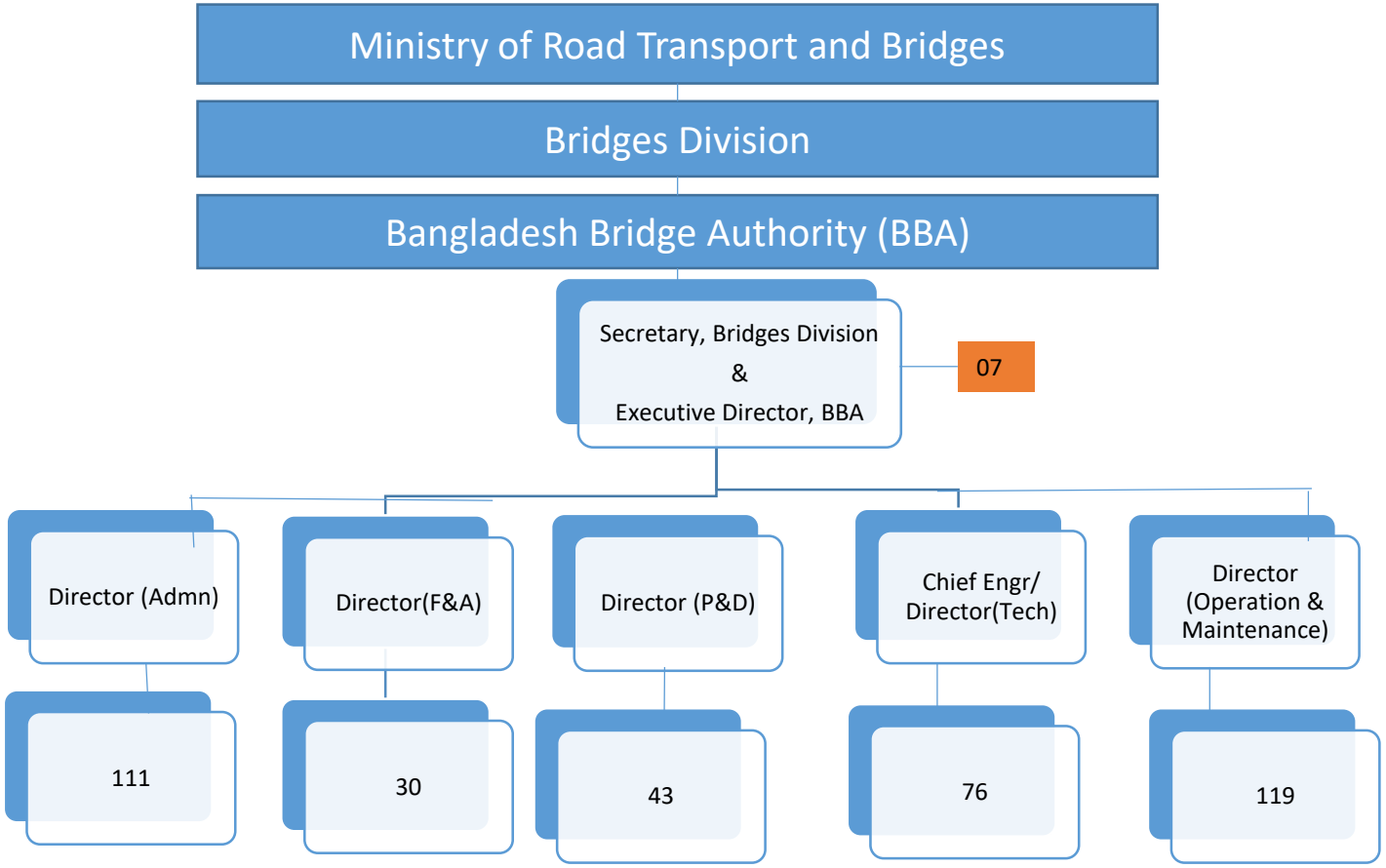
Bangladesh Bridge Authority
Bridges Division
Ministry of Road Transport and Bridges
Government of the People's Republic of Bangladesh

Upcoming Projects

Functions of Bangladesh Bridge Authority

- Bangladesh Bridge Authority (BBA) Establish in 1985
- All matters relating to Planning (including Feasibility Study), implementation, monitoring and evaluation having length of 1500m or over Bridges, Elevated Expressways, Tunnels and related causeway, flyover, ring road etc.
- Operation and maintenance of the multipurpose bridges and other infrastructures.
- Determine and collect tolls for various classes of traffic using the Multipurpose Bridges, Tunnels and other infrastructures.
- Total Manpower of BBA is 386 nos.
- Executive Director (ED) is the head of BBA. There are 5 section/Wing under the ED, i.e.; Technical, Administration, Planning & Development, Finance & Accounts and Operation & Maintenance.



Total Manpower: 386

Major Projects implemented by BBA

- Bangabandhu Bridge (Jamuna Multipurpose Bridge): 4.8 km long bridge constructed in 1998;

- Mukterpur (6th Bangaldesh-China Friendship) Bridge: 1.52 km long bridge constructed in 2008

Major Ongoing Projects

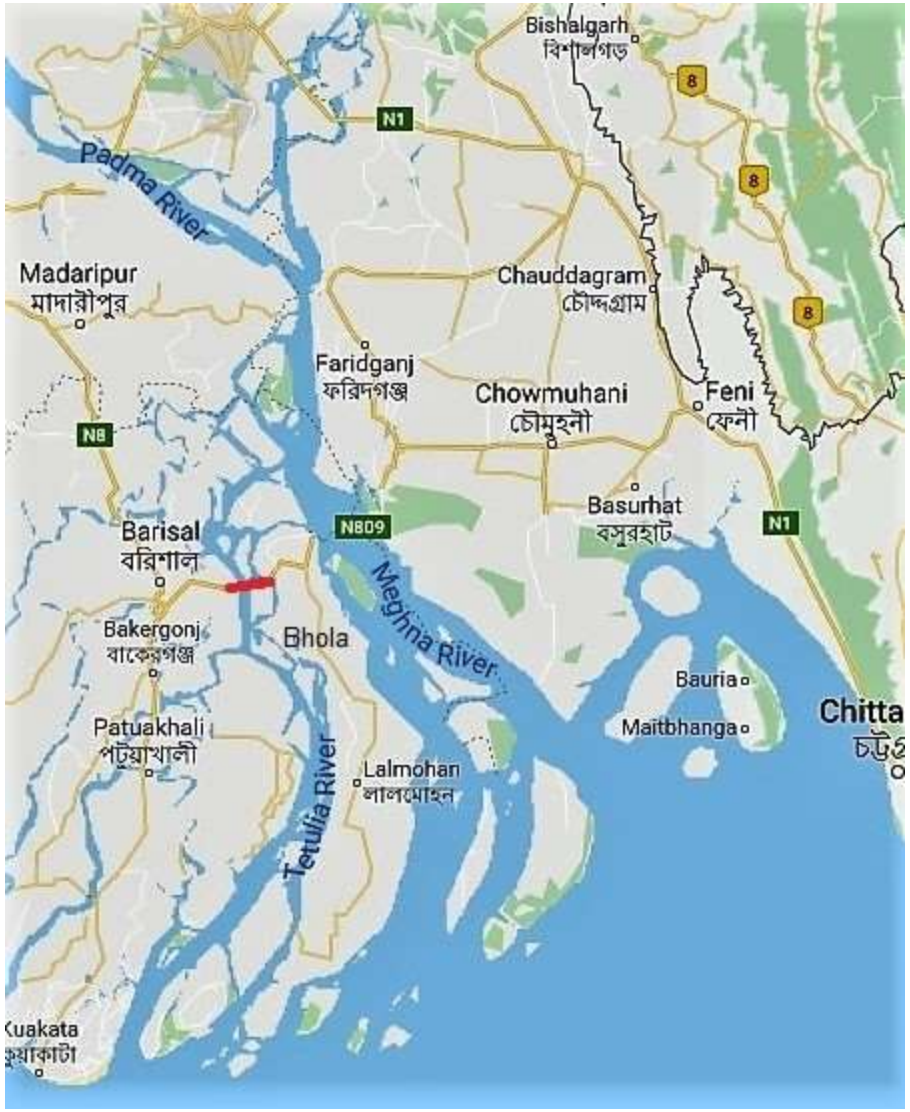
- Construction of Padma Multipurpose Bridge
- Dhaka Elevated Expressway PPP Project;
- Dhaka-Ashulia Elevated Expressway;
- Construction of Tunnel under the river Karnaphuli;
- Bus Rapid Transit (elevated portion)
- Feasibility Study for Construction of Subway in Dhaka city;
- Construction of Bridge on Kachua-Betagi-Patuakhali-Lohalia-Kalayia road over the river Paira
- Feasibility Study for construction of Three Bridges, inner elevated expressway and preparation of Master Plan for BBA

Up coming Projects

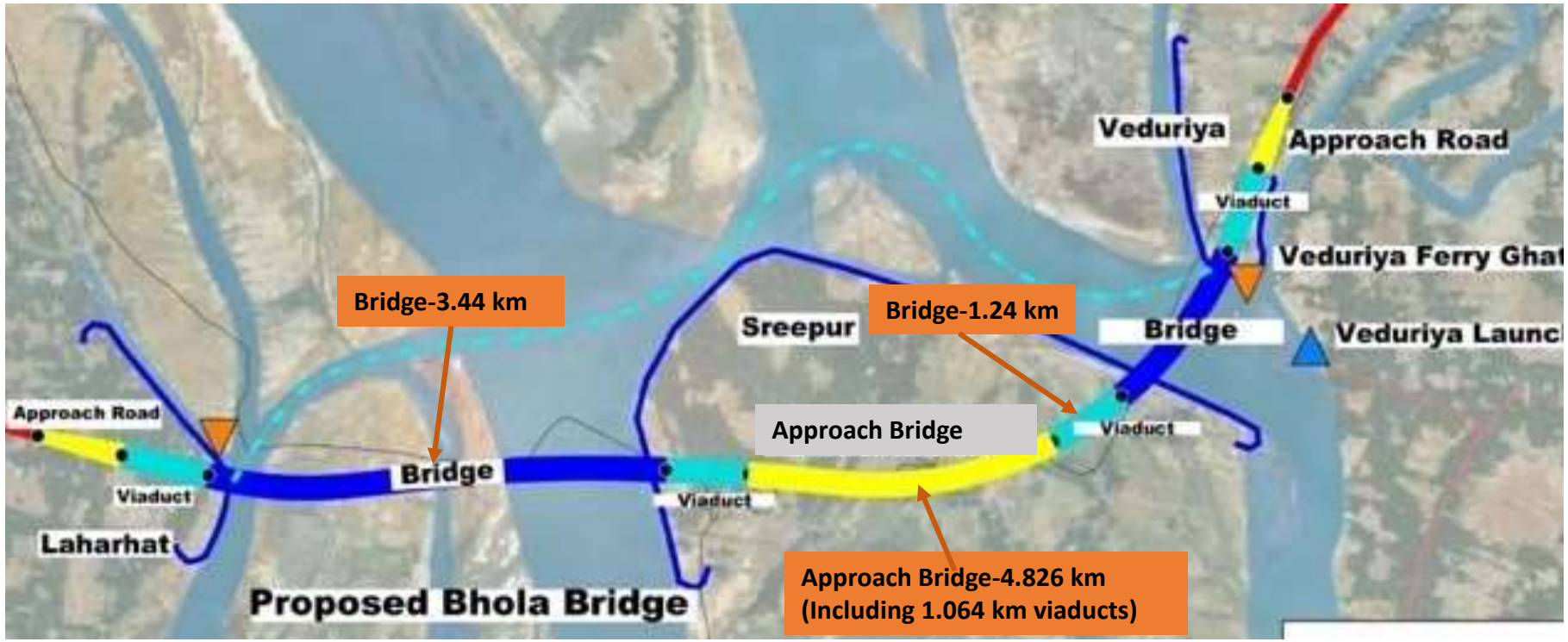
Project-1
Construction of Bhola Bridge on Bhola-Barisal Road over Tentulia & Kalabador River

Project Background & Objectives

- **The Bhola island with an area of 3400 sq.km. and population of over 20 lakhs situated on the eastern side of Barisal Division does not have any vehicular connectivity with main land Barisal.**
- **There is only one Ferry Crossing available on Highway N-809 (Barisal-Bhola-Lakshmipur Road). Almost all personnel and goods transportation to and from main land takes place by boats and launches.**
- **This has seriously affected the social and economic development of Bhola.**
- **In order to alleviate this problem Bangladesh Bridge conducted feasibility study for construction of a four lane bridge over the river Tentulia & Kalabador at suitable location to connect Bhola with main land.**
- The preliminary Project Cost is BDT 12,712 cr. (USD 1513.00 million) for 11.52 km long 4-lane Crossing inclusive of Approach Road, 12 km Bank Protection Work and LAP/RAP expenditure.
- From Economic Analysis, it was estimated that base EIRR of the project is 22.54%.



Components of the Project

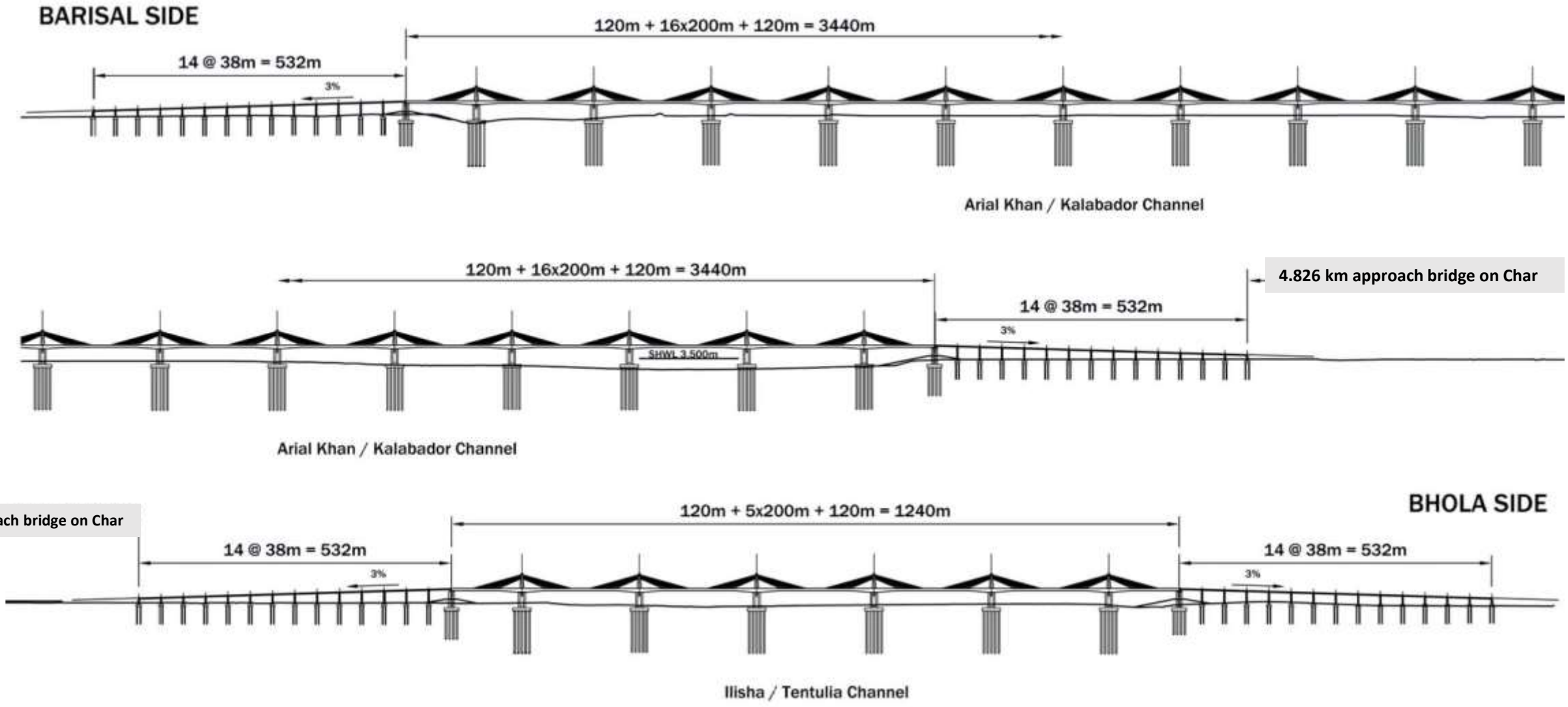


The foundation of the river will consists of 2.5m/3m diameter bored RCC piles of approximately 120 m length. Piles will be base grouted. At least 18.3 m navigational clearance will have to be provided under the main 2 bridges.

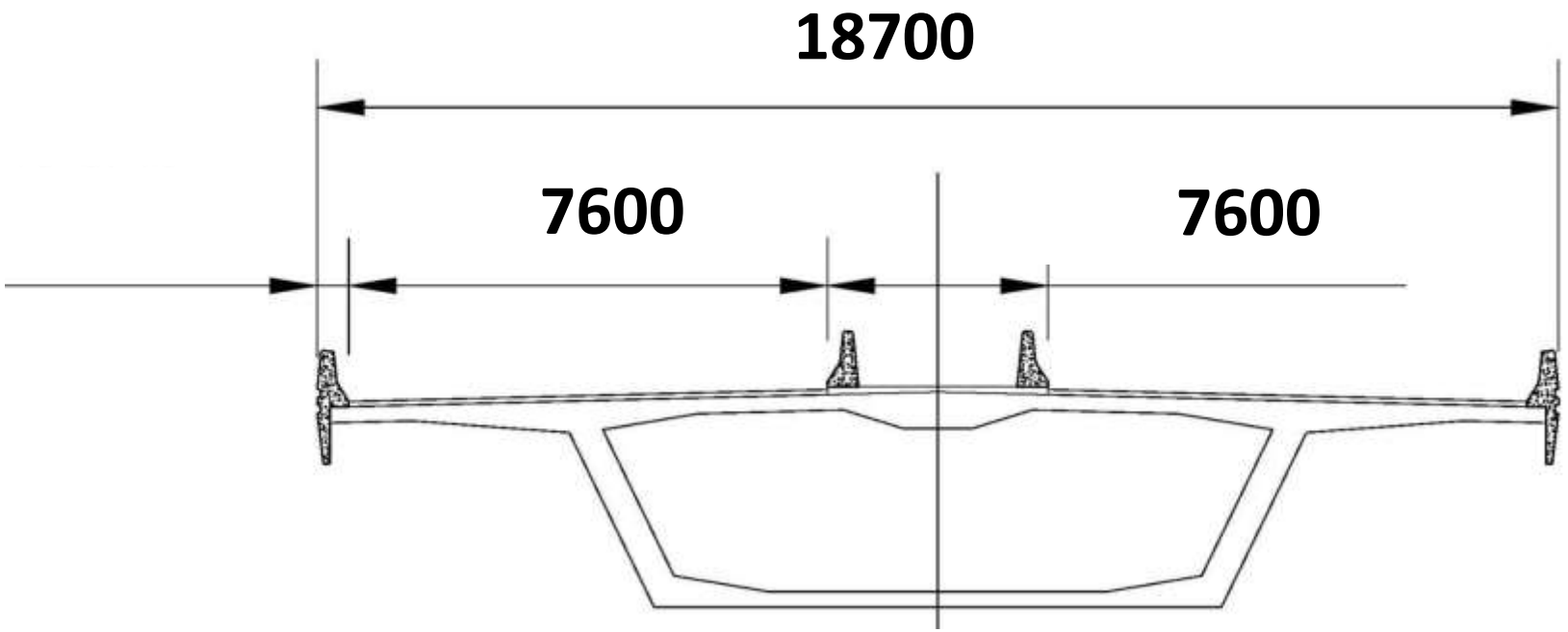
8 km long bank protection work has been proposed around Sripur Char. Although, 4 km long Bank Protection work has been proposed at both Laharhat (Barisal) and Veduria (Bhola) ends

Recommended Bridge Option

200m span EXTRADOSED Concrete Girder

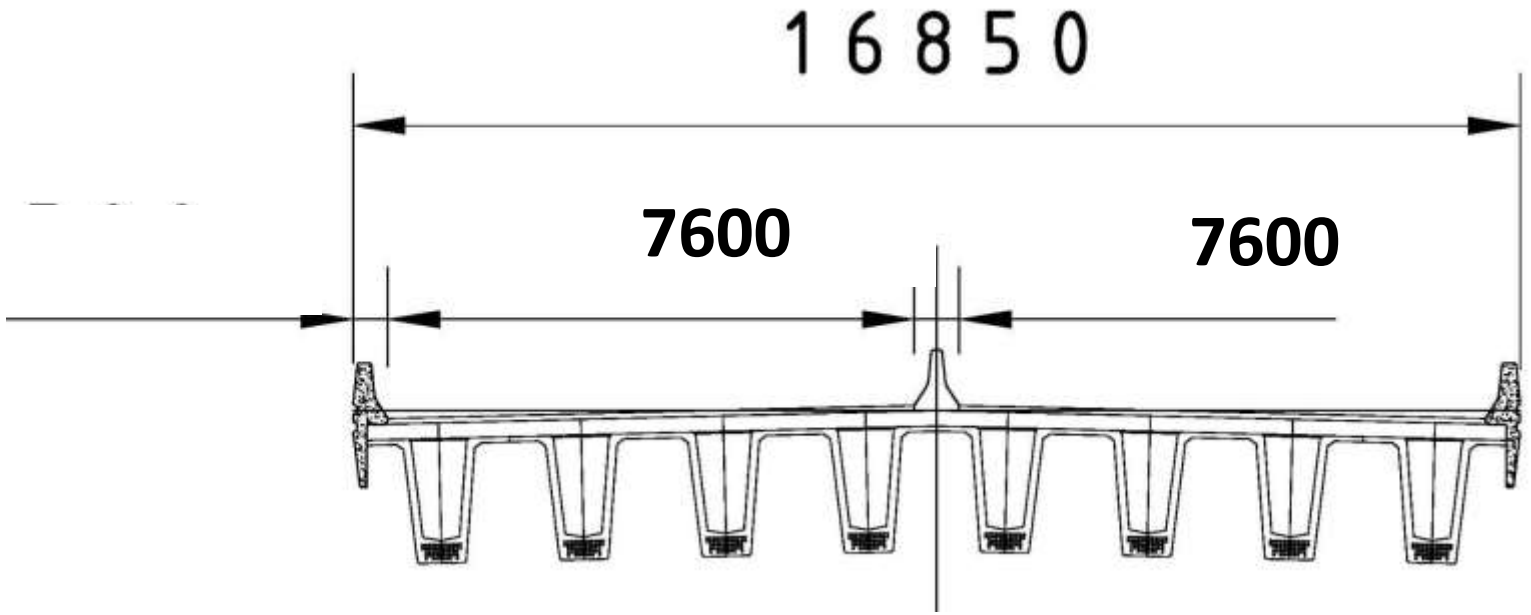


Recommended Bridge Option



Basic Cross Section of Extradosed Concrete Bridge Girder

Approach Bridge



Cross Section of 38m Span Approach Bridge with Precast Pre-tensioned U sections

Safeguards

ENVIRONMENTAL

- **The Environment Impact Study and the associated Mitigation Plan has been carried out following the Legal Framework prescribed by GoB through relevant Acts and Rules.**

- **The project falls under 'RED' category. All requisite site clearance certificates (SCC) and environmental clearance certificates (ECC) from the DOE will be obtained prior to commencement of civil works on ground.**

- **It is generally felt that though there will be some adverse impact during construction stage, those can be minimized by following the Environmental Management Plan. No permanent adverse impact is anticipated.**

Safeguards

SOCIAL (Land Acquisition & Resettlement)

- The Resettlement Action Plan (RAP) has been prepared in compliance with GoB rules and legal framework for land acquisition and compensation to affected people. Land Acquisition Plan (LAP) is a component of RAP.

- RAP aims to improve or restoration of social and livelihood resources of the affected persons due to implementation of the project.

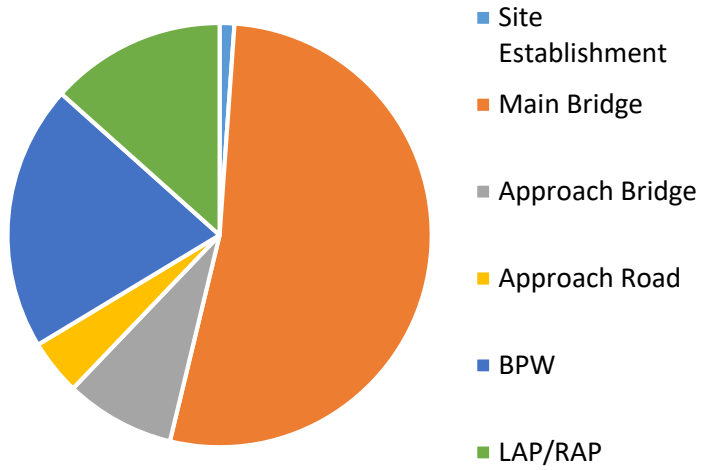
The key findings of the study:

Length of Bridge & Approaches	**11.52km**
Total Land to be Acquired	**495.56 Hectare**
Entities Affected	**1063**
Households	**1033**
CPRS	**30**
Total Cost of LAP & RAP	**USD 109 million**

PRELIMINARY PROJECT COST ESTIMATE

sl no	Item	Description	Quantity	Unit Cost	Cost (Cr BDT)	Cost (In million USD)
1	Site Establishment	General and Site Facilities	L.S	-	462.75	55.09
2	Main Bridge	200m Span Extradosed Bridge	4680 m		6435.37	766.12
3	Approach Bridge	38m span U-type precast girder & deck slab	4826 m		1675.62	199.48
4	Approach Road	Four Lane Approach Road including all minor bridges, culverts & ramp at char	5 kM		597.64	71.15
5	Toll Plaza				72.04	8.58
6	Bank Protection Work		12 kM		1088.04	129.53
A	**Sub-Total**				**10331.46**	**1229.94**
B	Provisional Sum for Physical Contigency = 3% of (A)				309.94	36.90
C	**Sub-Total (A+B)**				**10641.40**	**1266.83**
D	Provisional Sum for Price Contingency = 6% of (C)				638.48	76.01
E	Engineer's Estimate = (C+D)				**11279.89**	**1342.84**
F	Land Acquisition and Resettlement Cost				916.00	109.05
G	Design Cost = 3% of (A)				309.94	36.90
H	Construction Supervision Cost = 2% of (A)				206.63	24.60
I	**Estimated Project Cost** = (E+F+G+H)				**12712.00**	**1513.00**

BHOLA Bridge - Cost Breakup



Findings of Economic Analysis

The economic evaluation has been carried out within the broad framework of social cost-benefit analysis assuming a project life of 34 years since age of bridge with proper maintenance is likely to be considered more than 80 years.

Indicators	Base Case	15% Cost Rise	15% Benefit Decrease	15% cost Rise and 15% Benefits Decrease
EIRR (%)	22.54	20.57	20.26	18.45
NPV (Cr BDT)	14,371	12,898	10,742	9,269
BCR	3.15	2.74	2.68	2.33

Financial Analysis

Project IRR is -8.9%. The project NPV is BDT -6977.4 Cr. discounting at the rate 3.0% (WACC-Nominal) per year. The repayment capability of the project found low since the toll rate and AADT is very low including the high-level of capital expenditure and O&M cost including major maintenance.

Project-2
Construction of Dhaka East West Elevated Expressway

Project Objectives

- **Overview**

  To allow traffic to travel around the **western perimeter** of Dhaka between **Highway N5 (the Dhaka Aricha Highway)** and **Highway N1 (the Dhaka Chittagong Highway)** with connections to **Highway N8 (Dhaka Mawa Highway which links directly to the Padma Bridge)** and to **Narayanganj via Road R111 (Dhaka Narayanganj Road)**.

- **Purpose**
  - making connections between these major highways and **thus the north, south and west of the country**
  - the expressway will have some effect on ***removing through traffic from Dh*****aka** and thereby ***reducing traffic congestion in the capital***.
  - To address congestion in and through Dhaka, serving as **the middle ring road**, Proposed in the Revised strategic transport plan.
  - Easier traffic movement from Chattogram, Sylhet & other eastern part and from south western region to the north-western districts without entering Dhaka city;
  - To facilitate as Dhaka city bypass road

Project Context

RSTP RING ROAD & EWEE ALIGNMENT

INNER RING ROAD

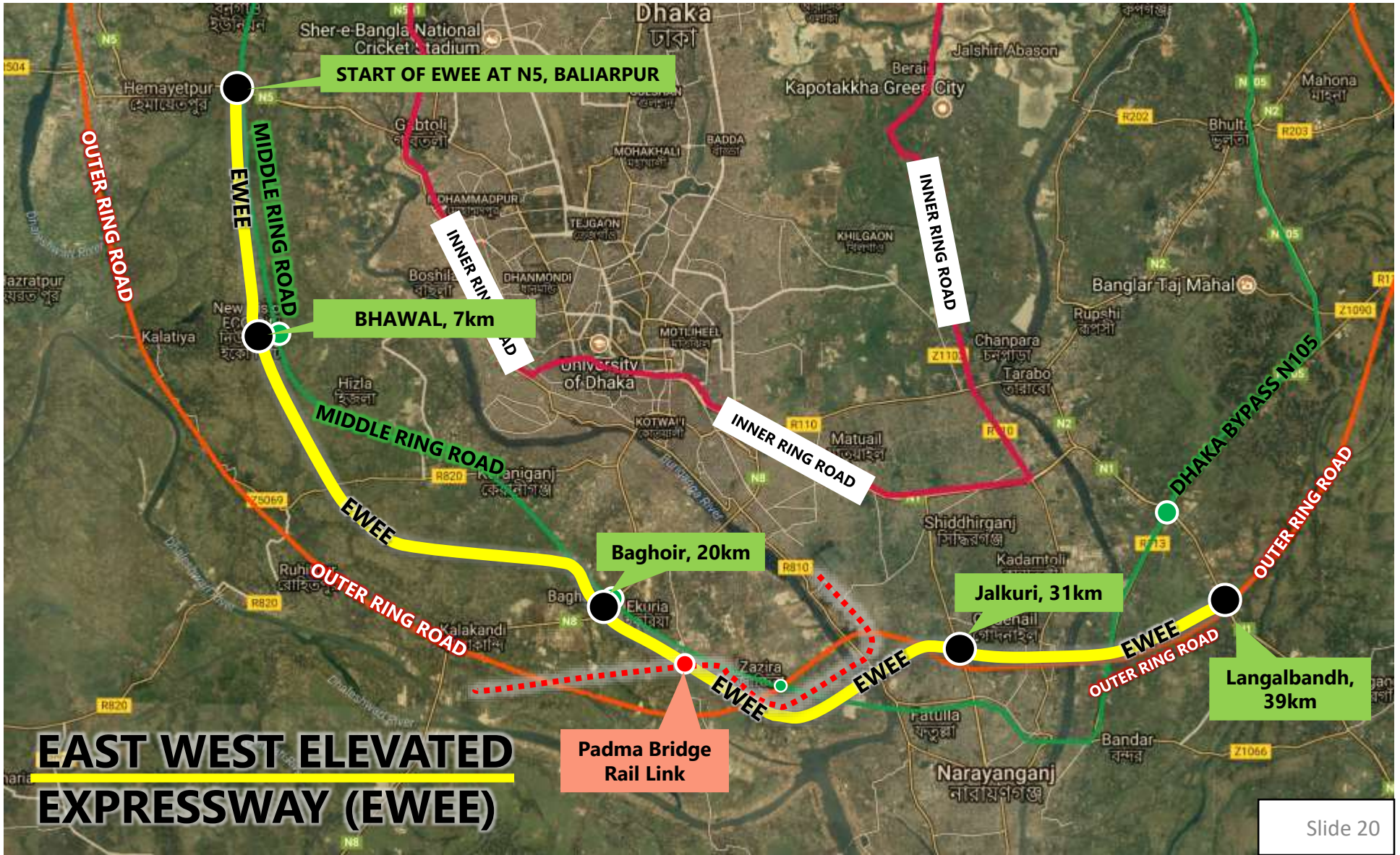
MIDDLE RING ROAD

OUTER RING ROAD

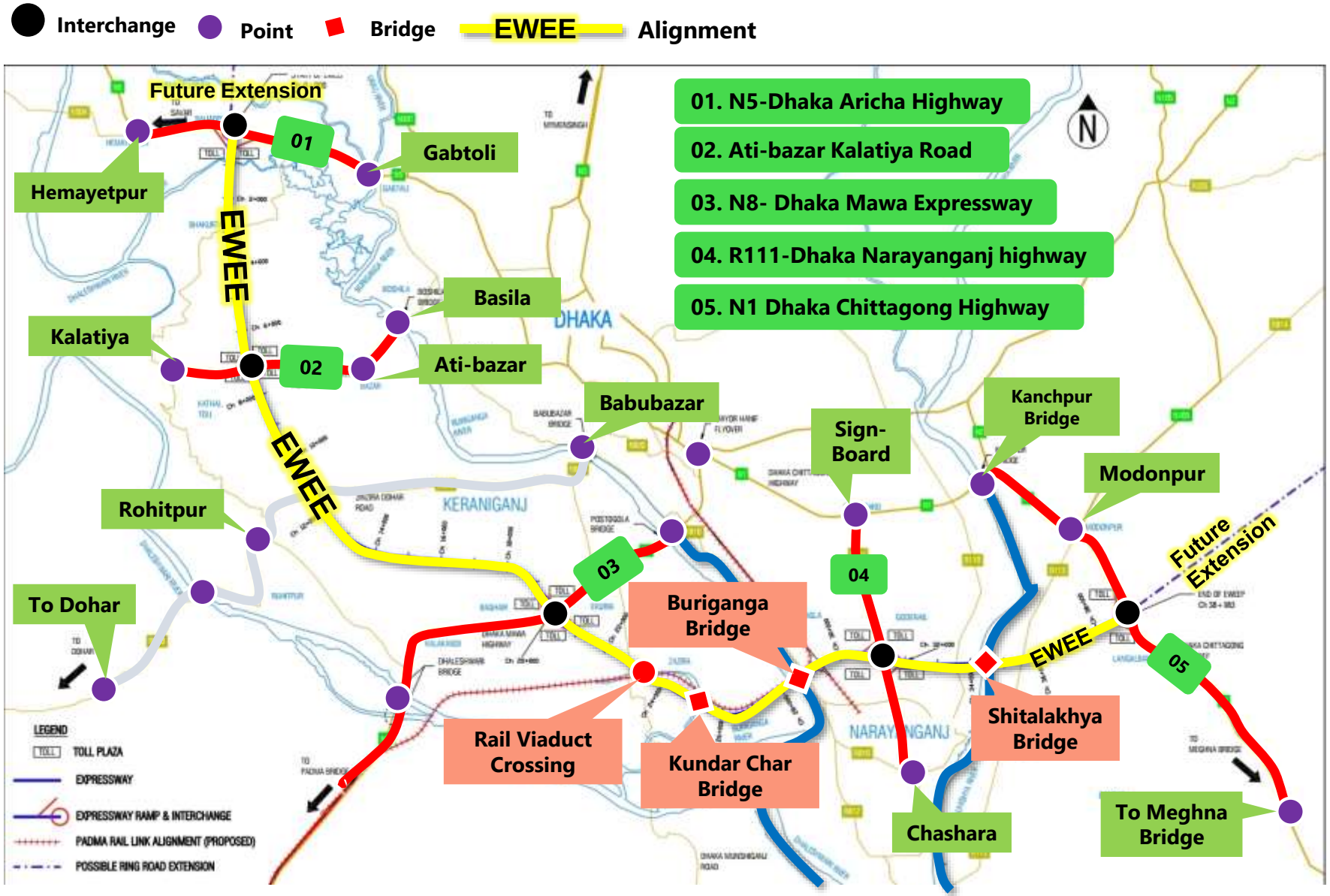
EAST WEST ELEVATED EXPRESSWAY

Project Context

EWEE ALIGNMENT & RSTP RING ROADS



Project Alignment



Project Alignment

Salient Feature of East West Elevated Expressway

Baliarpur (N5 on Dhaka – Aricha Highway) – Bhakurta-Bhawal-Baghair-Kundar char- Jalkuri-Goadnail-Lakshman- Langalband (on Dhaka – Chittagong Highway N1).

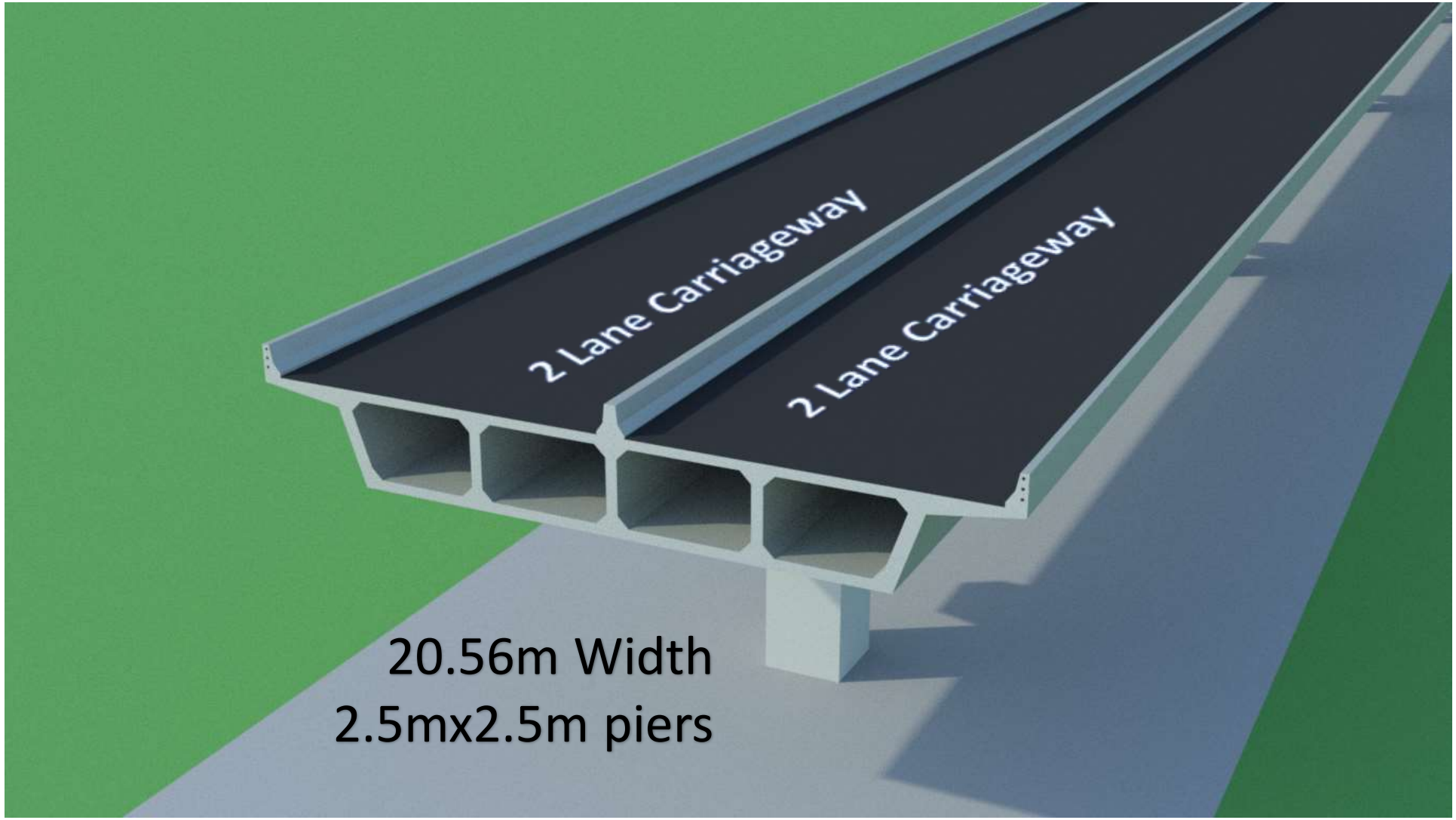
Total Length km	Connecting NH	Crossing major river	Touching Upazila	Touching mouzas	Reqd. Land Acquisition Hac	Time for implementation
39.20	N5,N8 & N1	3(Kundarchar, Buriganga & Shitalakhya)	Savar, Keraniganj, Fatullah, Siddhirganj and Bandar	48	137.95	5 Years
Total Cost			**Cost BDT in crore**		**Cost Million USD**	
Estimated in August 2017			16,388.50		2048.56	

Components of the Project

Elevated Expressway	**39.24km**
Ramps	22.68 km
Elevated Roundabout/ Interchange (4 nos.)	2.30 km
Toll Plaza	16 nos.

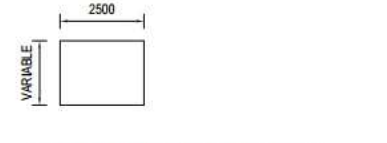
Typical Section

East West Elevated Expressway

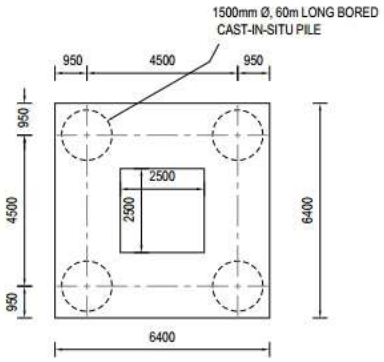


Project Component

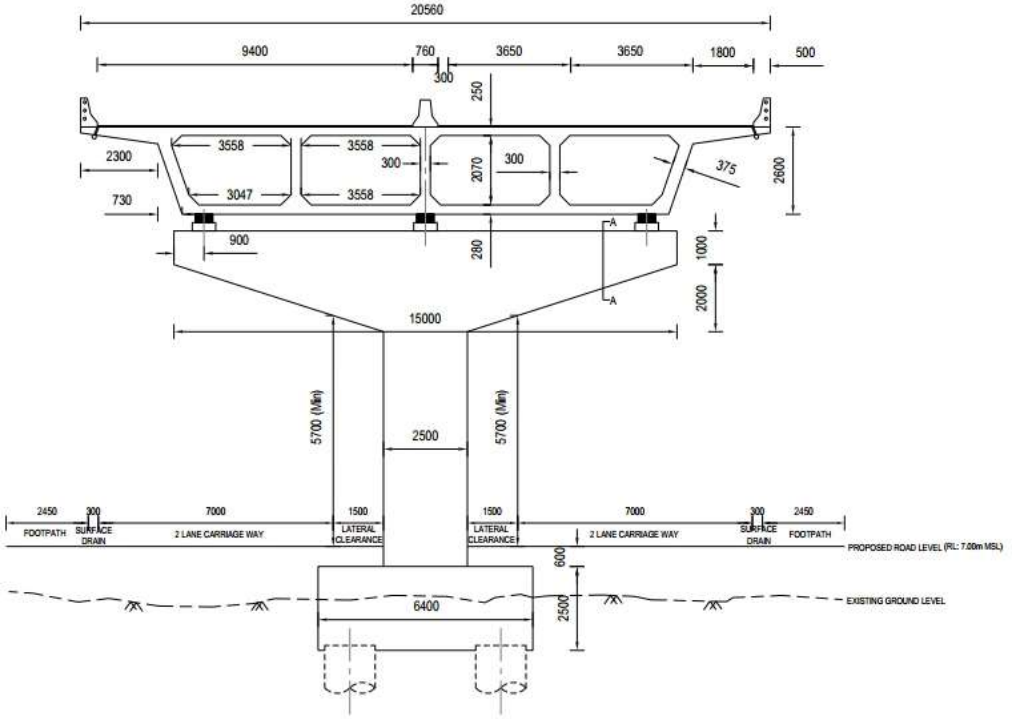
50m Span Box Girder section



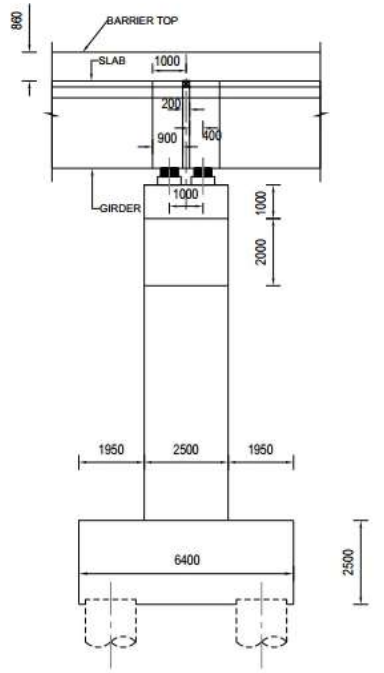
CROSS SECTION VIEW OF PIER CAP AT A-A
(SCALE: 1:150)



PLAN VIEW OF PIER AND PILE CAP
(SCALE: 1:150)



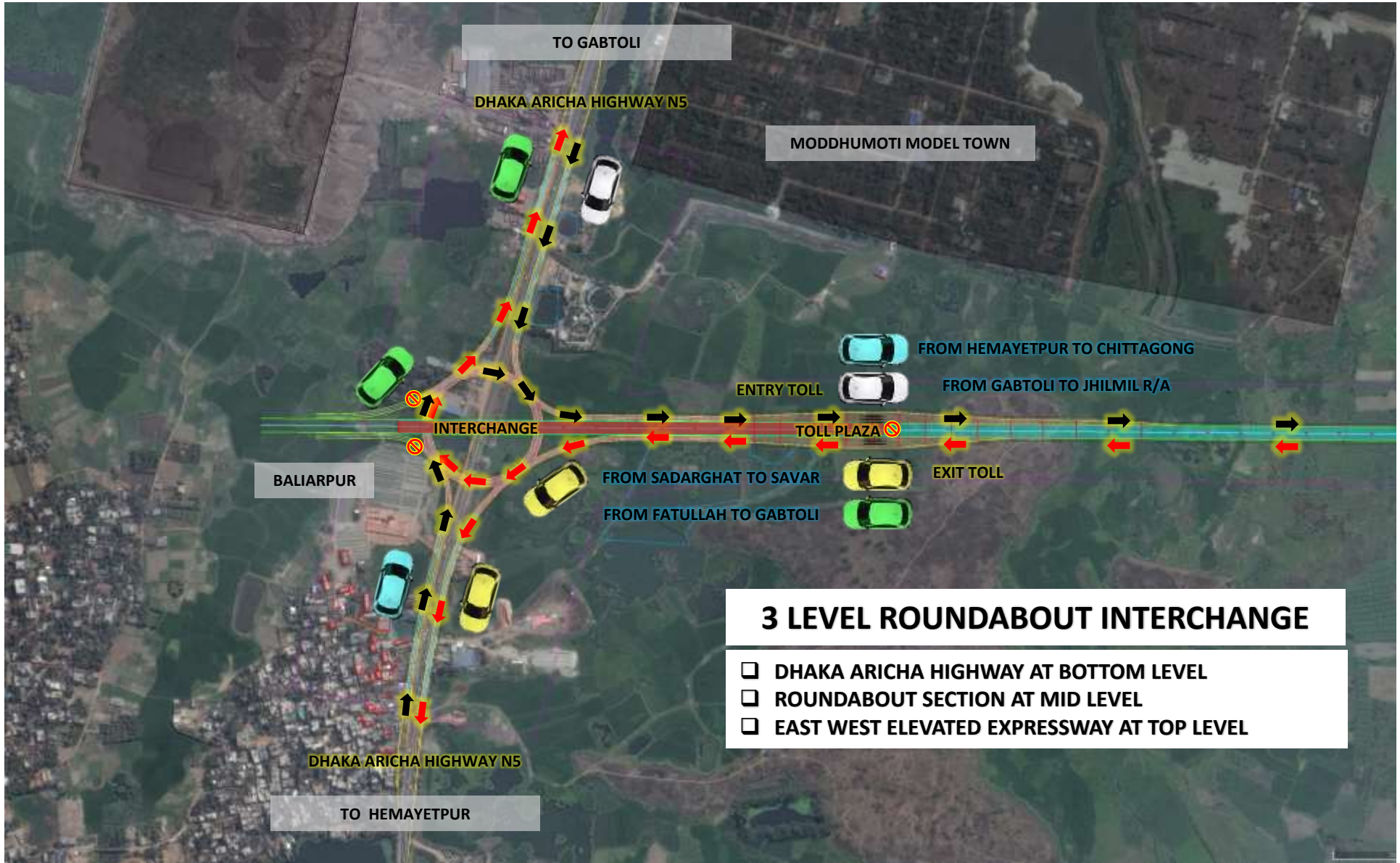
GENERAL CROSS SECTION OF SINGLE PIER BOX GIRDER (FOR SPAN LENGTH 50m)
(SCALE: 1:150)



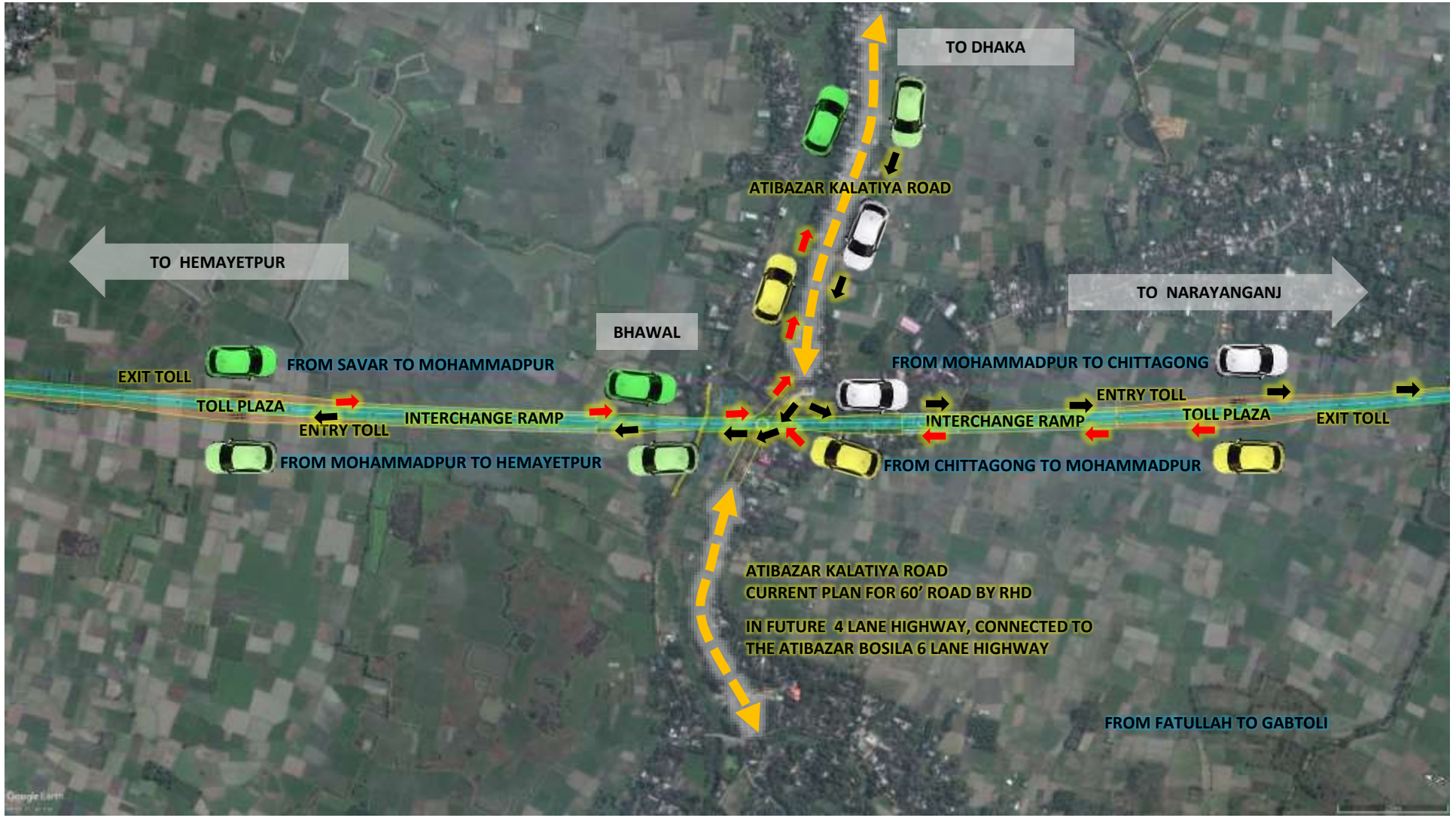
GENERAL ELEVATION OF SINGLE PIER BOX GIRDER
(SCALE: 1:150)

Interchange Traffic Operation

INTERCHANGE 01 : BALIARPUR



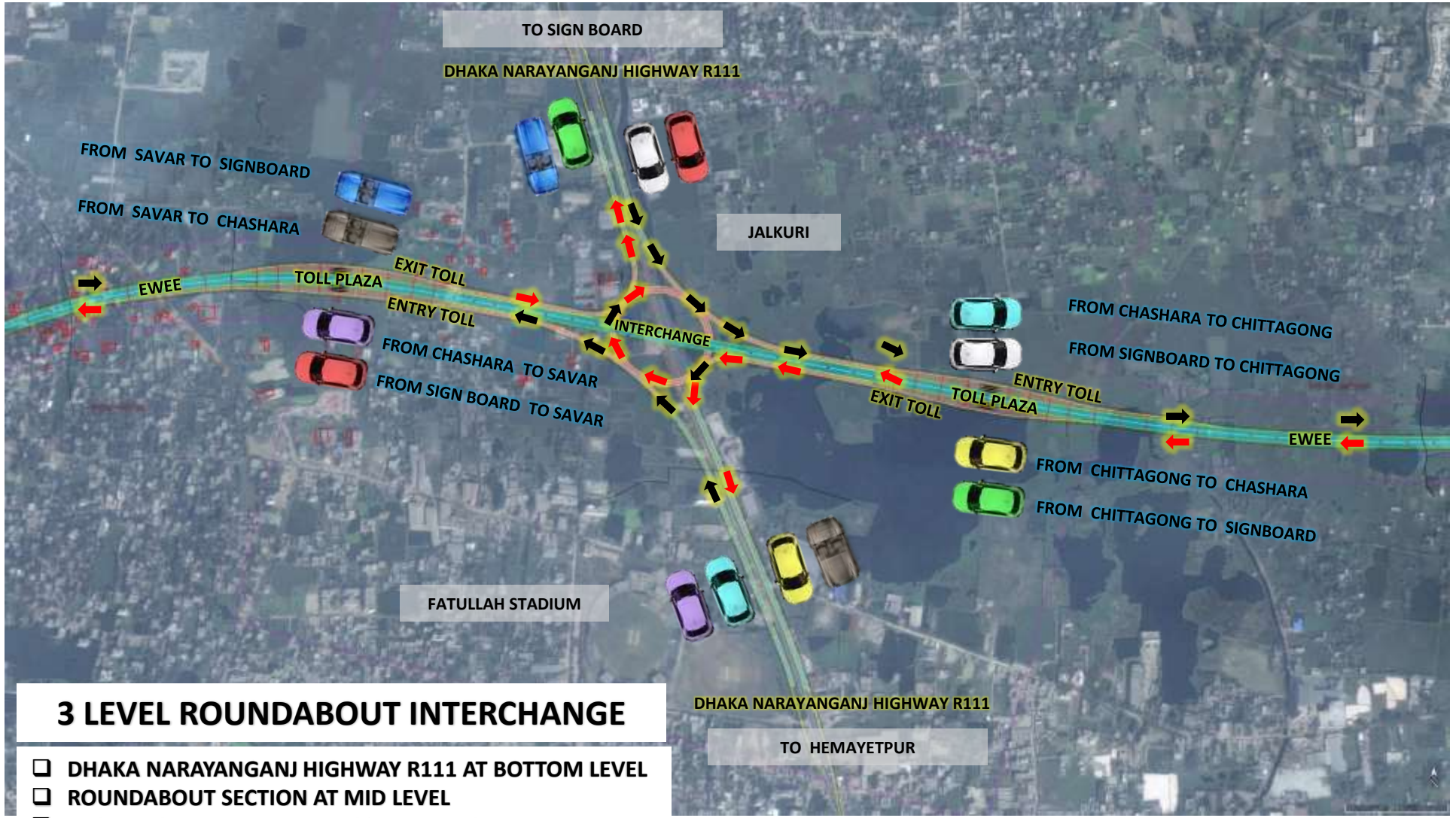
INTERCHANGE 2 : BHAWAL



INTERCHANGE 03 : BAGHAIR

Slide 29

INTERCHANGE 04 : JALKURI

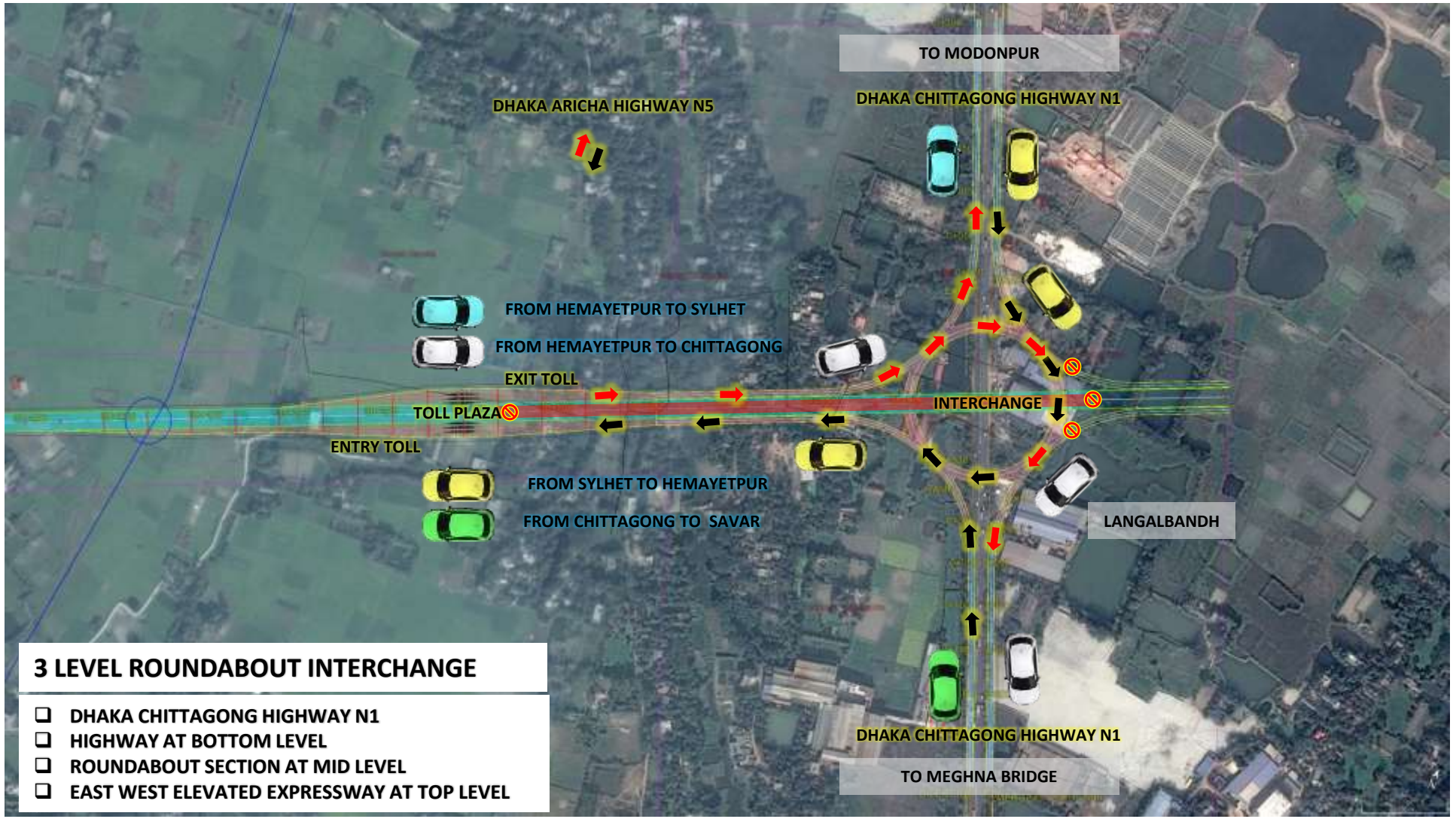


3 LEVEL ROUNDABOUT INTERCHANGE

- ❑ DHAKA NARAYANGANJ HIGHWAY R111 AT BOTTOM LEVEL
- ❑ ROUNDABOUT SECTION AT MID LEVEL
- ❑ EAST WEST ELEVATED EXPRESSWAY AT TOP LEVEL

Slide 30

INTERCHANGE 05 : Langalband



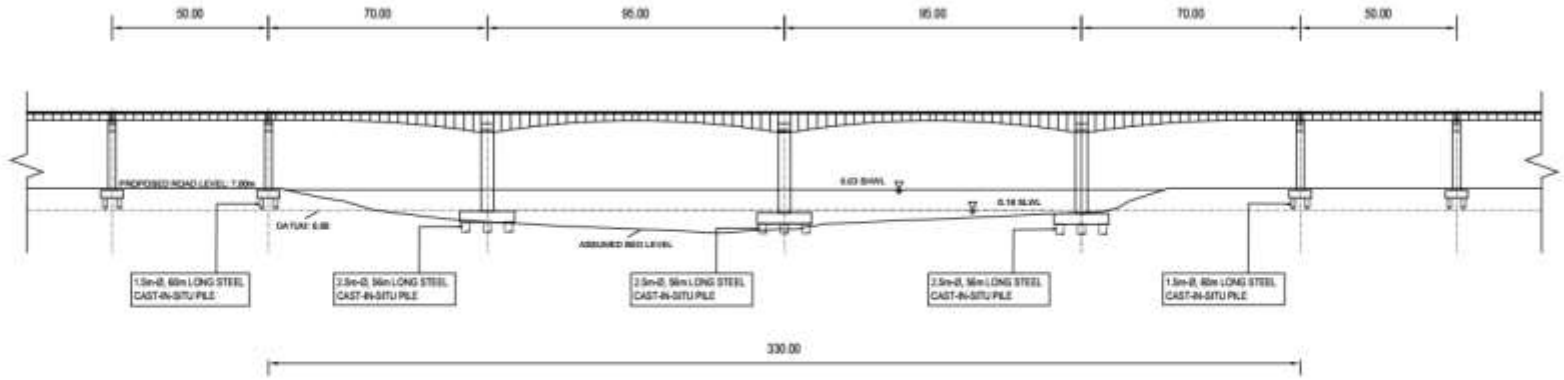
Major Bridges along the alignment

Project Component

95m Span Box Girder Bridge

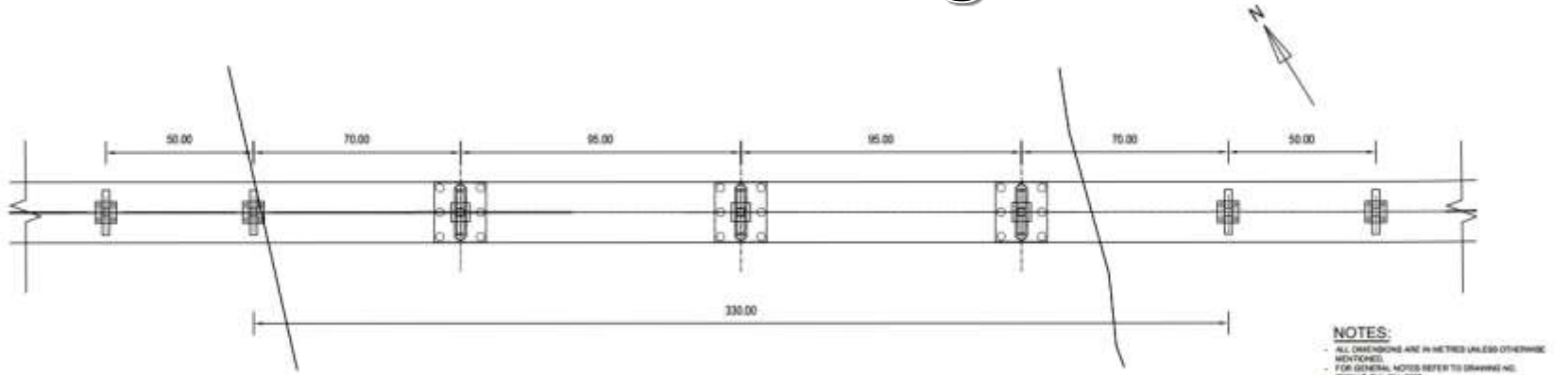
Project Component

95m Span Box Girder Bridge



LONGITUDINAL SECTION OF BRIDGE AT KUNDAR CHAR

Kundar Char Bridge

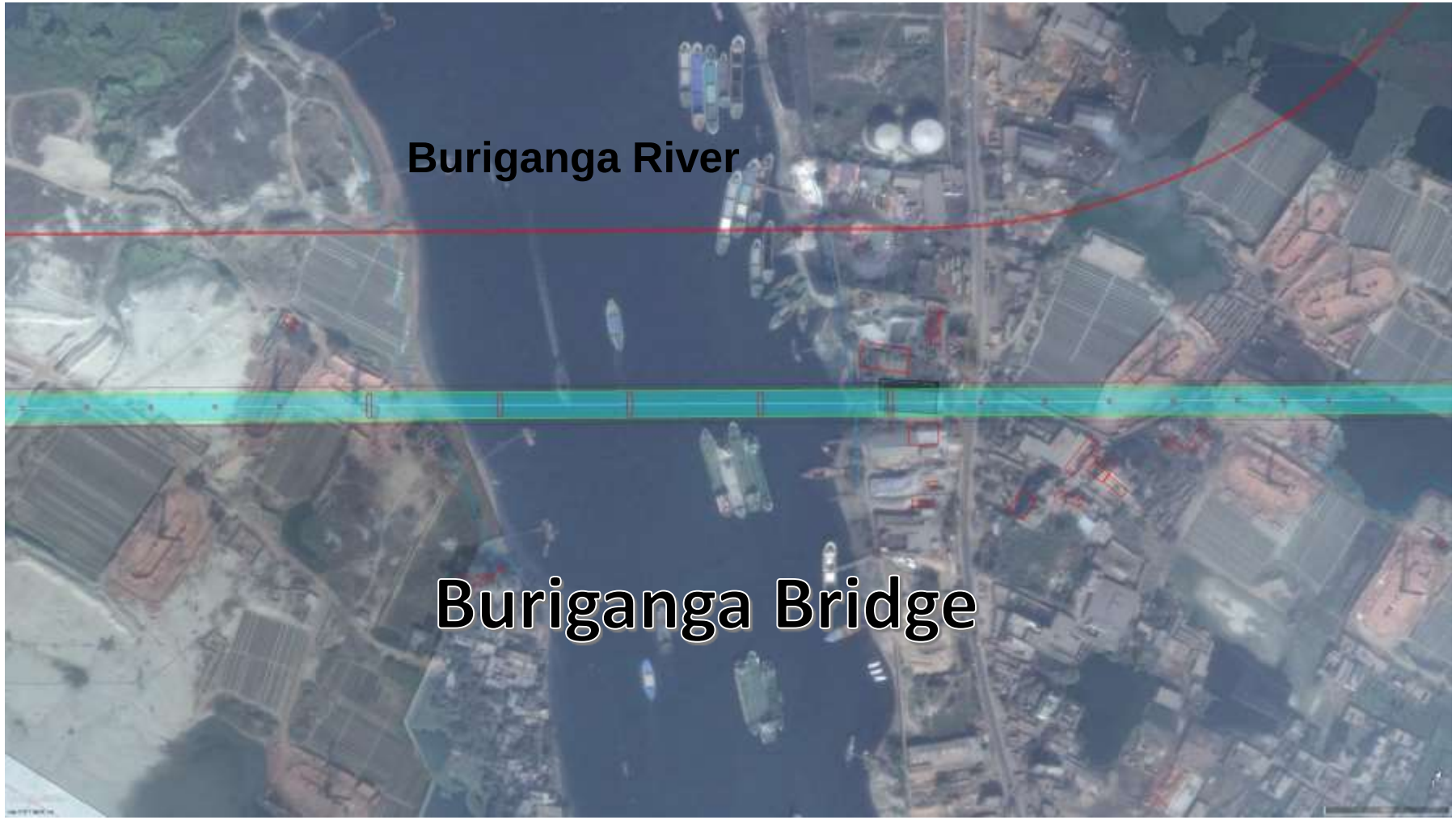


PLAN OF BRIDGE AT KUNDAR CHAR

NOTES:

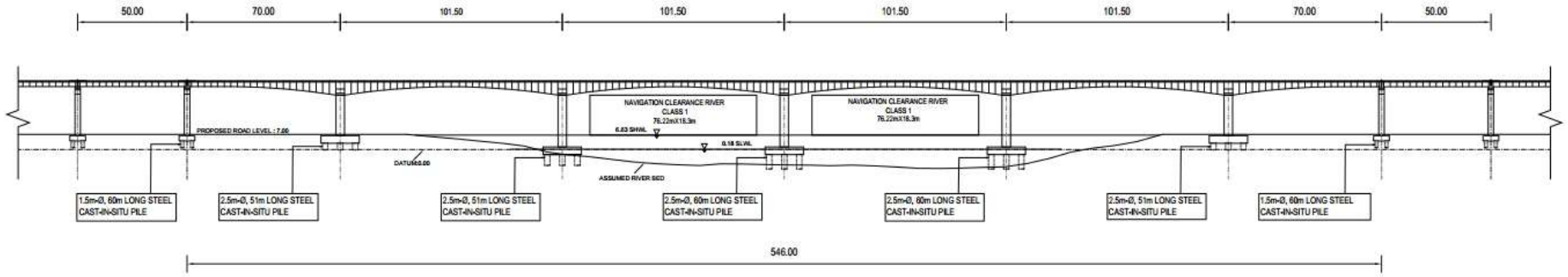
Project Component

101.5m Span Box Girder Bridge



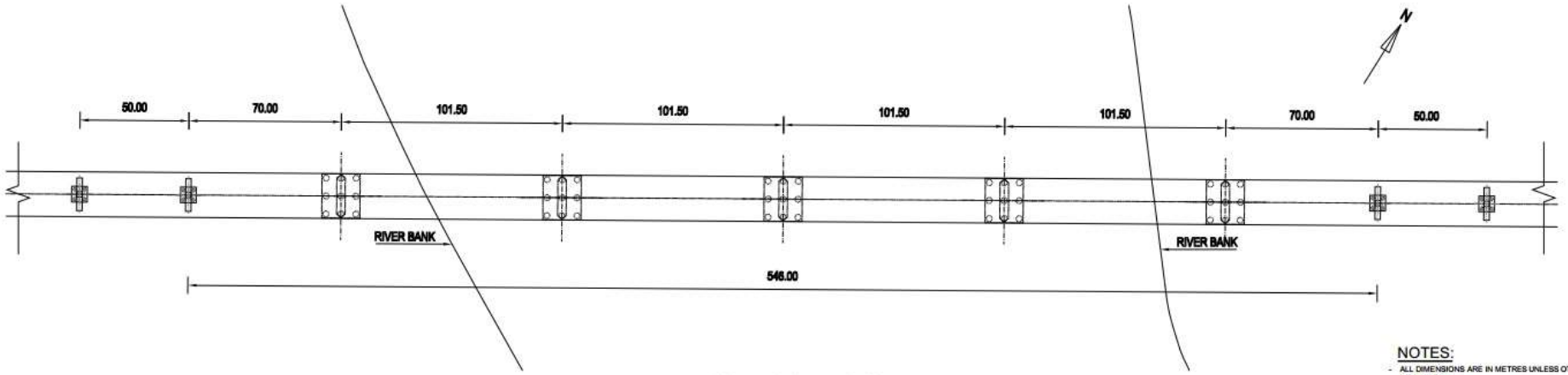
Project Component

101.5m Span Box Girder Bridge



LONGITUDINAL SECTION OF BRIDGE OVER BURIGANGA RIVER

(SCALE: 1:2000)



PLAN OF BRIDGE OVER BURIGANGA RIVER

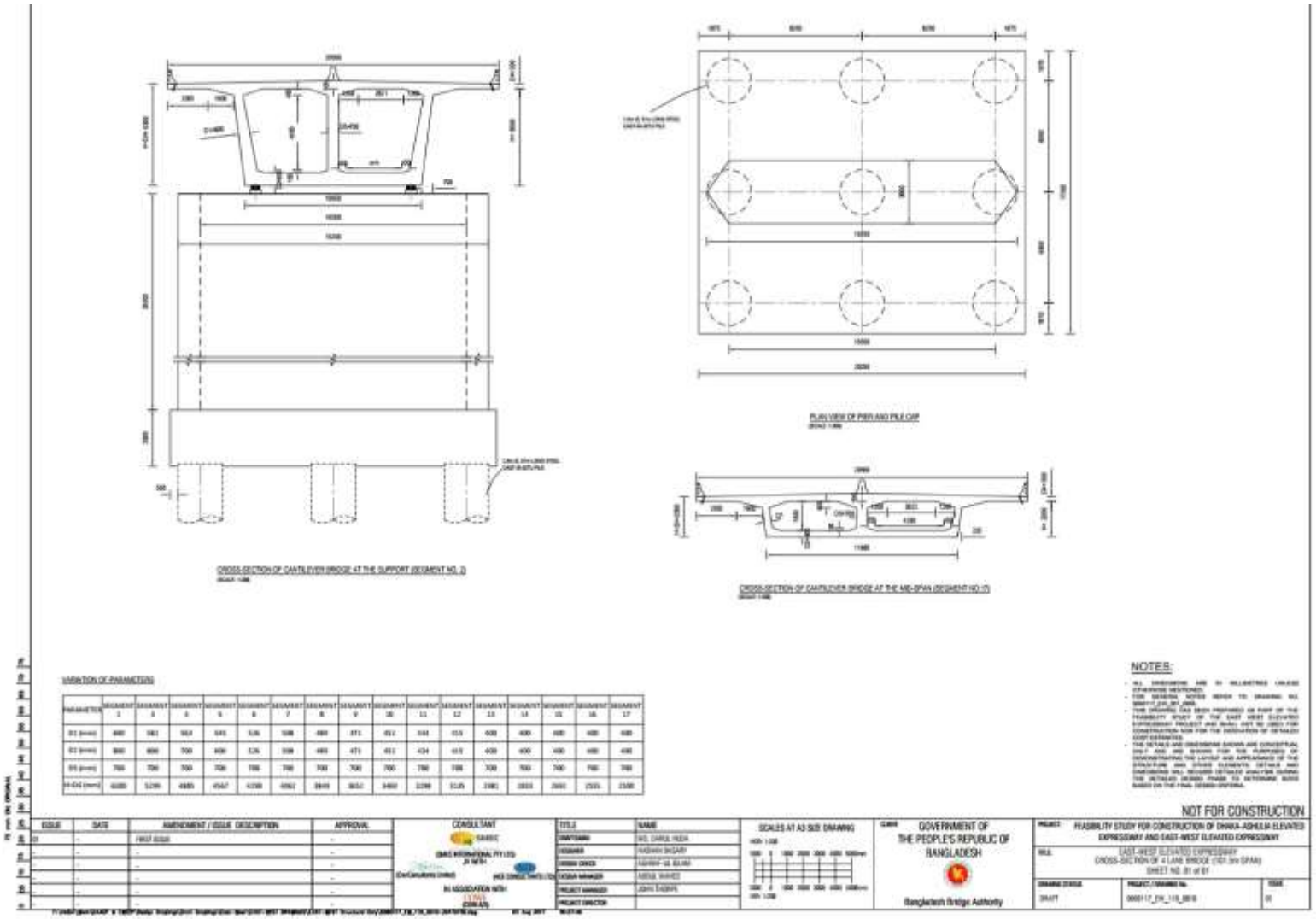
(SCALE: 1:2000)

NOTES:

- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWI MENTIONED.
- FOR GENERAL NOTES REFER TO DRAWIN 5060117_EW_001_0005.
- THIS DRAWING HAS BEEN PREPARED AS PART

Project Component

101.5m Span Box Girder Bridge

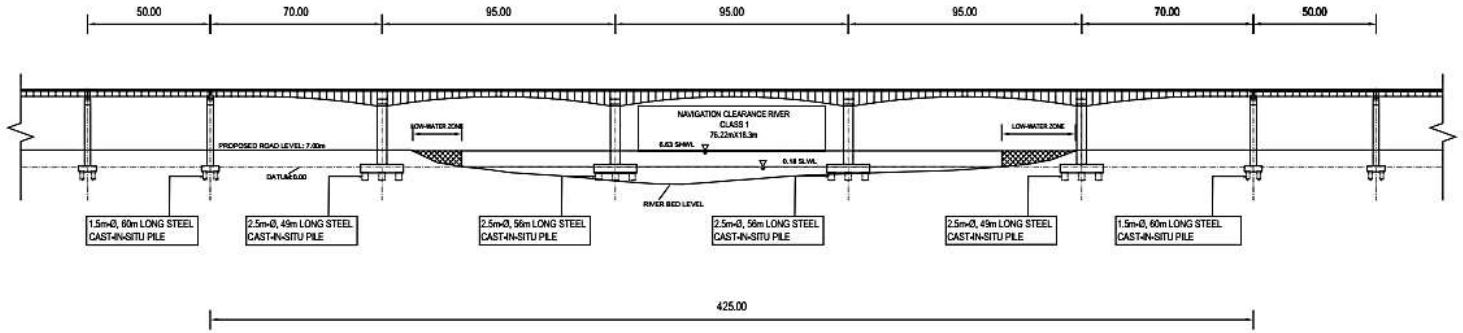


Project Component

95m Span Box Girder Bridge

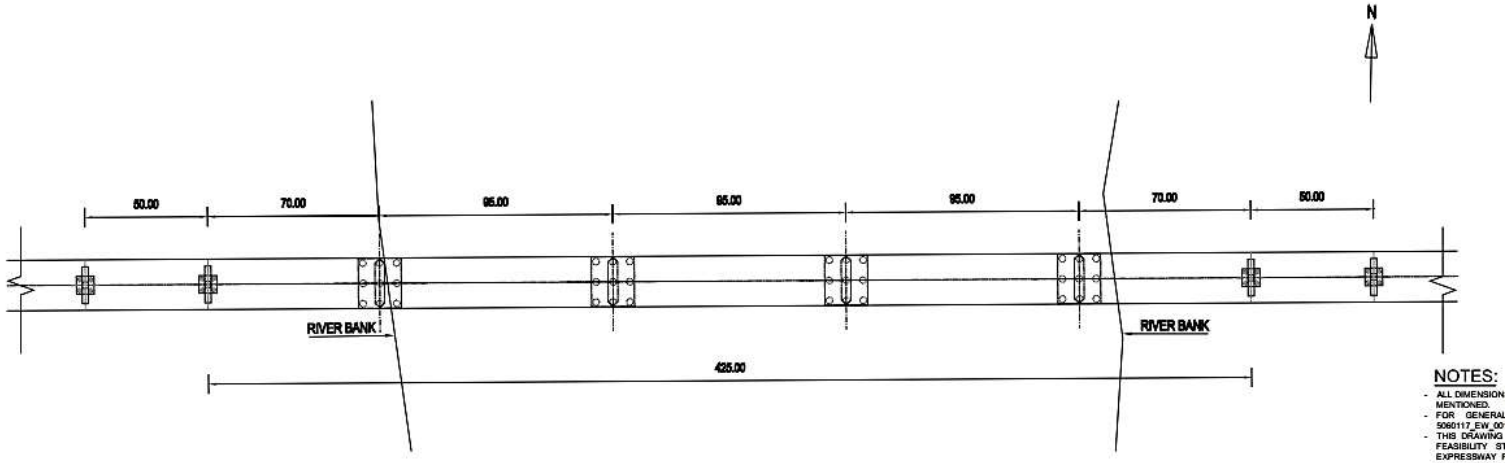
Project Component

95m Span Box Girder Bridge



LONGITUDINAL SECTION OF BRIDGE OVER SHITALAKHYA RIVER

(SCALE: 1:2000)



PLAN OF BRIDGE OVER SHITALAKHYA RIVER

(SCALE: 1:2000)

NOTES:

- ALL DIMENSION MENTIONED.
- FOR GENERAL 5060117_EW_00
- THIS DRAWING FEASIBILITY ST EXPRESSWAY F CONSTRUCTION COST ESTIMATE
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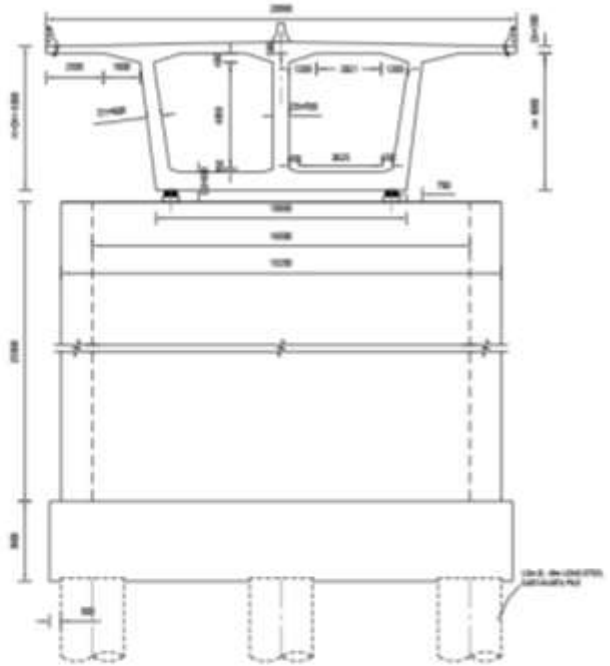
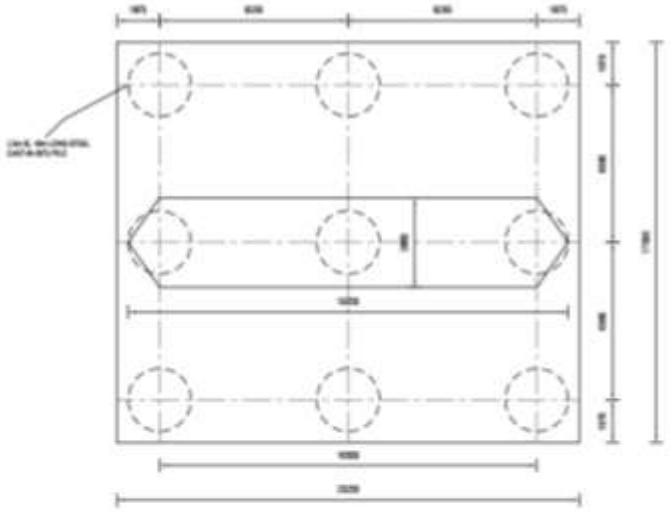
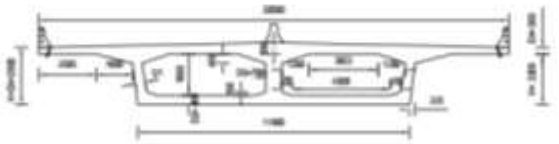
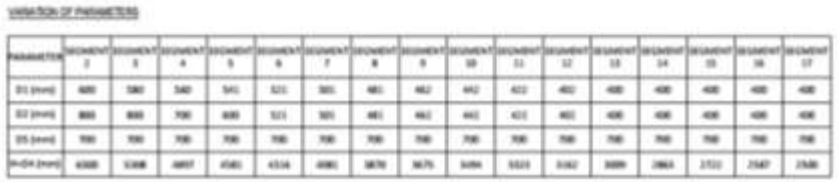
Project Component

95m Span Box Girder Bridge

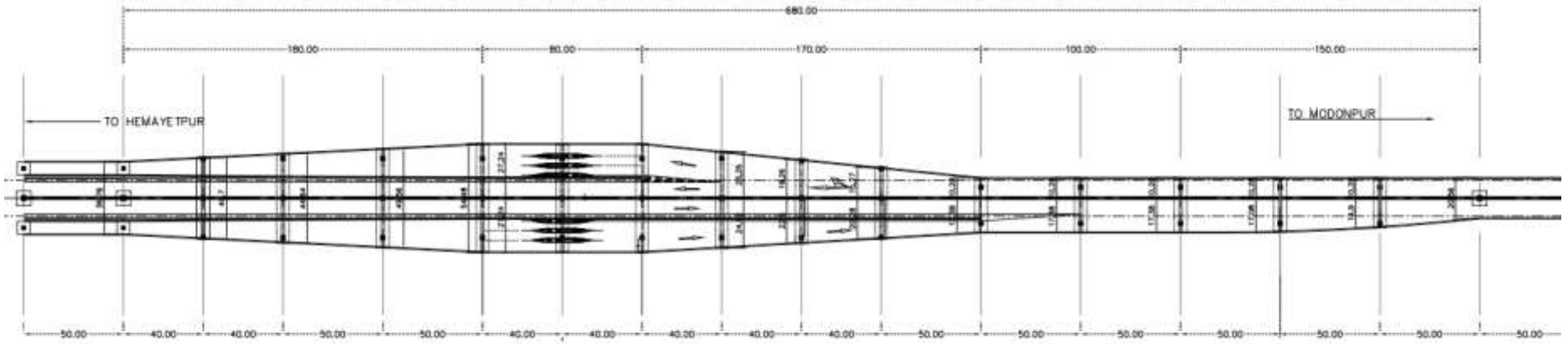




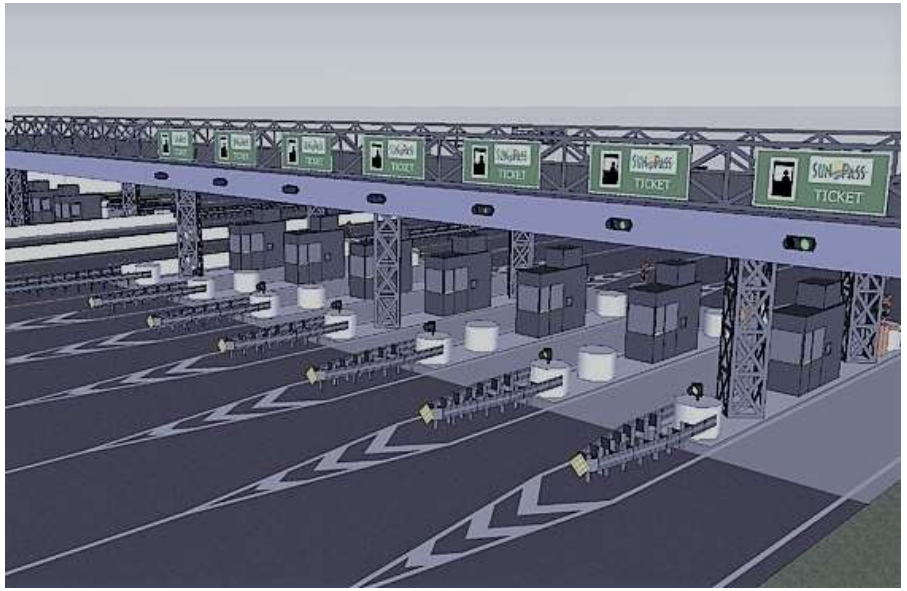


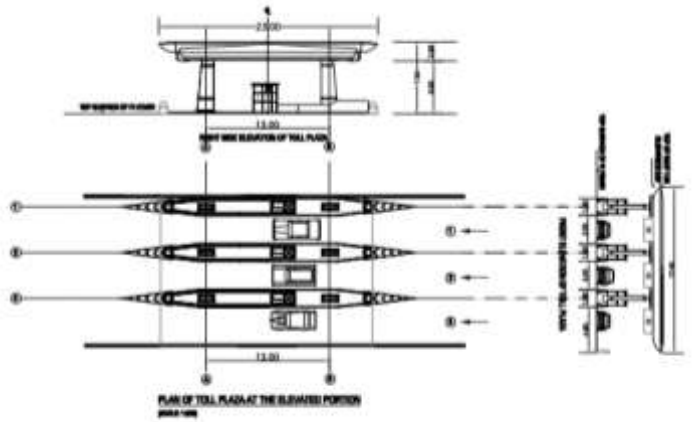


Tolling System



LAYOUT PLAN OF 3 LANE TOLL PLAZA ON BOTH SIDES OF ELEVATED EXPRESSWAY





PLAN OF TOLL PLAZA AT THE ELEVATED PORTION

Safeguards Social

- As the elevated expressway is to be constructed on a new route, the project will require acquisition of 340.7349 acres (137.949 ha) of land and will affect 798 households (2,322 people). A census survey was conducted on 5 February 2017. Inventory of losses surveys were conducted in February and March 2017. Community consultations and focus group discussion were held in March 2017. Based on the foregoing, a resettlement action plan has been prepared and the cost of the land acquisition and resettlement has been estimated as BDT30 billion (USD394.95 million).

Socio-Economic and Financial Analysis

Economic Analysis

Economic Viability Indicators for EWEEP(discount factor 12%)

Project	NPV (USD million)	Economic Internal Rate of Return(EIRR)	B:C Ratio
East West Elevated Expressway Project (EWEEP)	118.7	13.3%	1.17
		FIRR-7.21%	

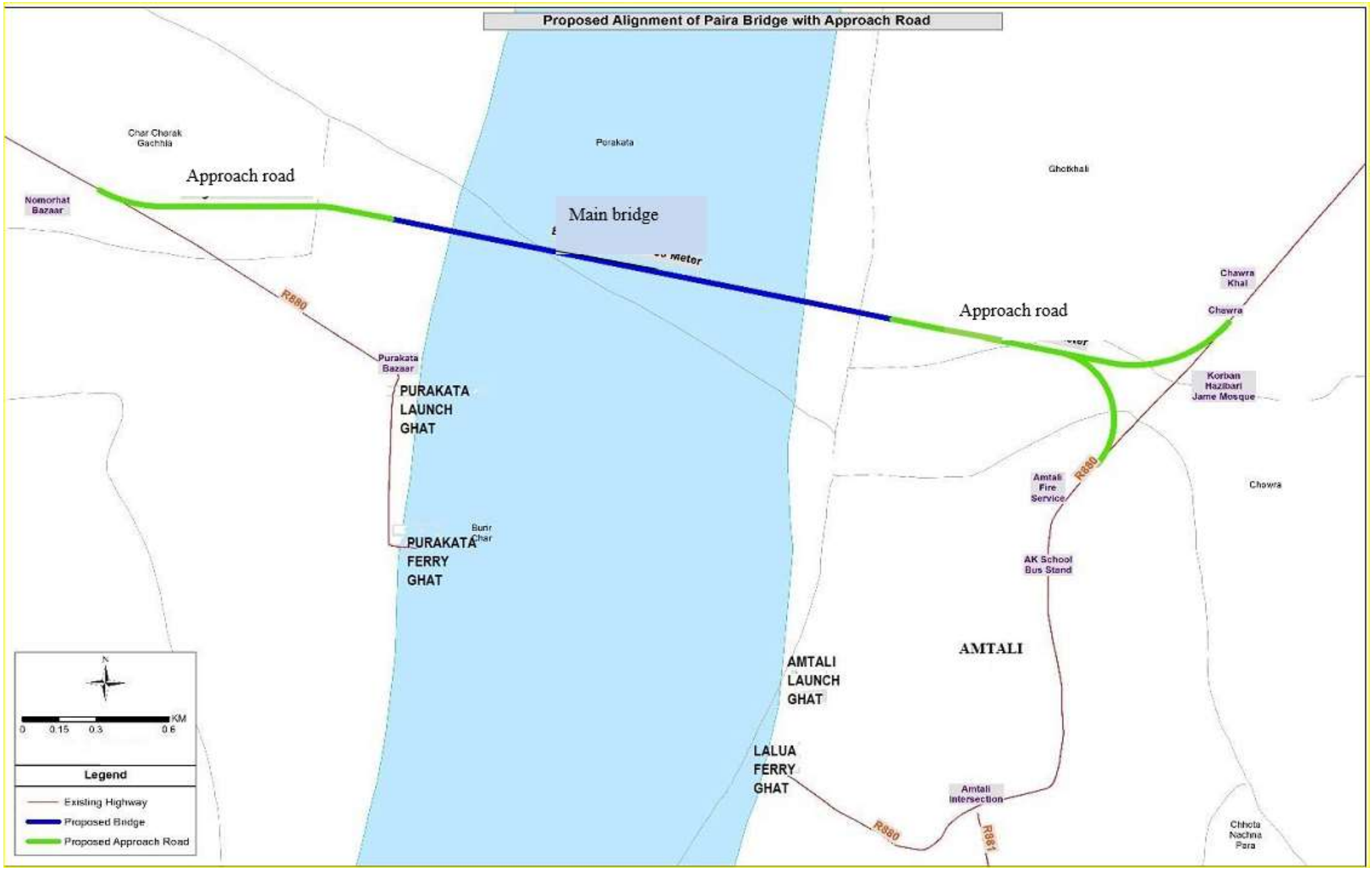
Other upcoming Projects

Construction of Bridge on Patuakhali-Amtali-Barguna road (R 880) over Paira river.

- Length:2.48 km
- Estimated cost: BDT 34077.40 million (USD 401.85 million)
- Objectives: To establish direct road connectivity of Barguna district with Barishal, Patuakhali and capital Dhaka city
- Components of the Project

Bridge	**2.48 km**
Approach Road	2.5 km
Bank Protection work	4 km
Land acquisition	127.79 acre

Location map



Construction of Bridge on Barguna-Kakchira road (R 880) over Bishkhali river

- Length:2.50 km
- Estimated cost: 54533.10 million (USD 643.07 million)
- Objectives: To establish direct road connectivity of Barguna district with Barishal, Patuakhali and capital Dhaka city
- Components of the Project

Bridge	**2.50 km**
Approach Road	16 km
Bank Protection work	4.6 km
Land acquisition	370.26 acre

Location map




Thank you