

**BIDDING DOCUMENT**  
National Competitive Bidding - NCB  
(Two-Envelope Bidding Process with e-Procurement)



Engineering, Procurement and Construction (EPC)  
Contract  
For  
Renovation and Modernization of Existing  
Navigational Lock at Farakka,  
West Bengal

VOLUME-3

BILL OF QUANTITIES

**RFB: IN-IWAI-425101-CW-RFB**

Issued on 10<sup>th</sup> June 2024

**Employer: Inland Waterways Authority of India,  
Ministry of Shipping, Government of India  
A-13, Sector -1, Noida**

**Country: India**

## Table of Contents

<b>1</b>	<b>SCHEDULE OF PRICES.....</b>	<b>4</b>
1.1	PREAMBLE.....	4
1.1.1	General.....	4
1.2	CURRENCY.....	6
<b>2</b>	<b>BILL OF QUANTITIES.....</b>	<b>7</b>
2.1	BILL NO. 1 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION OF COFFER DAM.....	7
2.2	BILL NO. 2 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION OF DEWATERING.....	8
2.3	BILL NO. 3 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION OF BANK PROTECTION WORKS.....	9
2.4	BILL NO. 4 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION AND TESTINGS OF CAST IN SITU PILES.....	10
2.5	BILL NO. 5 – CIVIL WORKS.....	11
2.5.1	Engineering, Procurement of Materials and Renovation and Modernization of Existing Navigational lock.....	11
2.5.2	Engineering, Procurement of Materials and Construction of Base Slab and Counterfort Retaining wall for New Parking Bay.....	12
2.5.3	Engineering, Procurement of Materials and Renovation and modernization of Control Room Building including local control rooms (4 Nos).....	12
2.5.4	Engineering, Procurement of Materials and construction of Residential Quarters.....	13
2.5.5	Engineering, Procurement of Materials and Renovation and modernization of Electrical Cable Bridge (2 Nos).....	13
2.5.6	Engineering, Procurement of Materials and Dismantling of Concrete/ civil structures.....	14
2.6	BILL NO. 6 - ENGINEERING, PROCUREMENT OF MATERIALS AND RENOVATION OF ANCILLARIES FOR NAVIGATIONAL LOCK.....	15
2.7	BILL NO. 7 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION OF SITE GRADING.....	16
2.8	BILL NO. 8 - GATES.....	17
2.8.1	Engineering, Design, Procurement of Materials, Manufacturing, Supply, Erection, Construction / Installation, Commissioning and Performance Testing of Mitre Gates.....	17
2.8.2	Engineering, Design, Procurement of Materials, Manufacturing, Supply, Erection, Construction / Installation, Commissioning and Performance Testing of Radial Gates.....	17
2.8.3	Engineering, Design, Procurement of Materials, Manufacturing, Supply, Erection, Construction/Installation, Commissioning and Performance Testing of Caisson Gate.....	18
2.8.4	Engineering, Design, Procurement of Materials, Manufacturing, Supply, Erection, Construction / Installation, Commissioning & Performance Testing of Bulkhead Gate.....	18
2.8.5	Engineering, Procurement of Materials and Construction of Hydro Mechanical work/ operating mechanism of Mitre gates.....	18
2.8.6	Engineering, Procurement of Materials and Construction of Hydro Mechanical work/ operating mechanism of Radial gates.....	19
2.8.7	Engineering, Procurement of Materials and Construction of Hydro Mechanical work/ operating mechanism of Bulkhead gates.....	19
2.8.8	Engineering, Procurement of Materials and Construction of Filling / Emptying arrangement/ operating mechanism of Caisson gates.....	20
2.8.9	Engineering, Procurement of Materials and Dismantling and decommissioning of existing Caisson, Mitre, Radial and Bulkhead gates.....	20

2.9	BILL NO. 9 – ELECTRICAL AND CONTROL EQUIPMENTS .....	22
2.9.1	Engineering, Procurement of Materials Manufacturing, Supply, Erection, Construction/ Installation, Commissioning & Performance Testing of Electrical Equipment's .....	22
2.9.2	Engineering, Procurement of Materials and Construction of Firefighting system.....	24
2.10	BILL NO. 10 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION OF ROADS 25	
2.11	BILL NO. 11 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION OF WATER SUPPLY, DRAINAGE, SEWERAGE SYSTEM WORKS AND BOUNDARY WALL.....	26
2.12	BILL NO. 12 - ENGINEERING, PROCUREMENT OF MATERIALS AND INSTALLATION OF MONITORING INSTRUMENTS.....	27
2.13	BILL NO. 13 - ENGINEERING, PROCUREMENT OF MATERIALS AND CONSTRUCTION OF ENVIRONMENTAL MITIGATION MEASURES .....	28
2.14	BILL NO. 14 - DUTIES AND TAXES .....	30
2.15	GRAND SUMMARY.....	31
2.16	SCHEDULE A.....	32
2.16.1	Items of Work* .....	32
2.17	SCHEDULE B.....	33
2.17.1	Format of Monthly RA Bill* .....	33

# 1 SCHEDULE OF PRICES

## 1.1 PREAMBLE

### 1.1.1 General

The following shall be read in conjunction with the Conditions of Contract, Authority's Requirements, Scope of Work, Specifications and drawings for Construction of Navigational lock at Farakka including Material and Workmanship. All Lump Sum prices and units quoted in the Schedule of Prices shall include the following instructions where applicable.

- a) This is an EPC Fixed Price Lump Sum Contract.
- b) Engineering, Procurement & Construction (EPC) as specified in the title of RFB/ bidding documents/ contract, means the Contractor shall be responsible for design, engineering, third party vetting of designs & drawings, procurement, supply, construction, installation, testing & commissioning & trial run of all the civil, electro-mechanical, plumbing, electronics, instrumentation & other allied works/ services (dismantling, renovation, modernization, dewatering etc- as applicable to the specific works/ items) for successful completion of the scope of work/ Employer's requirement & Technical specifications specified in Volume-2 under this contract.
- c) The Schedule of Prices as quoted in Bills shall be the fixed contract price. However, the Contractor is required to furnish **Schedule A** - Items of Work also containing the components of work, their quantities and the unit rate. This schedule will be used only for the purpose of making interim payments. Interim measurements of the work will be made and the Contractor will be paid based on the actual quantities of work executed. The total of such interim payments will be limited to the lump sum price quoted under Bills. Format of monthly bill is enclosed as **Schedule B** for the information of the Contractor and the same format shall be used by the Contractor during execution of the project.
- d) It shall be clearly understood that there shall not be any claim whatsoever by the Contractor on the ground that there are inadequate items of work (work based on quantity and work based on specified items) provided in the Schedule of Prices for pricing by the Contractor.
- e) The whole cost of complying with the provisions of the Tender document shall be included in the items provided in the priced Schedule of Prices and where no

items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the available items of work. The price quoted shall include all costs up to successful completion of Defects Liability Obligations by the Contractor.

- f) The rates and prices tendered by the Contractor in the Schedule of Prices shall, except insofar as it is otherwise provided under the Contract, including but not limited to all Contractor's equipment, labour, supervision, materials, plant, wastage, fuel, erection, maintenance, insurance, profit, overheads, together with all general risks, liabilities and obligations set out or implied in the Tender document including all taxes, duties, fees, royalty and other statutory deductions.
- g) General requirements, directions and descriptions of work and materials, given in the Specifications or Drawings or Conditions of Tender / Contract are not necessarily repeated nor summarized in the Schedule of Prices. Contractor is specifically advised to check and include any other item required for completeness of the total work as per the scope of work and specification and satisfactory performance of the total system.

## 1.2 CURRENCY

All monetary reference in the Price Schedule shall be made only in the currencies quoted and agreed as per the Tender document. Summary of Currencies of Tender for the Whole of Works that is to be included in the Commercial Bid shall be as given below.

	A	B	C	D
<b>Name of Currency</b>	<b>Amount of Currency</b>	<b>Rate of Exchange (Local Currency per unit of foreign (US \$))</b>	<b>Local Currency equivalent C = A x B</b>	<b>Percentage of Tender Price 100 x C _____ Tender Price</b>
Local currency Indian Rupees		1.00		
Foreign Currency (US \$)				
Total			[Tender Price]	100.00

Dated this ..... Day of ..... 2023

Signature.....in the capacity of .....

Duly authorized to sign Tenders for and on behalf .....

..... (IN BLOCK LETTERS)

Address.....Witness.....

.....

Occupation .....

## 2 BILL OF QUANTITIES

### 2.1 BILL NO. 1 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF COFFER DAM

S. No.	Description	Qty.	Unit	Amount
1.1	<b>Coffer Dam</b> Construction and removal of coffer dam including mobilization & demobilization and ready to use as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
1.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 1</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

**2.2 BILL NO. 2 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF DEWATERING**

<b>S. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Amount</b>
2.1	<b>Dewatering</b> Dewatering including mobilization & demobilization and ready to use as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
2.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 2</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**



**2.3 BILL NO. 3 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF BANK PROTECTION WORKS**

S. No.	Description	Qty.	Unit	Amount
3.1	<b>Bank Protection Works</b> Bank Protection works including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
3.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 3</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

**2.4 BILL NO. 4 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF CAST IN SITU PILES**

<b>S. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Amount</b>
4.1	<b>Cast in situ piles</b> Cast in situ piles including mobilization & demobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
4.2	<b>Load Tests</b> Load test of piles including mobilization & demobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
4.3	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 4</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

## 2.5 BILL NO. 5 – CIVIL WORKS

### 2.5.1 Engineering, Procurement and Construction of Existing Navigational lock

S. No.	Description	Qty.	Unit	Amount
5.1.1	<b>Base Slab</b> Renovation and modernization of existing Navigational lock base slab including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
5.1.2	<b>Other Lock Components</b> Renovation and modernization of existing Navigational lock retaining wall, guide walls, approach structures and filling emptying system including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
5.1.3	<b>Embedded Parts</b> Renovation and modernization of existing Navigational lock embedded parts including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects	LS	LS	
5.1.4	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 5.1</b>			

Total Amount in Words.....

### 2.5.2 Engineering, Procurement and Construction of Base Slab and Counterfort Retaining wall for New Parking Bay

S. No.	Description	Qty.	Unit	Amount
5.2.1	<b>Base Slab</b> Construction of RCC Base slab including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
5.2.2	<b>Counterfort Retaining wall</b> Construction of RCC Counterfort Retaining wall including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
5.2.3	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 5.2</b>			

Total Amount in Words.....

### 2.5.3 Engineering, Procurement and Construction of Control Room Building including local control rooms (4 Nos)

S. No.	Description	Qty.	Unit	Amount
5.3.1	<b>Control Room Building</b> Control Room Building Renovation and modernization of existing main control room building along with local control rooms (4 Nos) including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects. .	LS	LS	
5.3.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 5.3</b>			

Total Amount in Words.....

#### 2.5.4 Engineering, Procurement and construction of Residential Quarters

S. No.	Description	Qty.	Unit	Amount
5.4.1	<b>Residential Quarters (Type III)</b> Construction of residential quarters as per Type III of CPWD including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
5.4.2	<b>Residential Quarters (Type IV)</b> Construction of residential quarters as per Type IV of CPWD including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
5.4.3	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 5.4</b>			

Total Amount in Words.....

#### 2.5.5 Engineering, Procurement and Construction of Electrical Cable Bridge (2 Nos)

S. No.	Description	Qty.	Unit	Amount
5.5.1	<b>Electrical Cable Bridge (2 Nos)</b> Renovation and modernization of existing electrical cable bridge including mobilization & de-mobilization as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
5.5.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 5.5</b>			

Total Amount in Words.....

**2.5.6 Engineering, Procurement and Construction of Concrete/ civil structures**

<b>S. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Amount</b>
5.6.1	<b>Dismantling of Concrete/ civil structures</b> Dismantling of Concrete / civil structures in existing Navigational lock base slab, retaining wall, guide walls, approach structures, filling emptying system, embedded parts, main control room, local control room, etc. including mobilization & de-mobilization as per approved designs, drawings and specifications, complete in all respects.	LS	LS	
5.6.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 5.5</b>			

Total Amount in Words.....

**Grand TOTAL OF BILL NO. 5**

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

## 2.6 BILL NO. 6 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF ANCILLARIES FOR NAVIGATIONAL LOCK

S. No.	Description	Qty.	Unit	Amount
6.1	<b>Bollards</b> Supply and Installation of bollards of 30 T capacity and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects	LS	LS	
6.2	<b>Fenders</b> Supply and Installation of AN 800 E 3.0 grade rubber fenders of Trelleborg make or Bridgestone or Hi-Tech Elastomers make or equivalent make of length 3m and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects	LS	LS	
6.3	<b>Miscellaneous items</b> Supply and Installation of various miscellaneous items such as steel inserts, hand railing, coping fender, ladders, mooring rings, nut, bolts, washers etc. in precast & in-situ concrete components, and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects	LS	LS	
6.4	<b>Dismantling of Bollards and Fenders</b> Dismantling of Bollards and fenders including mobilization & de-mobilization as per approved designs, drawings and specifications, complete in all respects.	LS	LS	
6.5	<b>Instrumentation</b> Supply, Installation of ultrasonic/ doppler radar type water level and depth monitoring system and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications complete in all respects.	LS	LS	
6.6	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 6</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

**2.7 BILL NO. 7 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF SITE GRADING**

<b>S. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Amount</b>
7.1	<b>Site Grading</b> Site grading including mobilization & demobilization and ready to use as per approved designs, drawings and specifications including testing, inspection and defect rectifications, complete in all respects.	LS	LS	
7.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 7</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**



## 2.8 BILL NO. 8 - GATES

### 2.8.1 Engineering, Procurement and Construction of Mitre Gates

S. No.	Description	Qty.	Unit	Amount
8.1.1	<b>Mitre Gate</b> Two number of Mitre Gates including all necessary structural steel, mechanical component parts, switch gear, controls, cables, on-board PLC hardware, software and logic programming and the like necessary for a complete operating machine and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	2	No.	
8.1.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.1</b>			

Total Amount in Words.....

### 2.8.2 Engineering, Procurement and Construction of Radial Gates

S. No.	Description	Qty.	Unit	Amount
8.2.1	<b>Radial Gate</b> Four Number of Radial Gates including all necessary structural steel, mechanical component parts, switch gear, controls, cables, on-board PLC hardware, software and logic programming and the like necessary for a complete operating machine and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects	4	No.	
8.2.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.2</b>			

Total Amount in Words.....

### 2.8.3 Engineering, Procurement and Construction of Caisson Gate

S. No.	Description	Qty.	Unit	Amount
8.3.1	<b>Caisson Gate</b> Two Number of Caisson Gates including all necessary structural steel, mechanical component parts necessary for a complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects	2	No.	
8.3.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.3</b>			

Total Amount in Words.....

### 2.8.4 Engineering, Procurement and Construction of Bulkhead Gate.

S. No.	Description	Qty.	Unit	Amount
8.4.1	<b>Bulkhead Gate</b> Eight Numbers of Bulkhead Gates including all necessary structural steel, mechanical component parts, switch gear, controls, cables necessary for a complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	8	Nos	
8.4.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.4</b>			

Total Amount in Words.....

### 2.8.5 Engineering, Procurement and Construction of Hydro Mechanical work/ operating mechanism of Mitre gates

S. No.	Description	Qty.	Unit	Amount
8.5.1	<b>Hydro Mechanical Works</b>	LS	LS	
	Supply and Installation and Commissioning of Hydro mechanical works such as Hydraulic hoist / Other operating mechanism for Mitre gate operations including mobilization, designing, fabricating, Supplying, painting, welding, drilling, grouting & fixing in position as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects			
8.5.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.5</b>			

Total Amount in Words.....

#### 2.8.6 Engineering, Procurement and Construction of Hydro Mechanical work/ operating mechanism of Radial gates

S. No.	Description	Qty.	Unit	Amount
8.6.1	<b>Hydro Mechanical Works</b>	LS	LS	
	Supply and Installation and Commissioning of Hydro mechanical works such as Hydraulic hoist/other operating mechanism for Radial gate operations including mobilization, designing, fabricating, Supplying, painting, welding, drilling, grouting & fixing in position as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects			
8.6.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.6</b>			

Total Amount in Words.....

#### 2.8.7 Engineering, Procurement and Construction of Hydro Mechanical work/ operating mechanism of Bulkhead gates

S. No.	Description	Qty.	Unit	Amount
8.7.1	<b>Hydro Mechanical Works</b> Supply, Installation and Commissioning of Hydro mechanical works such as electrical wire rope hoist / Other operating mechanism for Bulkhead gate operations including mobilization, designing, fabricating, Supplying, painting, welding, drilling, grouting & fixing in position as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects	LS	LS	
8.7.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.7</b>			

Total Amount in Words.....

### 2.8.8 Engineering, Procurement and Construction of Filling / Emptying arrangement/ operating mechanism of Caisson gates

S. No.	Description	Qty.	Unit	Amount
8.8.1	<b>Hydro Mechanical Works</b> Supply and Installation and Commissioning of Hydro mechanical works such as Filling/ Emptying arrangement / other operating mechanism for Caisson gate operations including mobilization, designing, fabricating, Supplying, painting, welding, drilling, grouting & fixing in position as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects	LS	LS	
8.8.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.8</b>			

Total Amount in Words.....

### 2.8.9 Engineering, Procurement and Construction of existing Caisson, Mitre, Radial and Bulkhead gates

<b>S. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Amount</b>
8.9.1	<b>Dismantling and decommissioning of existing Caisson, Mitre, Radial and Bulkhead gates</b> Dismantling and decommissioning of existing Caisson, Mitre, Radial and Bulkhead gates along with operating system including mobilization & de-mobilization as per approved designs, drawings and specifications, complete in all respects.	LS	LS	
8.9.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 8.8</b>			

Total Amount in Words.....

**Grand TOTAL OF BILL NO. 8**

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

## 2.9 BILL NO. 9 – ELECTRICAL AND CONTROL EQUIPMENTS

### 2.9.1 Engineering, Procurement and Construction of Electrical Equipment's

S. No.	Description	Qty.	Unit	Amount
9.1.1	<p><b>Power Distribution</b></p> <p>Supply and Installation and Commissioning of Power Distribution System( HT,LT switch gears, Transformer, capacitor banks, distribution boards, battery and battery charger etc. including supplying, and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.</p>	LS	LS	
9.1.2	<p><b>Diesel Generator</b></p> <p>Supply and Installation and Commissioning of Diesel Generator set, including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.</p>	LS	LS	
9.1.3	<p><b>Illumination system</b></p> <p>Supply and Installation and Commissioning of Illumination system (Indoor lighting/ outdoor High mast ), including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.</p>	LS	LS	
9.1.4	<p><b>Cables and Cable Trays</b></p> <p>Supply and Installation and Commissioning of Cables and cable trays with accessories, including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.</p>	LS	LS	
9.1.5	<p><b>Earthing and Lightning</b></p> <p>Supply and Installation and Commissioning of Earthing and Lightning protection, including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.</p>	LS	LS	
9.1.6	<p><b>Control Equipment and Control Cables</b></p> <p>Supply and Installation and Commissioning of Control equipment along with control cabling (PLC, CCTV, RIO and LED screens), including supplying and installation as necessary for</p>	LS	LS	

S. No.	Description	Qty.	Unit	Amount
	complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.			
9.1.7	<b>Communication and IT</b> Supply and Installation and Commissioning of Communication and IT, including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.	LS	LS	
9.1.8	<b>Traffic Signaling System</b> Supply and Installation and Commissioning of Traffic Signaling System including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.	LS	LS	
9.1.9	<b>Synchronized Operation of Existing and New Navigational lock through Integrated Signal System</b> Supply and Installation and Commissioning of integrated signal system for synchronized operation through existing and new Navigational lock including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.	LS	LS	
9.1.10	<b>Dismantling and decommissioning of existing Electrical Systems</b> Dismantling and decommissioning of existing electrical systems including mobilization & demobilization as per approved designs, drawings and specifications, complete in all respects.	LS	LS	
9.1.11	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 9.1</b>			

Total Amount in Words.....

## 2.9.2 Engineering, Procurement and Construction of Firefighting system

S. No.	Description	Qty.	Unit	Amount
9.2.1	<b>Fire Fighting</b> Supply and Installation and Commissioning of Fire Fighting equipment's, including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.	LS	LS	
9.2.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 9.2</b>			

Total Amount in Words.....

### Grand TOTAL OF BILL NO. 9

Total Amount in Words.....

Dated ..... day of .....2023

**Signature of Bidder**



## 2.10 BILL NO. 10 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF ROADS

S. No.	Description	Qty.	Unit	Amount
10.1	<b>Internal Road</b> Internal Roads along with grading and side drainage including mobilization & de-mobilization and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	LS	LS	
10.2	<b>Vehicle Parking Area</b> Vehicle parking area including mobilization & de-mobilization and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	LS	LS	
10.3	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 10</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

**2.11 BILL NO. 11 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF WATER SUPPLY, DRAINAGE, SEWERAGE SYSTEM WORKS AND BOUNDARY WALL**

S. No.	Description	Qty.	Unit	Amount
11.1	<b>Water Supply Works</b> Water supply works and distribution including mobilization & de-mobilization and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	LS	LS	
11.2	<b>Storm water Drainage Works</b> Storm water drainage system including mobilization & de-mobilization and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	LS	LS	
11.3	<b>Sewerage system including waste collection centre</b> Sewerage system collection and treatment works along with waste collection system including mobilization & de-mobilization and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	LS	LS	
11.4	<b>Boundary wall</b> Boundary wall including mobilization & de-mobilization and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	LS	LS	
11.5	<b>Security Office cum Check Post</b> Security Office cum Check Post (2 Nos) including mobilization & de-mobilization and ready to use as per approved designs, drawings and specifications including testing, inspection, commissioning and defect rectifications, complete in all respects.	LS	LS	
11.6	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 11</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

**2.12 BILL NO. 12 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF MONITORING INSTRUMENTS**

<b>S. No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Amount</b>
12.1	<b>Monitoring Instruments</b> Monitoring instruments for real time monitoring of existing lock and new lock including supplying and installation as necessary for complete operation and ready to use as per approved designs, drawings and specifications including testing, inspection and commissioning complete in all respects.	LS	LS	
12.2	<b>Design Fee</b>	LS	LS	
	<b>TOTAL OF BILL NO. 12</b>			

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

### 2.13 BILL NO. 13 - ENGINEERING, PROCUREMENT AND CONSTRUCTION OF ENVIRONMENTAL MITIGATION MEASURES

S. No.	Description	Qty.	Unit	Amount
<b>Design and Construction Stage</b>				
13.1	<b>Greenbelt Development</b>			
(a)	Tree, shrub and herb plantation.	100	No	
13.2	<b>Flora</b>			
(a)	After care and monitoring of plantation	50	No	
13.3	<b>Soil</b>			
(a)	Soil contamination protection (Septic tanks, grease traps etc.) and rehabilitation of borrow areas/debris disposal site/plant site & labour camps.	LS	LS	
13.4	<b>Noise</b>			
(a)	Canopy for DG sets, Personal Protective Equipments (PPEs) like ear plug, Timely maintenance of the machinery, equipment and vehicles, Barricading the site.	LS	LS	
13.5	<b>Water</b>			
(a)	Construction of soak pits at construction sites & labour camps.	LS	LS	
(b)	Provision of clean drinking & domestic water facility at labour camps and construction site.	LS	LS	
13.6	<b>Dust Management</b>			
(a)	Water Sprayer / Watering for Dustsuppression.	LS	LS	
13.7	<b>Safety</b>			
(a)	Appointment of Safety Officers	LS	LS	
(b)	Safety sign-ages, speed breakers, and fire-fighting measures etc.	LS	LS	
(c)	Provision of trainings and PPE to workers	LS	LS	
13.8	<b>Health</b>			
(a)	Health check-up camps for construction workers.	2	Camp per year	
13.9	<b>Environmental monitoring in construction phase</b>			
(a)	Terrestrial and aquatic fauna	(Once in six months)		
(b)	Ambient air quality	(Once in two months)		
<b>Design and Construction Stage</b>				

(c)	Surface water quality	(Once in month)	
(d)	Drinking water quality	(Once in month)	
(e)	Noise and vibration	(Once in month)	
13.10	<b>Design Fee</b>	LS	LS
	<b>TOTAL OF BILL NO. 13</b>		

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

**2.14 BILL NO. 14 – Engineering, Procurement and Construction of Renovation and Modernization of Existing Navigational Lock at Farakka- DUTIES AND TAXES**

S. No.	Description	Present Rate	% Contract Value	Amount
14.1	* Duties and Taxes			
	<b>TOTAL OF BILL NO. 14</b>			

\* The Contractor has to state different duties and taxes as applicable.

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

**2.15 GRAND SUMMARY: Engineering, Procurement and Construction (EPC) contract for Renovation and Modernization of Existing Navigational Lock**

S. No.	Item	Capital Cost (Rs. In Crores)
1	Coffer Dam	
2	Dewatering	
3	Bank protection Works	
4	Cast in-situ piles	
5	Existing Navigational lock chamber and approach, new parking bay and main and local control room building and residential quarters	
6	Ancillaries for Navigational lock such as Fenders, Bollards and other miscellaneous items	
7	Site Grading	
8	Mitre Gates, Radial Gates, Caisson Gate and Bulkhead Gates	
9	Electrical & Control Equipments	
10	Roads and Parking Area	
11	Water Supply, drainage, sewerage system, Boundary wall and Security Check Post	
12	Monitoring Instruments	
13	Environmental Mitigation Measures	
14	Duties and Taxes	
Total		

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**

## 2.16 SCHEDULE A

### 2.16.1 Items of Work\*

S. No.	Description	Unit	Qty.	Unit Rate	Amount
	<b>TOTAL OF SCHEDULE A</b>				

\* To be filled by the Contractor as per Para 1.1.1.b of Volume III of Tender Document.

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**



## 2.17 SCHEDULE B

### 2.17.1 Format of Monthly RA Bill\*

S. No.	Description	Unit	Unit Rate	As per Contract		Cumulative as per the Progress	
				Qty.	Amount	Qty.	Amount
	<b>Preliminary Works</b>						
1.	Topography survey						
2.	Geotechnical investigations						
3.	Hydrographic survey						
4.	Condition Survey						
	<b>Coffer Dam</b>						
1.							
2.							
	<b>Dewatering</b>						
1.							
	<b>Existing Navigational lock Chamber and Other components</b>						
1.							
2.							
3.							
4.							
5.							
	<b>New Parking Bay</b>						
1.							
2.							
3.							
4.							
	<b>Main and Local Control Room Building</b>						
1.							
2.							
3.							
4.							
	<b>Ancillaries for Navigational lock</b>						
1.							
2.							
3.							
4.							
	<b>Bank Protection Works</b>						
1.							
2.							

	<b>Gates</b>						
1.							
2.							
3.							
4.							
5.							
6.							
	<b>Site Grading</b>						
1.							
2.							
	<b>Electrical and Control Equipments</b>						
1.							
2.							
3.							
4.							
5.							
6.							
	<b>Communication and IT System</b>						
1.							
	<b>Traffic Signaling System</b>						
1.							
	<b>Firefighting system works</b>						
1.							
	<b>Internal Roads and Vehicle Parking Area</b>						
1.							
	<b>Water Supply Works</b>						
1.							
	<b>Storm Water Drainage Works</b>						
1.							
	<b>Boundary wall and Security Office cum Check Post</b>						
1.							
	<b>Model Studies</b>						
1.							

	<b>Design Fee</b>						
1.							
	<b>Duties and Taxes</b>						
1.							
	<b>TOTAL OF SCHEDULE B</b>						

\* To be filled by the Contractor as per Para 1.1.1.c of Volume III of Tender Document.

Total Amount in Words.....

Dated .....day of .....2023

**Signature of Bidder**