Government of the People's Republic of Bangladesh
Office of the Project Director (Superintending Engineer, RHD)
Construction of the Mirganj Bridge over the Arial Kha River at 8th kilometer on Rahmatpur-Babuganj-Muladi-HizlaHighway (Z8034)
Roads and Highways Department
Sarak Bhaban, Tejgaon, Dhaka-1208, Bangladesh

Memo No: 35.01.0000.152.14.058.24-582 **Date: 27.10.2024**

Request for Expression of Interest (Consulting Firm: Time-based)

1.	Ministry/Division	Ministry of Road Transport and Bridges/ Road Transport and Highways Division	
2.	Agency	Roads and Highways Department	
3.	Procuring Entity Name	Project Director, Construction of the Mirganj Bridge over the Arial Kha River at 8th kilometer on Rahmatpur-Babuganj-Muladi-HizlaHighway (Z8034)	
4.	Request for	Expression of Interest (EOI) for Project Implementation Consultancy (PIC) Services for Construction of Mirganj Bridge over the Arial Kha River at 8th kilometer on Rahmatpur-Babuganj-Muladi-HizlaHighway (Z8034)	
5.	Reference No	35.01.0000.152.14.058.24-582	
6.	Date	27 October 2024	
KEY INFORMATION			
7.	Procurement Method	Quality and Cost Based Selection (QCBS) (International Competitive Bidding)	
FUNDING INFORMATION			
8.	Budget and Source of Funds	Development Budget of the Government of Bangladesh	
9.	Development Partners	Not applicable	
PARTICULAR INFORMATION			
10.	Project Name	Construction of the Mirganj Bridge over the Arial Kha River at 8th kilometer on Rahmatpur-Babuganj-Muladi-HizlaHighway (Z8034)	
11.	Package No	PD/Mirganj/SP02	
		Date	Time
12.	EOI submission Closing Date and Time	28 November 2024	1400 hrs. (Bangladesh Standard Time)
13.	EOI Opening Date and Time	28 November 2024	1400 hrs. (Bangladesh Standard Time)
14.	Name & Address of the office(s) receiving of the EOI	Mr. Abdur Rahman Kaoser Office of the Project Director (Superintending Engineer, RHD) Construction of the Mirganj Bridge over the Arial Khan river at 8th km on Rahmatpur-Babuganj-Muladi-Hizla Highways (Z8034) Room-438, Level-4, Part-C Sarak Bhaban, Tejgaon, Dhaka 1208, Bangladesh Telephone: +88-02-8879337 Mobile No +8801730782559 Email: sebcmc.rhd@gmail.com	
INFORMATION FOR APPLICANT			
15.	Brief Description of Assignment	Government of Bangladesh is going to implement the project titled "Construction of the Mirganj Bridge over the Arial Khan river at 8th km on Rahmatpur-Babuganj-Muladi-HizlaHighway (Z8034)". The Project includes the construction of an extradosed bridge including main bridge, viaduct, approach road, riverbank protection work and other related works through a design-build contract. The Roads and Highways Department (RHD) earlier appointed international consultants for the feasibility study and conceptual design of the proposed 4-lane bridge. Based on the feasibility study report the total length of the project is 5.957 km (approach road: 4,473 meters, main bridge: 544 meters and viaduct 940 meters). The main bridge is an Extradosed with single cell box girder. Further, two major junctions are to be developed at the start and end of the project road. Considering the geotechnical condition, the feasibility study recommended large-diameter deeper piles (approximately 2.5 meters diameter and length over100 meters) for the foundations of the main bridge. However, the design will be finalized based on the Contractor's design prepared in compliance with Employer's Requirements and to be checked by a Proof Consultant appointed by RHD. RHD will recruit a Project Implementation Consultant (PIC) primarily for construction supervision. All payments pertaining to the Consultancy Services will be made in Bangladeshi Taka (BDT) only.	

	The main objectives of the Consultant's assignment are as follows. a) To ensure high standards of quality assurance in execution of works and completion of work within stipulated time limit. b) To provide a comprehensive supervision of project implementation activities carried out by the contractor(s) to ensure in compliance with the contract documents. c) To monitor progress of various project activities including safeguard activities to comply with the applicable policy, rules, regulations and guidelines. d) To render administrative, financial, and other services required within the scope of this assignment with due care and diligence and to assist the Project Implementation Unit of RHD in carrying out its duties. The professional input essential for this assignment is of 376 person-months approximately. The assignment for the PIC will span over a period of 48 (forty-eight) months from the date of commencement. The Consultancy Services is expected to commence in April 2025. *The draft Terms of Reference (TOR) can be obtained from www.rhd.portal.gov.bd or by applying to the Project Director by email at ee1.bcmd.rhd@gmail.com.*
16. Experience, Resources and Delivery Capacity Required	The Roads and Highways Department will short-list the interested consulting firms for the above-mentioned service. The firms should provide information demonstrating that they have the required qualifications and relevant experience to render the services. The key qualifications and experiences of the Consulting firms required are as follows: a. General Experience: At least 10 (ten) years overall experiences in Road/ Bridge/ Expressway construction supervision project; b. Construction supervision of pre-stressed concrete or steel girder bridge over perennial river/sea/creek. Experience of construction supervision of Extradosed/Suspension/Cable-stayed Bridge; c. Experience of construction supervision of foundations of long span bridges in river involving large diameter long piles; d. Design/Design review of similar type of bridge projectcompleted in the last 10 years; e. Experience in FIDIC type contract management in highway/bridge project; f. Experience of Design-build/EPC type contract management in highway/bridge project; g. Details of work experience in similar geographic area (South-Asia).
17. Other Details	The EoI should especially include (along with certified English Translation if not English). a. The firm's updated registration certificate, Legal Entitlements of the Firm (Trade License, TIN, VAT, Registration, etc.); b. Company profile: including management, personnel (especially key personnel regarding consultancy services), firm's specialty, performance; c. The latest annual report; d. General and overall experience of firm(s) (limited to 5 pages); e. Experience of similar nature of services in last 10 years including procuring entity's name, nature of services, contract amount, person-months, duration of the services with commencement and completion date; f. Summary of permanent professional employees with key qualifications; g. Audited financial statement (Balance sheet, Profit & Loss Account and Cash Flow Statement) for last 3 (three) years; and h. Average annual turnover in last 3 (three) years. Consultants will be selected under Quality and Cost Based Selection (QCBS) Method in accordance with the procedures set out in the Public Procurement Rules, 2008 (PPR 2008) considering all subsequent amendments.

	With all supporting documents, the EoI Application must be submitted to the signatory address at or before 1400 hrs. **Bangladesh Standard Time (BST)** on **28th November 2024 (Thursday)** in sealed envelopes (One original and One copy) marked with **"Request for Expressions of Interest (EoI) for Project Implementation Consultancy Service for Construction of the Mirganj Bridge over the Arial Kha River at 8thkilometer on Rahmatpur-Babuganj-Muladi-Hizla Highway (Z8034)"**. Any late submission will be rejected. The Procuring Entity shall not be responsible for any costs or expenses incurred bythe firm(s) in connection with the preparation or submission of the EoI. The Procuring Entity reserves the right to accept or reject all the Expressions of Interest (EoI) without assigning any reason. Interested applicants may obtain further information by applying to the undersigned during normal office hour or through email.

27.10.2024

Abdur Rahman Kaoser
ID No.: 601960
Project Director (SE, RHD)
Construction of the Mirganj Bridge over the Arial Kha River at 8th kilometer on Rahmatpur-Babuganj-Muladi-HizlaHighway (Z8034)
Room-438, Level-4, Block-C
Sarak Bhaban, Tejgaon I/A, Dhaka-1208, Bangladesh
E-mail: sebcmc.rhd@gmail.com

Copy for kind information and necessary action:

1. Senior Secretary, Road Transport and Highways Division, Bangladesh Secretariate, Dhaka (*Attention: Senior System Analyst, ICT unit, RTHD with request to take necessary action to publish the IFP Notice in RTHD website*)
2. Chief Engineer, Roads and Highways Department, Sarak Bhaban, Tejgaon, Dhaka
3. Chief Executive Officer, Bangladesh Public Procurement Authority (BPPA), IMED, Ministry of Planning, Agargaon,Sher-E-Bangla Nagar, Dhaka (*with request to take necessary action to publish the IFP Notice in BPPA website*)
4. Additional Chief Engineer, RHD, Management Services Wing, Sarak Bhaban, Tejgaon, Dhaka
5. Additional Chief Engineer, RHD, Bridge Management Wing, Sarak Bhaban, Tejgaon, Dhaka and Project Coordinator, Construction of the Mirganj Bridge over the Arial Khan River at 8th kilometer on Rahmatpur-Babuganj-Muladi-HizlaHighway (Z8034)
6. Additional Chief Engineer, RHD, Barishal Zone, Amtoli, Barishal.
7. Senior System Analist, RHD, Management Information Cell, Sarak Bhaban, Tejgaon, Dhaka (*with request to take necessary action to publish in RHD website*)
8. Chief Account and Finance Officer, Ministry of Road Transport and Bridges, C.G.A Bhaban, Shegun Bagicha, Dhaka
9. Executive Engineer, RHD, Bridge Construction and Maintenance Division-l, Sarak Bhaban, Tejgaon, Dhaka
10. Office Copy

Draft Terms of Reference

for

Project Implementation Consultancy (PIC) Services

for

Construction of the Mirganj Bridge over the Arial Kha River at 8th kilometer of Rahmatpur-Babuganj-Muladi-Hizla Highway (Z8034)

(This Terms of Reference is a draft one, for the understanding of the project scope. The Client reserves the right to change/modify the ToR at any time.)

1. Background

The Government of Bangladesh has given an importance on replacing ferry crossings by bridges to ensure an uninterrupted and reliable road communication. In national and regional highways most of the bridges have been constructed on the river gaps. In Zilla/regional road alignments a number of bridges are yet to be constructed. The proposed Mirganj Bridge over the Arial Kha River at 8thkilometer of Rahmatpur-Babuganj-Muladi-Hizla highway (Z8034) will connect three upazilla of the Barishal district, namely Muladi, Hizla and Mehendiganj with Barishal district, the divisional headquarter. Presently ferry service provides the connectivity of this corridor, which is highly unreliable in natural hazards like flood and cyclone.

Rahmatpur-Babuganj-Muladi-Hizla Highway (Z8034) is a Zillaroad under the jurisdiction of the Roads and Highways Department (RHD) having a total length of 35.0 km. Moreover, Z8034 connects with Dhaka-Mawa-Bhanga-Barishal-Patuakhali (N8) corridor which connects people of these three upazillas with rest of the country.

Focusing to grow economically, Bangladesh is experiencing overwhelmed development in transportation infrastructures. Improvement of highways and bridges paved the way to continue the sustained growth of GDP and per capita income. The construction of the bridge will connect Hizla, Muladi and Mehendiganj, which are remotest upazillas of Barishal division, to the main road network of Bangladesh. The project titled "Construction of the Mirganj Bridge over the Arial Kha River at 8thkilometer of Rahmatpur-Babuganj-Muladi-Hizla Highway (Z8034)" was approved for implementation by the Executive Committee on National Economic Council (ECNEC)on 31 October 2023.

The Roads and Highways Department (RHD) ofthe Road Transport and Highways Division of the Ministry of Road Transport and Bridges will implement the project with the financing of the Government of Bangladesh. The scope of civil works under the investment program includes the construction of about 1,484 meter of Mirganj Bridge as well as 4.673 kilometer of approach road through a design-built contract. Width of the carriageway should be 19.85 meters including footpaths at both sides. The river belongs to BIWTA navigational class I with a standard high water level 2.97 meters PWD.The height of air funnel restriction imposed by the Civil Aviation Authority will govern the height of any pylon to be constructed for the bridge.

The bridge will be subject to tolling, hence a computerized toll collection system and related electrical and mechanical works will also be constructed. Moreover, a Smart Bridge Health Monitoring System with the state of the art technologies will be installed for the real-time structural health monitoring solution of this critical infrastructure.

The Detailed Feasibility Study and Concept Design of the project have already been done by RHD. This draft Terms of Reference (TOR) for the Project Implementation Consultancy Services (PIC) are in regard to procure the PIC Services for this project. All the expenses regarding the PIC services will be carried out from the development budget of the Government of Bangladesh. The currency of all payment will be Bangladeshi Taka (BDT).

2. Location

The proposed Mirganj Bridge will be constructed over the river Arial Kha, at 8thkm of Rahmatpur-Babuganj-Muladi-Hizla highway (Z8034). Babuganj Upazilla is situated on the left bank and Muladi Upazilla is situated on the right bank of theArial Kha River respectively (Annexure-A: Location Map).

3. Objectives and purpose of the assignment

The main objectives of the Consultant's assignment are as follows.

a) To ensure high standards of quality assurance in execution of works and completion of work within stipulated time limit.
b) To provide comprehensive supervision of project implementation activities carried out by the contractor(s) to ensure compliance according to the contract documents.
c) To Assist RHD and LA implementation agency to implement LA and ensure the compensation payment is done.
d) To monitor progress of various project activities including safeguard activities to comply with the applicable policy, rules, regulations and guidelines of appropriate authorities.
e) To render administrative, financial, and other services required within the scope of this assignment with due care and diligence and to assist relevant RHD officials in carrying out their duties.

4. Scope

4.1 These Terms of Reference (the "TOR") for the Consultantare being specified, in relation to the Construction Contract GCC Clauses/Subclauses (the "Agreement"), to be entered into By and Between the Chief Engineer, Roadsand Highways Department, Ministry of Road Transport and Bridge, Government of Bangladesh (the "Employer") and the selected Contracting Firm (the "Contractor") for construction supervision for a bridge approximately 1,484 m (Main bridge-544 m Cable stayed extradosed +viaduct-940 m PC Girder) long, comprising standard multilane dual carriageway with pedestrian walkway on both side.

4.2 After signing the contract the design of the awarded Contractor will be checked by an independent proof checking Consultant. However, the PIC will review and modify, if necessary, the design of the approach including other road related works and the design of bank protection works prepared as per tender design.

4.3 The major project components are shown in brief in Table 1.

Table 1: Project components

No.	Description	Unit	Quantity (Approx.)
1.	Mirganj Bridge over the Arial Kha River	Meter	1484.00
2.	Land Acquisition and Compensation	Ha	21.55
3.	River-bank protection works (RTW)	Meter	460.00
4.	Rigid pavement (Approach Road)	Meter	500
5.	Flexible pavement (Approach Road)	Meter	4173
6.	Smart Bridge Health Monitoring system	LS.	1
7.	Toll plaza (computerized toll collection system)	Nos.	1
9.	Mechanical and Electrical works	LS	1
10.	Ancillary works (protective works, intersections, landscaping, Bus-bay, Road divider, Drain, Turfing, Sign-Signal, Km post, Road marking, Rumble strips, road safety design, electrification and lightening, pedestrian stair etc.)	LS	1
11.	Institutional capacity development of RHD engineers	L.S	1

* The table showing the basic components of the project and the length has been estimated primarily based onthe Feasibility Study Report. But the items and its actual quantitiesmight be varied based on the site condition which will be deemed practicable for the best engineering aspects.

The activity of the civil works will involve the following proposed implementation schedule:

Table 2: Timeline of the Project

Key Activities	Tentative Date	Duration in Months
Commencement of Civil Works	1 January 2025	36 Months
End of Civil Works	31 December 2027	
Defects Liability (Notification) Period	1 January 2028-31 December 2028	12 Months
End of Consulting Services	31 December 2028	-

Accordingly, the consultancy services involve the following tasks:

A. Task 1: Design Review of Road Works, River Bank Protection Works and Other Related Works: The Consultant will review the bridge approach with embankment and pavement design, river bank protection works design, bridge electric-mechanical design, design of ancillary structures along with safety features etc.

B. Task 2: Construction Supervision of Bridge/Road Works: The Consultant will (i) provide supervision and monitoring of construction works including administrative, financial and other services required within the scope of the assignment with due care and diligence and to assist relevant RHD officials in carrying out their duties, including preparation of progress and other reports, preparation of quality check for both constructionand all maintenance during construction works and supervision of construction inspection forms, monitoring of implementation of environmental management and social action plan, preparation of payment certificates, preliminary and final hand-over certificates including contract closing activities; (ii) provide other supports upon RHD's request. In addition to the above services, the Consultant will undertake maintenance quality checks for all maintenance during construction works

C. Task 3: Monitoring and Reporting of the Land acquisition, Compensation and utility shifting: The Consultant provide support to the PIU and LA agency in land acquisition and utility shifting required for the project.

D. Task 4: Monitoring and Reporting of the implementation of EMP and OHSP: The Consultant will carry out monitoring according to the approved Environmental Management Plan and Occupational Health and Safety Plan. The Consultant will prepare the periodical monitoring reports to the PIU as specified in the Description of the Services/Terms of Reference.

4.4 Implementation Arrangements: The Ministry of Road Transport and Bridge (MoRTB) is the oversight body, and the Roads and Highways Department (RHD) is the executing agency (the Client). The consultant will also coordinate with other concerned government agencies and local authorities, with the assistance of RHD, for carrying out selected activities of the assignment. The Client reserves the right to request the consultant to replace the expert(s) with poor performance, and/or to terminate the contract and recruit new consultant for completing the balance works under the assignment. In addition, the RHD will assign its technical units (i.e., Technical Services Wing, Bridge Management Wing, Planning and Maintenance Wing etc.) to review the consultant's reports and provide technical guidance as required. The Bridge Construction and Maintenance Circle of Bridge Management Wing under RHD will act as Project Implementation Unit (PIU). The PIU will coordinate and communicate the review comments to the consultant and will provide necessary guidance from time to time.

4.5 Definitions and Interpretation

4.5.1 The words and expressions beginning with or in capital letters used and not defined here in the shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.

4.5.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.

4.5.3 The rules of interpretation stated in Sub clauses of the Agreement shall apply, mutatis mutandis, to this TOR.

5. Detailed Tasks of the Assignment

The PIC Services are intended for the overall supervision of the Construction works to ensure full compliance with the approved specification and standard of the civil works contract.The consultant will carry out the following tasks regarding site supervision, quality assurance, environmental management and monitoring, toll collection activities, operation & maintenance etc. in project implementation phase.

5.1 General

5.1.1The Consultant shall function on behalf of the Engineer (the Project Director) appointed by the Client/Employer as "the Engineer's Representative (ER)" of the project to be implemented as "Design-Build" Contract. The Consultant shall perform his duties in accordance with acceptable criteria and standards applicable for the civil works and shall exercise the power vested on him as the Engineer's Representative under the conditions of contract existed between Roads and Highways Department and the Contractor.

The term "Engineer's Representative" shall mean the Consultant's Team Leader or any other person appointed by the Project Director designated by the Chief Engineer of RHD and notified in writing to the Contractor to act in replacement of the Engineer's Representative for the purpose of completing the project.

As the Engineer's Representative the Consultant's nominated Team Leader will lead the Project Implementation Consultancy Services for the civil works contract and ensure that the works are carried out in accordance with the construction contract provisions. The Consultant will have all the powers, as belonging to the Engineer's Representative, with the exception of the following, which will be retained and exercised by the Employer'sappointed Engineer, generally on the advice of the Consultant's Team Leader.

i. Issuance of the order to commence the works;
ii. Approving variation orders which has financial implications;
iii. Approving significant variation in quantities;
iv. Approving sub-letting any parts of works;
v. Approving extension of times

5.1.2 The Consultant shall perform the duties in accordance with the provisions of the agreement in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and good industry practice.

5.1.3 The Consultant shall submit regular periodic reports comprising physical progress, financial progress of work, status of Environmental Management Plan (EMP), status of land acquisition and compensation, utility shifting etc., to the Employer under the Agreement. Such reports should preferably be submitted by the Consultant within 7 (seven) days of the beginning of every month.

5.1.4 The Consultant shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified personnel: provided however, that it shall not delegate the authority to refer any matter for the Employer's prior approval in accordance with the provisions of Construction Contract.

5.1.5 The Consultant shall aid and advise the Employer on any proposal for Variation under the provisions of Construction Contract.

5.1.6 In the event of any disagreement between the Parties regarding the meaning, scope and nature of good industry practice, as set forth in any provision of the Agreement, the Consultant shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

5.2. Construction Period

5.2.1 Review

5.2.1.1 During the Construction Period, the Consultant shall undertake a detailed reviewof the Drawings furnished by the Contractor along with supporting data, including the socio-economic condition of the area, geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys and traffic surveys, in consultation with the Engineer. The Consultant shall review the bridge approach with embankment and pavement design, river bank protection works design, bridge electric-mechanical design, design of ancillary structures along with safety features etc.The Consultant shall complete such review and send its comments/observations to the Engineerand the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of the main bridge, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.

5.2.1.2 The Consultant shall review any modified Drawings or supporting documents and furnish its comments within 10 (ten) days of receiving such Drawings or Documents to the Engineer.

5.2.1.3 The Consultant shall establish a documented Quality System and Procedure. In order to implement Quality Assurance on the consultancyservices, and the Contractor's Quality Systems the Engineer's Representative will be required to report periodically to the RHD on the implementation of the Quality Control and Quality Assurance procedure. The Consultant shallreview the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Engineer within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.

5.2.1.4 The Consultant shall complete the review of the methodology proposed to be adopted by the Contractor in relation to the required rate of works in order to expedite progress andassessthe adequacy of all input such as material and labor provided by the Contractor. The Consultant should convey its comments to the Engineer within a period of 7(seven) days from the date of receipt of the proposed methodology from the Contractor.

5.2.1.5 In case of any unforeseen technical difficulty to carry out the construction work as planned, the Consultant will review the modified design drawings proposed by the Contractor and take necessary measures to reach a consensus on technical solution.

5.2.1.6 The Consultant will establish the contract management system for all necessary measurements and control the quality of works and advise the Engineer in making decisions for the successful and timely implementation of the construction contract.

5.2.1.7 The Consultant will prepare/review the detail work plan/program and implementation schedules for the project to ensure effective monitoring and timely project outputs and recommend for approval of the Engineer. They will also prepare and submit a disbursement schedule to the RHD.

5.2.1.8 The Consultant shall collect baseline survey data based on the indicators in the project design and monitoring framework; and measure the indicators overtime during the assignment period. Design a simple MS Excel sheet or similar system for recording the baseline and periodic data.

5.2.1.9 The Consultant shall prepare a Project Performance Management System.

5.2.1.10 The Consultant shall review the Contractor's traffic management plan and advice the Engineer on the best way for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Road for purposes of maintenance during the Construction Period.

5.2.1.11 The Consultant shall review and furnish comments on the monthly progress report prepared by the Contractor and send its comments thereon to the Employer and the Contractor within 7 (seven) days of receipt of such report.

5.2.1.12 The Consultant shall Check and certify as-built drawings submitted by the Contractor.

5.2.1.13 The Consultant will arrange the progress review meetings where they will present the progress and issues of the project.

5.2.1.14 The Consultant will develop stakeholder Matrix for land acquisition and arrange regular stakeholder meetings in consultation with Engineer.

5.2.2 Supervision

5.2.2.1 The Consultant shall provide effective and regular supervision of the works and quality control tests to assure that the works are executed in accordance with established standard, criteria, specifications and procedures. To place required number of Engineer's staff at site at all times when the Contractor is working to supervise the works, and/or materials as required.

5.2.2.2 The Consultant shall measure and compute quantities of approved and accepted works and materials. The Consultant should check, certify and make recommendation to RHD on the Contractor's interim and final payment certificates.

5.2.2.3 The Consultant shall assess the adequacy of the materials testing laboratory provided by the Contractor and order special tests for material or completed works, and/or instruct removal and substitution of improper works, structures and/or materials as required.

5.2.2.4 The Consultant shall perform Quality Assurance Audit of the Contractor's quality and safety systems.

5.2.2.5 The Consultant shall control and appraise the progress of works, to order suspension of the works being authorized with RHD's approval, shall assess and suggest extensions of the period for completion of the works if required.

5.2.2.6 The Consultant shall verify the Contractor's surveys, setting out and site investigation works.

5.2.2.7 The Consultant will advise the Employer to prioritize any work which is urgently required for safety of the Project, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions shall apply.

5.2.2.8 The Consultant is to assure the receipts of and maintain all warrants for materials and equipment accepted and incorporated in the project as required under the Terms of Contract of civil works.

5.2.2.9 The Consultant shallensure that the construction works are carried out in complete compliance with the environmental and social policy of the Government of Bangladesh.Specifically the consultant will be responsible for the following safeguard tasks:

a. Acquire and renew the environmental clearance from the Department of Environment (DoE), including coordination with DoE for assisting their periodic site visit as per requirement of DoE clearance certificate;
b. Supervise the Contractor to prepare the Contractor's Environmental and Social Management Plan in accordance with the project EMAP and the environmental clearance issued by the DoE;
c. Review the Occupational Health and Safety Management (OHSM) Manual submitted by the Contractor and supervise the implementation of all Occupational Health and Safety Management related measures accordingly;
d. Support PIU in getting all national permits prior to the construction and then ensure;
e. Review and cross check to ensure the work schedule compatible with the progress of land acquisition, environmental clearance and other associated safeguard implementation;
f. Conduct inspection of contractor's construction equipment, and safety of the works, property, personnel and general public;
g. In case of accidents/incidents during the construction, assist the PIU to lead the root cause analysis and prepare the accident/incident reports;
h. Implement environmental and social training and capacity building plan defined in the project EMP;

5.2.2.10 The Consultant shall inspect the Construction Works and the Project every day as and when required and make out a monthly report of such inspection (the "Monthly Report"). Moreover the Consultant shall inspect and evaluate all Contractor's installations, site offices, yards, warehouses and other temporary works at the site or elsewhere to ensure compliance with the terms and conditions of the contract documents.The Consultant will be well aware of the material flow in the project site and stack yard. Periodic stock checking should be done.

5.2.2.11 The Monthly Report will encompass an overview of the status, progress, quality and safety of construction, including the work methodology adopted, the materials used and their sources, and conformity of Construction Works with the scope of the Project and the Specifications and Standards.

5.2.2.12 In a separate section of the Monthly Report, the Consultant shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project. The report shall also contain a review of the maintenance of the existing lanes in conformity with the provisions of the Agreement. The Consultant shall send a copy of its Monthly Report to the Engineer, the Employer (Chief Engineer) and the Contractor within 7 (seven) days of succeeding month.

5.2.2.13 The Consultant shall conduct the pre-construction review of manufacturer's reports and standard samples of manufactured materials, adequacy of the construction equipment and labor.

5.2.2.14 The Consultant is to observe and monitor all project interfaces with Public bodies, utilities and private organizations.

5.2.2.15 The Consultant shall aid and advise the Employer/Contractor in the preparation of monthly progress report and carry out a joint monthly inspection with Contractor.

5.2.2.16 The Consultant shall undertake regular inspections, at least once every week to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Employer and the Contractor.

5.2.2.17 The Consultant shall propose and present to the Engineer for approval in any change in plans deemed necessary for the completion of the works including information on completion of the Project. The Consultant is to prepare all necessary change orders including altering plans and specifications and other details. To inform RHD of any problems or potential problems, which may arise in connection with the Contract of civil works and to make recommendation to RHD for possible solutions.

5.2.3 Tests

5.2.3.1 For determination that the Construction Works conform to Specifications and Standards, the Consultant shall require the Contractor to carry out, or cause to be carried out, tests on a sample basis, to be specified by the Consultant in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph, the tests specified in the Specifications for Road and Bridge Works, the Quality Control Manuals or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance. The Consultant shall issue necessary directions to the Contractor for ensuring that the tests are conducted in a fair and efficient manner, and shall monitor and review the results thereof.

5.2.3.2 The Consultant (Team Leader) shall test check at least 5 (five) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor and such reports shall be submitted to the Employer periodically.

5.2.3.3 The timing of tests and the criteria for acceptance/rejection of their results shall be determined by the Consultant in accordance with the Quality Control Manuals.

5.2.3.4 The Consultant will access the adequacy of the laboratory set-up by the Contractor and also ensure that all equipment, machines, materials and safety gears are calibrated and in good working condition.

5.2.3.5 In the event results of any tests conducted establish any Defects or deficiencies in the Works, the Consultant shall advise the Engineeron remedial measures.

5.2.3.6 The Consultant shall carry out, or cause to be carried out, all the Tests specified in Agreement such as load test and issue a Taking over Certificate. The Consultant should ensure the bridge and other structures are to be accounted for in the Bridge Management System Database.

5.2.3.7 The Consultant shall obtain from the Contractor a copy of all the Contractor's Quality Control records and documents before the tests on Completion be carried out.

5.2.4 Payment and others

5.2.4.1 In the event that the Contractor fails to achieve any of the Project Milestones, the Consultant shall undertake a review of the progress of construction and identify potential delays, if any. If the Consultant shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen)days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Consultant shall review the same and send its comments to the Employer and the Contractor forthwith.

5.2.4.2 The Consultant shallmeasure and compute quantities of approved and accepted works and materials. The Consultant is to check, certify and make recommendation to RHD on the Contractor's Interim and final payment certificates.

5.2.4.3 The Consultant may recommend the Employer for suspension of the whole or part of the Works if the work threatens the safety of the users and pedestrians. After the Contractor has carried out remedial measure, the Consultant shall inspect such remedial measures forthwith and make a report to the Engineer recommending whether the suspension hereunder may be revoked.

5.2.4.4 In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and users, and required the Consultant to inspect such works, the Consultant shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Employer forthwith, recommending whether such suspension may be revoked by the Employer.

5.2.4.5 The Consultant shall propose and present to RHD for approval in any change in plans deemed necessary for the completion of the works, including information on completion of the Project.

5.2.5 Variations

5.2.5.1 The Consultant is to examine and make recommendation to the Engineer on all claims from the Contractor for the time extension, extra compensation, for works or expense or other relevant matters.

5.3 DefectsNotification (Liability) Period

5.3.1 The Consultant shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Bridge and Approach Road is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and remedial measures, if any, taken by the Contractor in this behalf.

5.3.2The Consultant will carry out inspection of defects and control of punch-lists. In respect of any defect or deficiency, the Consultant shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

5.3.3 The Consultant shall examine the request of the Contractor for closure of any lane(s) of the Project Road for undertakings maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Consultant shall monitor the re-opening of such lane(s).

5.3.4 The Consultant shall carry out the necessary inspection, specify and supervise any remedial works to be carried out and when completed, recommend the Client/Employer/Engineer to finalize the inspection and acceptance of the project. The Consultant is to prepare all necessary close-out documentation such as, completion certificate, taking over certificate, defect liability certificate and project completion report.

5.3.5The Consultant shall periodically review the Quality Control & Assurance Records, tests & reports, including spot checks, and ensure that the plan is being properly implemented and the discrepancies have been corrected. The Consultant shall bring any serious discrepancies to the notice of the RHD.

5.3.6The Consultant shall assist the Engineer in negotiation to settle final account.

5.4Determination of costs and time

5.4.1 The Consultant will carry out closing activities including dispute/claim resolution/arbitration if any.

5.4.2 The Consultant shall assist the Engineer in determining the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.

5.4.3 The Consultant shall assist the Engineer indeterminingthe period, or any extension thereof, that is required to be determined by it under the Agreement.

5.5 Payments

5.5.1 The Consultant shall recommend withholding payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Consultant in accordance with the provision of the Agreement.

5.5.2 The Consultant shall after receipt of the Interim Payment Statement /Statement at Completion and Final payment Statement from the Contractor in pursuant to agreementto determine the amount due to the Contractor and issue certificate to the release of the amount within the period specified in the Agreement.

5.6 Other duties and functions

5.6.1 The Consultant shall perform all other duties and functions specified in the Agreement.For carrying out its functions and all matters incidental thereto, the Consultant shall act under and in accordance with the provisions of the construction contract Agreement.

5.7. Miscellaneous

5.7.1 The Consultant is to perform any other duties not specifically mentioned above but which are necessary and essential for successful supervision and control of the construction activities in accordance with the plans, specifications and Terms of Contract. The Consultant's responsibility for the assignment shall remain valid until the issuance of the Certificate of Completion by the RHD.

5.7.2 A copy of all communications, comments, instructions, Drawings or Documents sent by the Consultant to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Consultant thereon, shall be furnished by the Consultant to the Employer forthwith.

5.7.3 The Consultant shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.

5.7.4The Consultant will propose the manning schedule/deployment plan to the Client with a focus to optimizing the person month in accordance to the civil works plan.Mobilizing and demobilizing any PIC team member will be based on the approval of the Client.

5.7.5 The Consultant, if called upon by the Employer or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.

5.7.6 The Consultant shall inform the Employer and the Contractor of any event of Contractor's Default within one week of its occurrence.

5.7.7 Prepare and submit reports to RHD, which are detailed in Section 7.

5.7.8 The Consultant will ensure retaining its staff during the project. In case of inevitable case, information should reach RHD with proper documentation in advance.

5.7.9 Laws, rules and regulations of Bangladesh will be applied to the all personal working in PIC team.

5.8 Toll-Related Activities

5.8.1 It is proposed that users of the bridge will be charged a toll and hence appropriate toll collection facilities will be required. Such facilities as designed and constructed by the Contractor will be used to collect tolls and pay for the operation & maintenances of the bridge.The Consultant will be responsible for:

i) Determining realistic O&M cost for the bridge and related works;
ii) Reviewing the level of bridge toll in Bangladesh & proposing appropriate tariffs;
iii) Advising RHD on the appropriate toll-system including ETC and on the contracting out of toll collection.

5.9 Operation and Maintenance (O&M)

The Consultant will assist RHD in the management & the coordination of the taking over and successful start of Operation and Maintenance of the project by the way of:

a) reviewing and acknowledging operation and maintenance manuals of the bridge with approach road submitted by the Contractor;
b) establishing and defining an overall operation and maintenance program by the Contractor;
c) reviewing as-built drawings prepared by the Contractor;
d) preparing a training program in consultation with RHD for RHD and other concerned officials regarding O&M activities of the extra-dosed bridge, Bridge Health Monitoring System and operation of the tolling system.

5.10 Beautification of the Bridge and Approach Road

Consultants are to supervise the beautification work of the Bridge and Approach Road. They may propose and modify the beautification plan for further improvement under contract provision.

6 Consultant's Inputs

6.1 The assignment will be carried out over a period of Forty-Eight (48) months from the date of commencement. The assignment will be implemented by a consulting firm. It is anticipated that approximately 496person-months of input by 13Key-Expertsand 11Non-Key Experts, but the consultant may suggest alternative staffing arrangement required to complete the assignment as described in TOR, and to meet the output and reporting requirements in the TOR. The Consultants will also provide such support staff and other resources necessary to undertake the assignment. Consultants are to base their proposals on the inputs which are for all components of the assignment. Staff Classification and man-month inputs are to be adopted without significant change from the list given in below.

Table 3: Experience and Man-month requirement for the PIC services

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
Key Expert (KE)				
KE01	Team Leader/ Sr. Bridge Engineer	• Bachelor's degree in Civil engineering, post-graduate degree preferred. • Min. 25 years of professional experience • Min. 15 years' experience in planning, design &/or construction supervision of highway and bridge projects in ICB contract. • Minimum 5 years' experience as Team leader in similar bridge projects in EPC/Design-Build contract. • Experience in Extra-dosed bridge design preferred. • Must have work experience in similar kind and size of project	1	30
KE02	Senior Bridge Engineer (Extradosed Bridge)	• Bachelor's degree in civil engineering, post-graduate degree preferred. • Min.18 years of professional experience • Min.12 years of experience as bridge design specialist/ design engineer in ICB/EPC/Design-Build contract. • Experience of one Extra-dosed bridge not less than 500m	1	24
KE03	SeniorGeotechnical/Foundation Engineer	• Bachelor's degree in Civil/Geotechnical engineering, post- graduate degree preferred. • Min. 18 years of professional experience in related field. • Min.12 years of design experience as Geotechnical/ foundation engineer in highways	1	18

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		and bridge projects.		
KE04	Sr. Hydraulic/ River Training Engineer	• Bachelor's degree in Civil engineering/Water resource engineering, post- graduate degree preferred. • Min.12 years of experience professional experience in related field. • Min.8 years of design experience in hydraulic/River training and protective works in similar bridge project	1	12
KE05	Sr. Highway Engineer	• Bachelor's degree in Civil or material engineering, post graduate degree preferred. • Min.12 years of professional experience • Min. 8 years of design experience in highway design and maintenance • Experience in road safety aspects in road and bridge projects	1	6
KE06	Sr. Pavement Engineer	• Bachelor's degree in Civil or material engineering, post graduate degree preferred. • Min.15 years of professional experience • Min. 12 years of design experience in road pavement design and maintenance	1	12
KE07	Sr. Contract/ Procurement Specialist	• Bachelor's degree in Civil engineering/ Construction science, post-graduate degree preferred. • Min. 20 years of professional experience in related field. • Min.15 years' experience in contract administration in highway/bridge project in ICB and EPC contract. • Must have work experience in similar kind and size of project is preferred	1	24
KE08	Sr. Material and Quality Control Specialist	• Bachelor's degree in Civil or material engineering, post graduate degree preferred. • Min.15 years of professional experience • Min. 12 years of implementation experience in similar kind and size of road/bridge project	1	12
KE09	Deputy Team Leader	• Bachelor's degree in Civil engineering, post-graduate degree preferred. • Min. 20 years of professional experience • Min. 15 years' experience in planning, design &/or construction supervision of highway and bridge projects in ICB contract. • Minimum 5 years' experience as Deputy Team leader in similar bridge projects. • Experience in Extra-dosed bridge design preferred. • Must have work experience in similar kind and size of project	1	30
KE10	Bridge Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred. • Min.10 years of professional experience • Min.8 years of experience as bridge design specialist/ design engineer in ICB/EPC/Design-Build contract. • Experience of one Extra-dosed bridge not less than 500m	1	30
KE11	Foundation/ Geotechnical Engineer	• Bachelor's degree in Civil/Geotechnical engineering • Min. 10 years of professional experience in	1	24

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		related field • Min. 8 years of design experience as Geotechnical/ foundation engineer in highways/bridge projects		
KE12	Contract Specialist	• Bachelor's degree in Civil engineering/construction science, post-graduate degree preferred. • Min.15 years of professional experience in related field. • Min.10 years' experience in contract administration in highway/bridge project	1	24
KE13	HighwayEngineer	• Bachelor's degree in Civil or material engineering, post graduate degree preferred • Min.10 years of professional experience • Min. 8 years of design experience in highway design and maintenance • Experience in road safety aspects in road and bridge projects	1	12
		Sub-Total (Key Experts)	**13**	**258**
Non-Key Experts (NKE)				
NKE1	Environmental Engineer	• Bachelor's Degree in Environmental Engineering /Environmental Science/Environmental Management or relevant subject. Post Graduate Degree is Preferred • Min.15 years of professional experience in related field • Min.10 years of experience as Environmental Engineer for similar bridge/road projects in ICB contract	1	6
NKE2	Electrical Engineer	• Bachelor's degree in EEE. • Min.10 years of professional experience in related field. • Min. 8 years of experience in design and supervision of electrical works in similar bridge/flyover project in ICB contract.	1	4
NKE3	Social Impact Specialist	• Bachelor's degree in social science. Postgraduate preferred. • Min.10 years of professional experience in related field. • Min. 8 years of experience as social impact specialist/sociologist in similar road/bridge projects in ICB contract.	1	6
NKE4	Quantity Surveyor	• Bachelor's degree in Civil engineering. • Min.10 years of professional experience in related field. • Min.8 years in quantity survey, cost estimate and BOQ preparation of road and bridge in ICB contract.	1	30
NKE5	Hydraulic/ River Training Engineer	• Bachelor's degree in civil/water resource engineering. • Min.10 years of professional experience in related field. • Min.8 years of design experience in hydraulic/River training and protective works in similar bridge project in ICB contract.	1	12

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
NKE6	Resident Engineer	• Bachelor's degree in Civil or material engineering, post graduate degree preferred. • Min.10 years of professional experience • Min. 8 years of implementation experience in bridge project	1	30
NKE7	Material and Quality Control Specialist	• Bachelor's degree in Civil or material engineering, post graduate degree preferred. • Min.18 years of professional experience • Min. 12 years of implementation experience in similar kind and size of road/bridge project	1	30
NKE8	Junior Engineer	• Bachelor's degree in Civil engineering. • Min.10 years of professional experience in related field. • Min.8 years of experience as bridge/structural engineer in ICB contract.	2	30 each Total: 60
NKE9	Site Engineer/ Site Inspector	• Bachelor's degree in Civil engineering. • Min.10 years of professional experience in related field. • Min.3 years of experience as bridge/structural engineer in ICB contract.	2	30 each Total: 60
		Sub-Total (Non-Key Expert)	**11**	**238**
		Total (Key and Non-Key Experts)	**24**	**496**

Attendance Management of Consultants: In the attendance sheet which should be provided along with the Consultant's invoice, the local site consultant personnel (consultant & staff) attendance sheet (especially for offices under resident engineer) shall be countersigned by the authorized person determined by the Client. However, Team Leader of the Consultant shall countersign the entire attendance (field and head office) sheet which will be integral part of the Consultant Invoice.

6.2 Expected Time Schedule

The total duration of PIC services will be 48months including 12 months of Defects Notification (Liability) period.

Table 4: Implementation Schedule Expected

Key Activities	Date	Duration (months)
Commencement of Civil works/ PIC Services	December 2024	36
Completion of Civil works (incl DLP)	December 2028	
Conclusion of Consulting services	December 2028	12
	Total =	48

7. Output and Reporting Requirements

7.1. The consultant will submit reports about the activities and outputs carry out activities according to the following time schedule. Adjustments to the outlines may be proposed by the consultant according to the field situation but will be subject to the Employer's approval.

7.2. The consultant will submit all reports/deliverables in English language in both hard and electronic copy along with all raw data. RHD will review the reports and give suggestions and modifications to be incorporated in the final version.

7.3. With the scope of consulting services, the consultant shall prepare and submit reports and documents to RHD as shown in Table 5. The consultant shall provide the hard copy as well as electronic copy of these deliverables.

Table 5: Reports and documents requirements

Category	Type of Deliverables	Timing	No of copies
Project Implementation Phase	Inception Report	Within 2 months of commencement	5
	Progress Report (Monthly)	Every month (4 copies)	192
	Quarterly Progress Report	Every 3 Month (4 copies)	64
	Project Completion Report	At the end of Services	20
Other Reports	Reports	As required or upon request	TBD

7.4. The reports may include the but not limited to following pointers.

Inception Report:

- Initial findings, Identifying constraints,
- Review of approach road, bank protection works and others
- Review of construction material study
- Supervision Methodology
- Proposed Staffing
- Quality Control Procedure Manual
- Safety Procedure Manual
- Sample Output for Monthly and Quarterly Reports
- Format of necessary forms, reports, attendance sheets etc.
- Road Safety Audit Report

Monthly Progress Reports

- Project Summary Section
- Project Performance Monitoring Reports using relevant software like: Microsoft excel/project/primavera or equivalent
- Technical Section
- Safeguard activities i.e., Land acquisition, social, EMP implementation and utility shifting status
- Grievance Redress Mechanism
- Quality Check
- Time Schedule Tracking
- Financial Section and Cash Flow Plan
- Progress Photographs
- Copies of Minutes of Meetings During Month
- Recommendations for Remedial Actions if Applicable
- Equipment and Materials Status

Quarterly Reports

- Global Project Status
- Major Changes
- Main Events
- Consolidated Time Schedule
- Consolidated Project Accounts

Project Completion Report

- Project assessment with the baseline data

- Road Safety Audit report
- Final Environmental report
- Final Accounts
- As-Built Drawing
- Operation and Maintenance Manual

8. In addition to the reports, the consultant should also organize the following training programs for the client.

The services shall include on-job training for the Project related Staff of RHD at the Project site. Workshops or seminars will be arranged for sharing experience/research made by the engineers directly connected to the project. Training will be arranged by the Consultant in oversees countries for which an Implementation Plan shall be prepared by the Consultant with an attempt to accelerate the transfer of technology to the PIU engineers, related officials of the Bridge Management Wing and RHD Engineers. The training program shall include the advanced technology and management system to Bangladeshi Engineers working in the project and other projects related persons as per and approved Implementation Plan. Subject to RHD's approval the training may be sub-contracted to professional training agencies. The Plan should also include the following:

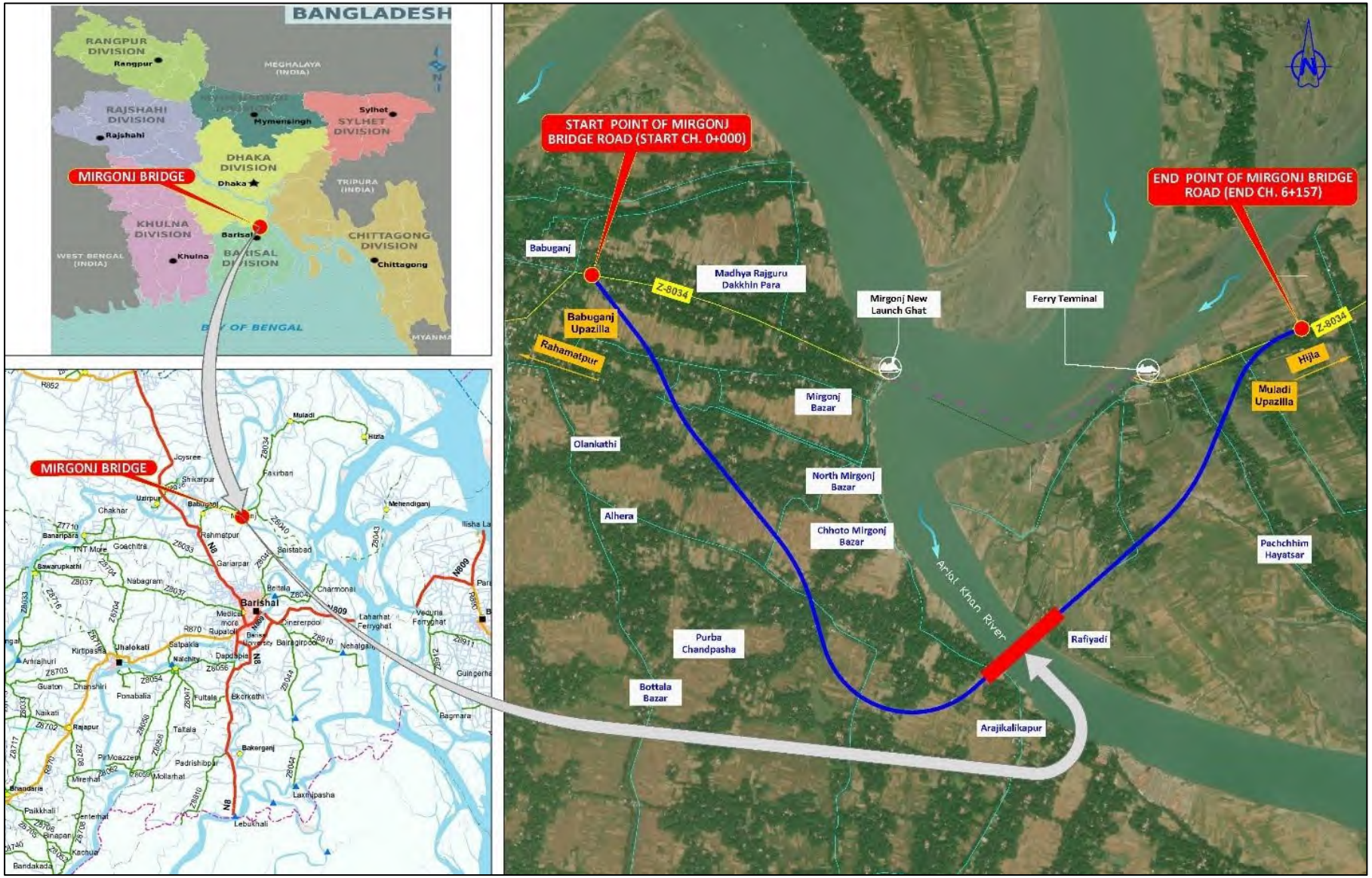
Table 6: Workshops and Trainings

Trainings	Objective	Participate	Timing
1. Domestic training	• Construction management, • Quality management training, • Bridge and road safety and design software, • Sustainable and climate resilient infrastructure construction and management, • Procurement and specification for appointing O&M operator for the Electronic Toll Collection (ETC).	PIU, RHD; BMW officials; RHD officials	Any convenient time within the contract period
2. Overseas Training/Study Tour	Arrange overseas training to visit developed regional countries to orient with the design concepts of infrastructures, planning and formulation of projects, maintenance activities, smart bridge health monitoring system, intelligent transport systems, modern toll collection system, procurement, road safety issues, climate resilient and sustainable infrastructure construction and management etc. (For all Engineers from Project Implementation Unit (PIU) of RHD and other related officials.)	PIU, RHD; BMW officials; RHD officials	Any convenient time within the contract period

9. Payment Schedule

All the Payments in project implementation phase shall be paid monthly as included in the Consultant's Financial Proposal.

10. Client's Input
    1. The client will provide all the data which are available at RHD and will facilitate communicating with the concern offices of RHD.
    2. The client will assign the PIU as counterpart staff for day-to-day project management and facilitation.
    3. Also see Appendix 5, the duties of the Client.

Annexure-A: Location Map

Construction of the Mirganj Bridge over the Arial Kha River at 8th kilometer of Rahmatpur-Babuganj-Muladi-Hizla Highway (Z8034)