্ডিয়া স্ট্রিট, মাদার্ন
ডা. উত্তর সিটি কর্পোরেশন

Handwritten signature and date: 11/06/2018

ডা. জা. মামুন
সহকারী প্রোগ্রামার (পূর্ব)
অফিস: ইন্ডিয়া স্ট্রিট, মাদার্ন
ডা. উত্তর সিটি কর্পোরেশন



Name of Sub-Project : Development drainage rehabilitation and communication network system
 Name of package : Improvement of Sonargaon Janopath road & construction of drain, footpath & median (From Jamjoni tower to Diabari bridge at Uttara, sector-11,12 and improvement of Shahmakdum road and by lanes (by lane - 3, 3/a, 3/b) at Uttara sector-12 and road - 8 at sector - 3 and construction of drain, footpath & median Uttara, under DNCC, Zone-1.
 Package number : 01 & 02
 Name of ULB : Dhaka North City Corporation (DNCC), Name of District: Dhaka
 Name of place : Kalyan samity office Date: 11/06/2018
 Level of participants : Local stakeholders, community members, WLCC/CBO representatives

Attendance of local participants in screening exercise

SL No.	Name	Gender	Social Status	Contact number	Signature
01.	MD. SHARIFUR RAHMAN	Male	G.S. 11 nos. Kollanosey	01819137800	[Signature]
02.	MD. IBRAHIM MANSKI	Male	Mosque Baitul Noor Mosque BSN Grama sector 11	01675432463	[Signature]
03.	MD. FARUK HOSSEIN	Male		01752844220	[Signature]
04.	A.B.M. ATIQUR RAHAMAN	Male	Sports & Cultural Secretary	01711936644	[Signature]
05.	MAHBUBUL HUDA SAJJAD	MALE	BUSINESS MAN.	01711530700	[Signature]
06.	Ghobadul Haque	MALE	BUSINESSMAN	01919993910	[Signature]
07.	M. Emrul Hossain	Male	D.N.C.C.	01711561029	[Signature]
08.	SK. A. Aweal	Male	Businessman	01819070158	Aweal
09.	AKM. Asaduzzaman	male	Business	01677065843	[Signature]
10.	Akash Ahmed	male	Business	01764424487	Akash
11.	Prof. Md. Kamal Uddin.	"	Vice-Principal Milestone College	01748866285	[Signature]
12.	MD. KAZRUZ ISLAM	"	Journalist	01715245554	[Signature]
13.	Habibuzul Rashid	"	স্বাস্থ্য	01911355261	Rashid
14.	Ruksana Begum	Female	Consultant	01711824537	RBegum
15.	Farihana Shann	Female	Consultant	01715121652	FShann

Noted
 28/6/21
 নতুন বাস্তবায়ন
 সমস্ত কাজের (সং)
 প্রতিবেদন প্রস্তুত
 করা হবে নিম্নলিখিত

[Signature]
 28/6/21
 নতুন বাস্তবায়ন
 সমস্ত কাজের (সং)
 প্রতিবেদন প্রস্তুত
 করা হবে নিম্নলিখিত

10.6 Appendix-6: Attendance sheet of consultation meeting



Name of Sub-Project : Development drainage rehabilitation and communication network system
 Name of package : Improvement of different roads -3 by lane (Road no. C/C, 13-214 sector-12 and road-2, 8, 13, 13/A, 14 & 20 sector-3) and construction of drain, footpath & median under dhaka North City Corporation (DNCC), Zone-1.
 Package number : 03
 Name of ULB : Dhaka North City Corporation (DNCC), Name of District: Dhaka
 Name of place : Uttara sector-3 Date: 12/06/2018
 Level of participants : Community people (Male group)

Attendance of community people in FGD

Sl No.	Name	Gender	Social Status	Contact number	Signature
1	A Z M HOSSAIN Khan	Male	Former Joint Secretary	01715125922	[Signature]
2	Shafiqul Islam	Male	Retd HM Secy	01175530589	[Signature]
3	MD. A. MAHMOUD	male	Retired	01720832586	[Signature]
4	Dr. Faruk Hossain	Male	Independent	01711524185	[Signature]
5	A. K. M. R. V. M.	Male	EC Member	01820078202	[Signature]
6	Sofia ul Islam	Male	Retired Govt. Official	01754236713	[Signature]
7	MD NAZMUL HUSSAIN	BO	DO	01611530614	[Signature]
8	F. R. CHOWDHURY	DO	BUSINESS	01713012905	[Signature]
9	A. S. KHANDEL ANSAR	M	Business	01971617335	[Signature]
10	MD. AKFAS ALI	Male	Foreign Service	01741241326	[Signature]
11	Nazrul Islam	Male	Retired	01714067173	[Signature]
12	PAPON RAHMAN	Male	BUSINESS	01819213708	[Signature]
13	Abdul Momen	Male	Artist	01211406133	[Signature]
14	Shahinur Rahman	Male	Business	01745335723	[Signature]
15	MD Hafizul		Business	01924511504	[Signature]
16	MD RAZWAN	Male	Business	0121134516	[Signature]
17	Hisharul Tamim	Male		01715652143	[Signature]
18	Ruksana Begum	Female	Consultant	01711824537	[Signature]
19	Fahana Sharmis	Female	Consultant	01715121652	[Signature]
20					

Nayem
 [Signature]
 National Institute of Urban Governance
 Dhaka

[Signature]
 National Institute of Urban Governance
 Dhaka



Name of Sub-Project : Development drainage rehabilitation and communication network system
 Name of package : Improvement of sewerage, footpath road & construction of drain, footpath & median (From Ithoujam Tower to Diabari bridge) at Uttara sector-11 & 12 and Improvement of Shahmakdem road and by lanes (by lane - 2, 3/A, 3/B & at Uttara, sector-12 and road B at sector-3) and construction of drain, footpath & median, Uttara, under DNCC, Row-1
 Package number : 01-202
 Name of ULB : Dhaka North City Corporation (DNCC), Name of District: Dhaka
 Name of place : Uttara sector -12 Date: 12/06/2018
 Level of participants : Community people (Female group)

Attendance of community people in FGD

SL No	Name	Gender	Social Status	Contact number	Signature
1	Parveen Akhter	Female	Retd School teacher	55094156	Parveen Akhter
2					
3	Umme Kubrum Sumiya Begum	Female	I.E.S School Teacher	01748290099	Umme Kubrum
4	Sabina akter	Female	House wife	01819831478	Sabina
5	Sakina akter	Female	House wife	01711226782	Sakina
6	Sabina akter	Female	House wife	01711226782	Sabina
7	Khushi Masib Akter	Female	Service	01916298295	Khushi
8	Farzana Begum	Female	House-wife	01716292764	Farzana
9	Ruksana Begum	Female	Consultant	01711824537	R.Begum
10	Farhana Shannun	Female	Consultant	01715121652	F.Shannun
11					
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Naimon
20/4/20

মোফিজ মোস্তাফিজ খান
প্রোগ্রাম ম্যানেজার (সিআই)
প্রকল্প পরিচালনা দপ্তর
কম্পিউটার সিস্টেম সেকশন

সিআই
মোফিজ মোস্তাফিজ খান
প্রোগ্রাম ম্যানেজার (সিআই)
প্রকল্প পরিচালনা দপ্তর
কম্পিউটার সিস্টেম সেকশন

10.7 Appendix-7: Grievance Redress Committee

ঢাকা উত্তর সিটি কর্পোরেশন
নগর ভবন

উন্নয়নের পথস্বরূপ
শেখ হাসিনার কুমার

প্রোগ্রাম সেক্টর গয়েট, প্লট নং-২৩-২৬, রেডিও-৩৬, গুলশান-২, ঢাকা।

স্মারক নং-৪৬,১০,০০০০,০০৬,০০১,১৭ - ৫৬৬

তারিখঃ ৫/৩/১৭/২০২৫ খ্রি.

অফিস আদেশ

বাংলাদেশ মিউনিসিপ্যাল ডেভেলপমেন্ট কর্তৃক (বিএমডিএফ) এর অর্থায়নে Dhaka integrated urban development Project (DIUDP) এর আওতাধীন Development drainage Rehabilitation and Communication Network System শীর্ষক উপপ্রকল্প বাস্তবায়নের নিমিত্তে নিম্নলিখিত কর্তৃকর্তৃপক্ষের সমন্বয়ে Grievance Redress Committee গঠন করা হলোঃ

- | | |
|---|-----------------------------------|
| ১) মোঃ মেসবাহুল ইসলাম
প্রধান নির্বাহী কর্মকর্তা, ডিএনসিসি | আহ্বায়ক, গ্রিভেন্স রিড্রেস কমিটি |
| ২) মোহাম্মদ আব্দুল হক
প্রকল্প পরিচালক, ঢাকা ইন্টিগ্রেটেড আর্থান ডেভেলপমেন্ট প্রকল্প
(ডিআইইউডিপি) | সদস্য, গ্রিভেন্স রিড্রেস কমিটি |
| ৩) মোহাম্মদ সাঈদ আলোয়ার
নির্বাহী ম্যাজিস্ট্রেট, ডিএনসিসি | সদস্য, গ্রিভেন্স রিড্রেস কমিটি |
| ৪) মোঃ আমাদুল্লাহমান
সিনিয়র শিক্ষক, নওবাব হাবিবুল্লাহ মডেল স্কুল এন্ড কলেজ | সদস্য, গ্রিভেন্স রিড্রেস কমিটি |
| ৫) লাল মনসুর রহমান (সুইট)
গ্রাসিটিয়ার্ট কেবালেন্স ম্যানেজার (এজিএম)
রিপোর্স ইন্টিগ্রেশন সেক্টর, (আরআইসি) | সদস্য, গ্রিভেন্স রিড্রেস কমিটি |
| ৬) মাহবুবুর রহমান
সত্তর সম্পাদক, উত্তরা ৩নং সেক্টর কল্যাণ সমিতি | সদস্য, গ্রিভেন্স রিড্রেস কমিটি |
| ৭) তপসিমা হোসাইন সুই
সদস্য, উত্তরা ৩নং সেক্টর কল্যাণ সমিতি | সদস্য, গ্রিভেন্স রিড্রেস কমিটি |

কমিটির কর্তব্যবিধিঃ

ক) Grievance Redress Committee (GRC) এর মাধ্যমে স্থানীয় অধিবাসীগণ প্রকল্প চলাকালীন সময়ে এলাকাবাসীসহ মৌলিক অধিকার সংরক্ষণ ও উক্ত এলাকার জনসাধারণের স্বাভাবিক জীবনযাত্রার মান সংরক্ষণ ও রক্ষণাবেক্ষণ বিষয়ে বিভিন্ন প্রস্তাবনা/অভিযোগ/পরামর্শ প্রদানের মাধ্যমে প্রকল্পে সক্রিয় অংশগ্রহণ করবে।

খ) পৃষ্ঠাবিত কমিটি আলাদা পৃষ্ঠাবিত বাস্তবায়নকালে Social and Environmental Impact এর উপর গুরুত্বারোপ করবে।

০২। নওবাব কর্তৃপক্ষের অনুমোদনক্রমে এ আদেশ জারি করা হলো।

স্বাক্ষরিত,
০৩/০৩/২০২৫ খ্রিঃ
বুলান কুমার সাহা
সচিব
ফোন-৮৮-৩৪২৩০
ফ্যাক্স-৮৮-৩৪২৮৫

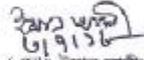
বিতরণঃ পঠিত কমিটির আহ্বায়ক/সদস্য/সদস্য সচিব.....।

স্মারক নং-১৬,১০,০০০০,০০৬,০৬,০০১,১৭ - ৫৬৬

তারিখ: ০৬/০৭/২০১৬ খ্রি.

অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য অনুলিপি প্রেরিত হলো (জ্যেষ্ঠতার ভিত্তিতে নয়):

- ১) বিভাগীয় প্রধান (স্বল্প)..... ঢাকা উত্তর সিটি কর্পোরেশন।
- ২) প্রধান নির্বাহী কর্মকর্তার স্টাফ অফিসার, ঢাকা উত্তর সিটি কর্পোরেশন (প্রধান নির্বাহী কর্মকর্তার মহোদয়ের সদয় অবগতির জন্য)।
- ৩) মেয়র মহোদয়ের ব্যক্তিগত সহকারী, ঢাকা উত্তর সিটি কর্পোরেশন (প্যানেল মেয়র মহোদয়ের সদয় অবগতির জন্য)।
- ৪) সচিব মহোদয়ের ব্যক্তিগত সহকারী, ঢাকা উত্তর সিটি কর্পোরেশন (সচিব মহোদয়ের সদয় অবগতির জন্য)।
- ৫) অফিস কপি।


৬৭১১৬
(মোঃ ইমান আন্বার)
সহকারী সচিব
সাধারণ প্রশাসন শাখা
ঢাকা উত্তর সিটি কর্পোরেশন

