BANK PROTECTION PILOT PROJECT
FAP 21

TEST SITE I
KAMARJANI

TENDER DOCUMENTS

FOR

CONSTRUCTION OF PERMEABLE GROYNES

VOLUME I

FORM OF TENDER
INSTRUCTION TO TENDERERS
SAMPLE FORM OF AGREEMENT
BILL OF QUANTITES
SCHEDULES

(February 1994)

JAMUNA TEST WORKS CONSULTANTS, JOINT VENTURE
CONSULTING CONSORTIUM FAP 21/22

RHEIN-RUHR ING.-GES.MBH, DORTMUND/GERMANY
COMPAGNIE NATIONALE DU RHONE, LYON/FRANCE
PROF.DR. LACKNER&PARTNERS, BREMEN/GERMANY
DELFT HYDRAULICS, DELFT/NETHERLANDS

In association with:
BANGLADESH ENGINEERING & TECHNOLOGICALSERVICES LTD.(BETS)
DESH UPODESH LIMITED (DUL)

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Section 1

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FORM OF TENDER

Bank Protection Pilot Project
FAP-21

Construction of Permeable Groynes at Test Site I - (Kamarjani)

To: **Jamuna Test Works Consultants**
c/o Consulting Consortium FAP 21/22
House 4, Road 125, Gulshan-1
Dhaka-1212, Bangladesh
Tel: (880-2) 600751, 881199
Fax: (880-2) 883990

Gentlemen:

1. Having examined the Conditions of Contract, Conditions of Particular Application, Specifications, Tender Drawings, and Bill of Quantities and Addenda Nos..... for the execution of the above named Works we, the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contract, Conditions of Particular Application, Specifications, Drawings, Bill of Quantities and Addenda for the sum of

   Tk. . . . . .
   . . . . . .
   (. . . . .)

   as specified in the Appendix to Tender or such other sum as may be ascertained in accordance with the said Conditions.

2. We acknowledge that the Appendix to Tender forms part of our Tender.

3. We undertake, if our Tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Tender.

4. We agree to abide by this Tender for the period of 154 days from the date fixed for receiving the same, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

5. Unless and until a formal Agreement is prepared and executed this Tender, together with your written acceptance thereof, shall constitute a binding contract between us.

6. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this . . . . . day of . . . . . 1994.

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

duly authorized to sign tenders for and on behalf of . . . . . .
. . . . . .

(*in block capitals or typed*)

Address . . . . . .
. . . . . .

Witness . . . . . .
. . . . . .

Address . . . . . .
. . . . . .

Occupation . . . . . .

APPENDIX OF TENDER

	Sub-Clause		
Amount of Performance Security	10.1	10	percent of the Contract Price (for banker's guarantee)
Insurance of Works	21.1(d)(e)		amounts of be covered by Contractor's insurance:
		85	mill. Tk. for permanent material supplied by the Employer
		50	mill. Tk. for construction equipment provided by the Employer.
Minimum amount of Third Party Insurance	23.2	Tk.100 million	per occurrence, with the number of occurrences unlimited
Time for issue of the Notice to Commence	41.1	14	calender days after the date of the Letter of Acceptance
Time for Completion	43.1	210	calender days after October 01, 1994, which is the latest Commencement date of construction works at the site
Amount of liquidated damages	47.1	0.3	percent of the Contract Price per day
Limit of liquidated damages	47.1	10	percent of the Final Price of Contract
Defects Liability Period	49.1	364	days
Percentage for Adjustment Provisional Sums	59.4(c)	____	percent
Minimum amount of Interim Payment Certificates	60.2		Tk. 10,000,000
Retention Money	60.4	10	percent of Interim Payment Certificates
Advance Payment	60.6	15	percent of the Contract Price
Start Repayment of Advance Payment	60.6		After certification of 20 percent of the Contract Price less Provisional Sums
Monthly amortization of Advance Payment	60.6	25	percent of the amount of monthly Interim Payment Certificates
Rate of interest upon unpaid sums	60.7	2	percent above the prime lending rate of the Bank of Bangladesh for local currency payment

S A M P L E

FORM OF TENDER SECURITY (BANK GUARANTEE)

WHEREAS, ... *[Name of Tenderer]* (hereinafter called "the Tenderer") has submitted his tender dated . . . . . *[date]* for the Construction of Permeable Groynes at Test Site I - Kamarjani (hereinafter called "Tender")

KNOW ALL MEN by these presents that We . . . . . .*[Name of Bank]* of the People's Republic of Bangladesh having our registered office at . . . . . (hereinafter called "the Bank") are bound unto the Jamuna Test Works Consultants, c/o Consulting Consortium FAP 21/22, Dhaka, Bangladesh (hereinafter called "the Employer") in the sum of Tk. 2,500,000 (two and a half million) for which payment well and truly to be made to the said Employer the Bank binds himself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this. . . . . day of. . . . . .1994.

THE CONDITIONS of this obligation are:

(1) If the Tenderer withdraws his Tender during the period of tender validity specified in the Form of Tender;

or

(2) If the Tenderer, having been notified of the acceptance of his Tender by the Employer during the period of tender validity,

(a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Tenderers, if required; or

(b) fails and refuses to furnish the Performance Security, in accordance with the Instruction to Tenderers,

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or both of the two conditions,specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date 182 days after the deadline for submission of tenders as such deadline is stated in the Instructions to Tenderers or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE . . . . . SIGNATURE OF BANK . . . . . .
WITNESS . . . . . SEAL . . . . . .
. . . . . .
(Signature, Name, and Address)

Section 2

Instructions to Tenderers

Section 2. Instructions to Tenderers

A. General

1. Scope of Tender

1.1 The Jamuna Test Works Consultants, c/o Consulting Consortium FAP 21/22, Dhaka, Bangladesh, hereinafter "the Employer" wishes to receive tenders for the construction and completion of Permeable Groynes at Test Site I - Kamarjani, comprising of civil engineering construction works, as defined in these Tender Documents, hereinafter referred to as "the Works".

1.2 The successful Tenderer will be expected to complete the Works within 7 months (210 days) from the date of commencement of the Works at the site, which commencement date is October 01, 1994.

1.3 Throughout these Tender Documents, the terms "bid" and "tender" and their derivatives (bidder/tenderer, bid/tendered, bidding/tendering, etc.) are synonymous, and "day" means calendar day.

2. Source of Funds

2.1 The Governments of Germany and France have provided a fund through Kreditanstalt für Wiederaufbau (KfW) and Caisse Française de Developpement (CFD), towards the cost of Project FAP 21/22. The Employer intends to apply part of the proceeds of the fund to eligible payments under the contract (hereinafter referred to as "the Contract") for which this invitation to bid is issued.

Payment by the Employer will be made to the Contractor only at request and upon approval of Contractors' payment applications, in accordance with the Contract, and will be subject in all respects to the terms and conditions of that Contract.

3. Eligible Tenderers

3.1 This invitation to tender is open to any preselected tenderer meeting both of the following requirements:

(a) a tenderer shall be from the People's Republic of Bangladesh. If the tenderer is a joint venture, the partner-in-charge shall be from the People's Republic of Bangladesh, but 1 (one) foreign partner will be permitted.

(b) a tenderer (including all members of the joint venture and all subcontractors of a tenderer) shall not be affiliated with a firm or entity

(i) which has provided consulting services during the preparatory stages of the Works or of the project of which the Works form a part, or

(ii) which has been hired (or is proposed to be hired) as Engineer for the Contract.

3.2 Tenderers shall provide such evidence of their eligibility satisfactory to the Employer as the Employer shall reasonably request.

4. Eligible Materials, Equipment and Services

(Not applicable)

5. Qualification of the Tenderer

5.1 To be qualified for award of Contract, tenderers shall:

(a) submit a written power of attorney authorizing the signatory of the bid to commit the Tenderer; and

(b) submit proposals of work methods and schedules in sufficient detail to demonstrate the adequacy of the Tenderer's proposals to meet the Technical Specifications and the completion time referred to in Sub-Clause 1.2 above.

5.2 Tenders submitted by a joint venture of two or more firms as partners shall comply with following requirements:

(a) the Tender shall include all the information listed in the Sub-Clause 5.1 (a) and (b) above;

(b) the Tender, and in case of a successful bid, the Form of Agreement, shall be signed so as to be legally binding on all partners;

(c) one of the partners shall be nominated as being in charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;

(d) the partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the Contract including payment shall be done exclusively with the partner in charge;

(e) all partners of the joint venture shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms, and a statement to this effect shall be included in the authorization mentioned under (c) above as well as in the Form of Tender and in the Form of Agreement (in case of successful bid); and

(f) a copy of the agreement entered into by the joint venture partners shall be submitted with the Tender.

6. One Bid per Tenderer

6.1 Each tenderer shall submit only one bid either by himself, or as a partner in a joint venture. A tenderer who submits or participates in more than one bid will be disqualified.

7. Cost of Tendering

7.1 The Tenderer shall bear all costs associated with the preparation and submission of his bid and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

8. Site Visit

8.1 The Tenderer is advised to visit and examine the Site of Works and its surroundings and obtain for himself on his own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Tenderer's own expenses.

8.2 The Tenderer and any of his personnel or agents may enter the proposed site areas and lands for the purpose of such inspection, but only upon the express condition that the Tenderer, his personnel and agents, will release and indemnify the Employer and his personnel and agents, from and against all liability in respect thereof and will be responsible for death or personnel injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of the inspection.

8.3 The Employer may conduct a Site visit concurrently with the pre-Bid Meeting referred to in Clause 19.

B. Tender Documents

9. Content of Tender Documents

9.1 The Tender Documents are those stated below, and should be read in conjunction with any Addenda issued in accordance with Clause 11:

INVITATION FOR TENDERS

VOLUME I: - Form of Tender, Appendix to Tender and Tender Security
- Instructions to Tenderers
- Sample Form of Agreement
- Forms of Performance Security and of Bank Guarantee for Advance Mobilization Payment
- Bill of Quantities
- Schedules

VOLUME II: - General Conditions of Contract
- Conditions of Particular Application

VOLUME III: - Technical Specifications

VOLUME IV: - Tender Drawings

9.2 The Tenderer is supplied with one complete set of Tender Documents (Volume I to Volume IV) plus one reproducible copy of Volume I.

Volume I shall be completed by the Tenderer, reproduced to three copies and returned with the bid, in consideration of Clauses 13 and 20 of these Instructions to Tenderers.

9.3 The Tenderer is expected to examine carefully the contents of all the above documents. Failure to comply with the requirements of bid submission will be at the Tenderer's own risk. Pursuant to Clause 28, tenders which are not substantially responsive to the requirements of the Tender Documents will be rejected.

10. Clarification of Tender Documents

10.1 A prospective tenderer requiring any clarification of the Tender Documents may notify the Employer in writing or by cable (hereinafter, the term "cable" is deemed to include telex and facsimile) at the Employer's address indicated in the Invitation for Tender. The Employer will respond to any request for clarification which he receives earlier than 28 days prior to the deadline for submission of tenders. Copies of the Employer's response will be forwarded to all purchasers of the Tender Documents, including a description of the enquiry but without identifying its source.

11. Amendment of Tender Documents

11.1 At any time prior to the deadline for submission of tenders, the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective tenderer, modify the Tenderer Documents by issuing Addenda.

11.2 Any Addendum thus issued shall be part of the Tender Documents pursuant to Sub-Clause 9.1, and shall be communicated in writing or by cable to all purchasers of the Tender Documents. Prospective tenderers shall acknowledge receipt of each Addendum by cable to the Employer.

11.3 To afford prospective tenderers reasonable time in which to take an Addendum into account in preparing their bids, the Employer shall extend as necessary the deadline for submission of tenders, in accordance with Clause 22.

C. Preparation of Tenders

12. Language of Tender

12.1 The Tender and all correspondence and documents related to the Tender exchanged by the Tenderer and the Employer shall be written in the English language. Supporting documents and printed literature furnished by the Tenderer may be in another language provided they are accompanied by an accurate translation of the relevant passages in the above stated language,in which case, for purposes of interpretation of the bid, the English translation shall prevail.

13. Documents Comprising the Tender

13.1 The Tender submitted by the Tenderer shall comprise the following:

- Tender Form and Appendix to Tender
- Tender Security
- Priced Bill of Quantities
- General Construction Time Schedule for the Overall Completion of the Works
- Equipment Employment Schedule
- Procurement Schedule for Permanent Materials
- Any other materials required to be completed and submitted by tenderers in accordance with these Instructions to Tenderers
- Any descriptions, programs, schedules, drawings, materials or equipment specifications required to be submitted by the Tenderer in accordance with the Technical Specifications, inter alia:

Volume/Section/Subsection	Description
I / 5 / Schedules	- Major items of Constructional Plant
	- Key Personnel
	- Project Organization Chart
	- Construction and Equipment Schedule
III / 600 / 601	Surveying method and equipment
800 / 830 (2)	Dredging method and equipment
900 / 932	Filling and compaction works
1000 / 1003	Embankment revetment, bed protection and falling aprons
1200 / 1210 (1)	Bored concrete pile installation
1500 / 1510 (3)	Installation of piles and sheet piling

The document listed as Volume I under Sub-Clause 9.1 shall be filled-in without exception, subject to extensions thereof in the same format and to the provisions of Sub-Clause 17.2 regarding the alternative forms of Bid Security.

14. Tender Prices

14.1 Unless stated otherwise in the Tenderer Documents, the Contract shall be for the whole Works as described in Sub-Clause 1.1, based on the schedule of unit rates and prices submitted by the Tenderer.

14.2 The Tenderer shall fill in the rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

14.3 All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, except customs duties, import duties and Value Added Tax, as of the date 28 days prior to the deadline for submission of tenders, shall be included in the rates and prices and the total Tender Price submitted by the Tenderer and the evaluation and comparison of tenders by the Employer shall be made accordingly.

14.4 The rates and the prices quoted by the Tenderer are fixed for the entire duration of the Contract.

15. Currencies of Tender and Payment

15.1 The unit rates and prices shall be quoted by the Tenderer entirely in Bangladesh Currency Taka (Tk.) and will be paid by the Employer in Bangladesh into a convertible Taka account to be established by the Contractor.

16. Tender Validity

16.1 Tenders shall remain valid for a period of 154 days after the date of tender opening specified in Clause 25.

16.2 In exceptional circumstances, prior to expiry of the original tender validity period, the Employer may request that the tenderers extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by cable. A tenderer may refuse without forfeiting his Tender Security. A tenderer agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his Tender Security for the period of the extension, and in compliance with Clause 17 in all respects.

17. Tender Security

17.1 The Tenderer shall furnish, as part of his bid, a Tender Security in the amount of Tk. 2,500,000 (two and a half million).

17.2 The Tender Security shall, at the Tenderer's option, be in the form of a certified check, bank draft, standby letter of credit or guarantee from a bank located in the People's Republic of Bangladesh and which has been determined by the Tenderer to be acceptable to the Employer, or a bond issued by a surety located in the People's Republic of Bangladesh and determined by the Tenderer to be acceptable to the Employer. The format of the bank guarantee or bond shall be in accordance with one of the sample forms of Tender Security included in Section 1; other formats may be permitted, subject to the prior approval of the Employer. Letters of credit, bank guarantees and bonds issued as surety for the bid shall be valid for 28 days beyond the validity of the Tender.

17.3 Any tender not accompanied by an acceptable Tender Security shall be rejected by the Employer as non-responsive.

17.4 The tender securities of unsuccessful tenderers will be returned as promptly as possible, but not later than 28 days after the expiration of the period of tender validity.

17.5 The Tender Security of the successful Tenderer will be returned when the Tenderer has signed the Agreement and furnished the required Performance Security.

17.6 The Tender Security may be forfeited

(a) if the Tenderer withdraws his bid during the period of tender validity;

(b) if the Tenderer does not accept the correction of his Tender Price, pursuant to Sub-Clause 29.2; or

(c) in the case of a successful tenderer, if he fails within the specified time limit to
(i) sign the Agreement, or
(ii) furnish the required Performance Security.

18. Alternative Proposals by Tenderers

(Not applicable)

19. Pre-Bid Meeting

19.1 The Tenderer or his official representative is invited to attend a pre-bid meeting which will take place at the date, time and place stated in the Invitation for Tenders.

19.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

19.3 The Tenderer is requested to submit any questions in writing or by cable, to reach the Employer and the Engineer not later than one week before the meeting.

19.4 Minutes of meeting, including the text of the questions raised and the responses given, will be transmitted without delay to all purchasers of the Tender Documents. Any modification of the Tender Documents listed in Sub-Clause 9.1 which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 11 and not through the minutes of the pre-bid meeting.

19.5 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a tenderer.

20. Format and Signing of Tender

20.1 The Tenderer shall prepare one original and two copies of the documents comprising the bid as described in Clause 13 of these Instructions to Tenderers, clearly marked "ORIGINAL" and "COPY" as appropriate. In the event of discrepancy between them, the original shall prevail.

20.2 The original of the Tender shall be typed or written in indelible ink, all copies shall be photostats of the original. The original and all copies shall be signed by a person or persons duly authorized to sign on behalf of the Tenderer, pursuant to Sub-Clauses 5.1 (a) or 5.2 (c), as the case may be. All pages of the Tender where entries or amendments have been made shall be initialled by the person or persons signing the Tender.

20.3 The Tender shall contain no alterations, omissions or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the Tenderer, in which case such corrections shall be initialled by the person or persons signing the Tender.

D. Submission of Tenders

21. Sealing and Marking of Tenders

21.1 The Tenderer shall seal the original and each copy of the Tender in an inner and an outer envelope, duly marking the envelopes as "ORIGINAL" and "COPY".

21.2 The inner and outer envelopes shall

(a) be addressed to the Employer at the following address:

Jamuna Test Works Consultants
c/o Consulting Consortium FAP 21/22
House 4, Road 125, Gulshan-1
Dhaka-1212, Bangladesh
Tel: (880-2) 600751, 881199
Fax: (880-2) 883990

and

(b) bear the following identification:
- Tender for Construction of Permeable Groynes at Test Site I - Kamarjani
- DO NOT OPEN BEFORE [*insert date*]

The original and two copies of the Tender shall be delivered to the Employer at the address specified above.

21.3 In addition to the identification required in Sub-Clause 21.2, the inner envelope shall indicate the name and address of the Tenderer to enable the bid to be returned unopened in case it is declared "late" pursuant to Clause 23.

21.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the Tender.

22. Deadline for the Submission of Tenders

22.1 Tenders must be received by the Employer at the address specified above no later than the date and time stated in the Invitation for Tenders.

22.2 The Employer may, at his discretion, extend the deadline for submission of Tenders by issuing an Addendum in accordance with Clause 11, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline will thereafter be subject to the deadline as extended.

23. Late Tenders

23.1 Any tender received by the Employer after the deadline for submission of tenders prescribed in Clause 22 will be returned unopened to the tenderer.

24. Modification and Withdrawal of Tenders

24.1 The Tenderer may modify or withdraw his Tender after bid submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the deadline for submission of tenders.

24.2 The Tenderer's modification or withdrawal notice shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause 21, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate.

24.3 No bid may be modified by the Tenderer after the deadline for submission of tenders.

24.4 Withdrawal of a tender during the interval between the deadline for submission of tenders and the expiration of the period of tender validity specified in the Form of Tender may result in the forfeiting of the Tender Security pursuant to Clause 17.

E. Tender Opening and Evaluation

25. Tender Opening

25.1 The Employer will open the tenders, including modifications made pursuant to Clause 24, in the presence of tenderers' representatives who choose to attend, at the location, date and time stated in the Invitation for Tenders. The tenderers' representatives who are present shall sign a register evidencing their attendance.

25.2 Envelopes marked "WITHDRAWAL" shall be opened and read out first. Tenders for which an acceptable notice of withdrawal has been submitted pursuant to Clause 24 shall not be opened.

25.3 The tenderers' names, the Tender Prices, the total amount of each bid, any discounts, tender modifications and withdrawals, the presence or absence of Tender Security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. Any tender price, discount or alternative tender price which is not read out and recorded at bid opening will not be taken into account in tender evaluation.

25.4 The Employer shall prepare minutes of the tender opening, including the information disclosed to those present in accordance with Sub-Clause 25.3.

26. Process to be Confidential

26.1 Information relating to the examination, clarification, evaluation and comparison of tenders and recommendations for the award of a contract shall not be disclosed to tenderers or any other persons not officially concerned with such process until the award to the successful tenderer has been announced. Any effort by a tenderer to influence the Employer's processing of bids or award decisions may result in the rejection of the tenderer's bid.

27. Clarification of Tenders

27.1 To assist in the examination, evaluation and comparison of tenders, the Employer may, at his discretion, ask any tenderer for clarification of his bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids in accordance with Clause 29.

28. Examination of Tenders and Determination of Responsiveness

28.1 Prior to the detailed evaluation of tenders, the Employer will determine whether each tender

(i) has been properly signed;

(ii) is accompanied by the required securities;

(iii) is substantially responsive to the requirements of the Tender Documents; and

(iv) provides any clarification and/or substantiation that the Employer may require pursuant to Sub-Clause 15.4.

28.2 A substantially responsive tender is one which conforms to all the terms, conditions and specifications of the Tender Documents, without material deviation or reservation.

A material deviation or reservation is one

(i) which affects in any substantial way the scope, quality or performance of the Works;

(ii) which limits in any substantial way, inconsistent with the Tender Documents, the Employer's rights or the tenderer's obligations under the Contract; or

(iii) whose rectification would affect unfairly the competitive position of other tenderers presenting substantially responsive bids.

28.3 If a tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

29. Correction of Errors

29.1 Tenders determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:

(a) where there is a discrepancy between the amounts in figures and in words, the amount in words will govern; and

(b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern, unless in the opinion of the

Employer there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.

29.2 The amount stated in the Form of Tender will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the tenderer, shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount of bid, his tender will be rejected, and the Tender Security may be forfeited in accordance with Sub-Clause 17.6 (b).

30. Conversion to Single Currency

(Not applicable)

31. Evaluation and Comparison of Tenders

31.1 The Employer will evaluate and compare only the tenders determined to be substantially responsive in accordance with Clause 28.

31.2 In evaluating the bids, the Employer will determine for each bid the Evaluated Tender Price by adjusting the Tender Price as follows:

(a) making any correction for errors pursuant to Clause 29; and
(b) excluding Provisional Sums and the provision, if any, for Contingencies in the Summary Bill of Quantities, but including Daywork.

31.3 The Employer reserves the right to accept or reject any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the requirements of the Tender Documents or otherwise result in the accrual of unsolicited benefits to the Employer shall not be taken into account in tender evaluation.

31.4 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in tender evaluation.

31.5 If the bid of the successful Tenderer is seriously unbalanced in relation to the Employer's estimate of the cost of work to be performed under the Contract, the Employer may require the Tenderer to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in Clause 37 be increased at the expense of the successful Tenderer to a level sufficient to protect the Employer against financial loss in the event of default of the successful Tenderer under the Contract.

32. Preference for Domestic Tenderers

(Not applicable)

F. AWARD OF CONTRACT

33. Award

33.1 Subject to Clause 34, the Employer is not bound to award the Contract to the Tenderer who has offered the lowest price, but will award the Contract to a tenderer whose bid has been determined to be substantially responsive to the Tender Documents, provided that such tenderer has been determined to be (i) eligible in accordance with the provisions of Sub-Clause 3.1; and (ii) qualified in accordance with the provisions of Clause 5.

The Employer reserves the right to encourage merger of a joint venture between tenderers, in case non of the bids have been determined substantially responsive to the Tender Documents.

34. Employer's Right to Accept any Tender and to Reject any or all Tenders

34.1 Notwithstanding Clause 33, the Employer reserves the right to accept or reject any tender, and to annul the tender process and reject all tenders, at any time prior award of Contract, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for the Employer's action.

35. Notification of Award

35.1 Prior to expiration of the period of tender validity prescribed by the Employer, the Employer will notify the successful Tenderer by cable confirmed by registered letter that his bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") shall name the sum which the Employer will pay the Contractor in consideration of the execution and completion of the Works and for remedy of any defects therein by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of the Contract called "the Contract Price").

35.2 The notification of award will constitute the formation of the Contract.

35.3 Upon the furnishing by the successful Tenderer of a Performance Security, the Employer will promptly notify the other tenderers that their bids have been unsuccessful.

36. Signing of Agreement

36.1 At the same time that he notifies the successful Tenderer that his bid has been accepted, the Employer will send the Tenderer the Form of Agreement provided in the Tender Documents, incorporating all agreements between the parties.

36.2 Within 14 days of receipt of the Form of Agreement, the successful Tenderer shall sign the Form and return it to the Employer.

37. Performance Security

37.1 Within 28 days of receipt of the notification of award from the Employer, the successful Tenderer shall furnish to the Employer a Performance Security in the form of a bank guarantee in an amount equivalent to 10 percent of the Contract Price in accordance with the Conditions of Contract.

The form of Performance Security provided in Section 3 of Volume I of the Tender Documents may be used or some other form acceptable to the Employer.

37.2 The Performance Security to be provided by the successful Tenderer shall be issue by a bank located in the People's Republic of Bangladesh and which has been determined by the successful Tenderer to be acceptable to the Employer.

37.3 Failure of the successful Tenderer to comply with the requirements of Clauses 36 or 37 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security.

Section 3

Sample Form of Agreement
Form of Performance Security
Form of Bank Guarantee for Advance Mobilization Payment

Sample Form of Agreement

AGREEMENT

This Agreement made the. . . . . day of. . . . . 1994 between the Jamuna Test Works Consultants, c/o Rhein-Ruhr Ingenieur-Gesellschaft mbH, Dortmund, Germany, and represented by Consulting Consortium FAP 21/22, Dhaka, Bangladesh (hereinafter called "the Employer") of the one part and of. . . . . . .(hereinafter called "the Contractor") of the other part.

Whereas the Employer is desirous that certain Works should be executed by the Contractor, viz. the Construction of Permeable Groynes at Test Site I - Kamarjani and has accepted a Tender by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

Now this Agreement witnesseth as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

2. The following documents shall be deemed to form and to read and construed as part of this Agreement, viz:

   (a) The Letter of Acceptance (including its attachments, if any);
   (b) The said Tender;
   (c) The Conditions of Contract (Part II - Conditions of Particular Application);
   (d) The Conditions of Contract (Part I);
   (e) The Technical Specifications;
   (f) The Tender Drawings; and
   (g) The Priced Bill of Quantities.

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and to remedy any defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties hereto have caused this Agreement to be executed the day and the year first before written.

Signed, sealed, and Delivered by the
said . . . . . .
in the presence of:

Binding Signature of Employer :. . . . . .

Binding Signature of Contractor :. . . . . .

Annex A: SAMPLE FORM

PERFORMANCE BANK GUARANTEE (UNCONDITIONAL)

To: **Jamuna Test Works Consultants**
Joint Venture
c/o Rhein-Ruhr Ingenieur-Gesellschaft mbH
Burgwall 5
D 44033 Dortmund
Box No. 103332
Germany
Fax: 0049 231 575556
Tel: 0049 231 54820

WHEREAS . . . . . (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No.. . . . . dated. . . . . to execute the Construction of Permeable Groynes at Test Site I - Kamarjani, comprising of civil engineering works (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of Taka . . . . . *(amount of Guarantee)*[1] . . . . *(in words)*, such sum being payable in the said currency, and we undertake to pay you, upon your first written demand without cavil or argument, any sum or sums within the limits of Taka . . . . . *(amount of Guarantee)* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We agree that any sum payable under this Bank Guarantee shall be paid directly to your bank account No. . . . . with Banque Indosuez, Dhaka.

We herewith waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the date of issue of the Defects Liability Certificate.

SIGNATURE AND SEAL OF THE GUARANTOR . . . . . .
Name of Bank . . . . . .
Address . . . . . .
Date . . . . . .

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[1] Equivalent to 10% of the Contract Price named in the letter of Acceptance

Annex B: SAMPLE FORM

BANK GUARANTEE FOR ADVANCE PAYMENT

To: **Jamuna Test Works Consultants**
Joint Venture
c/o Rhein-Ruhr Ingenieur-Gesellschaft mbH
Burgwall 5
D 44033 Dortmund
Box No. 103332
Germany
Fax: 0049 231 575556
Tel: 0049 231 54820

Bank Protection Pilot Project FAP-21
Construction of Permeable Groynes at Test Site I - Kamarjani

Gentlemen:

In accordance with the provisions of the Conditions of Contract, Subclause 60.7 ("Advance Payment") of the above mentioned Contract, ... *[name of contractor]* (hereinafter called "the Contractor") shall deposit with the Jamuna Test Works Consultants, (hereinafter called "the Employer"), a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in the amount of Taka . . . . . *(amount of Guarantee)* . . . . . *(in words).*

We, the . . . . . *.(bank or financial institution)*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to the Employer on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding Taka . . . . . *(amount of Guarantee)* . . . . . *(in words).*

We agree that any sum payable under this Bank Guarantee shall be paid directly to the Employers bank account No. . . . . with Banque Indosuez, Dhaka.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or, of any of the Contract documents which may be made between the Employer and the Contractor, shall in any way release us from any liability under his guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until the Employer receives full repayment of the same amount from the Contractor.

Yours truly,

SIGNATURE AND SEAL: . . . . . .
Name of Bank/Financial Institution: . . . . . .
Address: . . . . . .
Date: . . . . . .

Section 4
Bill of Quantities
Daywork Schedule

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BILL OF QUANTITIES - GENERAL DIRECTIONS

(1) The total of the Bill of Quantities shall be the price for the execution and completion of the Works and remedy of any defects therein, as shown on, described in or reasonably to be inferred from the Drawings, the Specifications and the Description of Works and shall include all on-costs, incidental expenses and obligations, liabilities and risks of every kind for which the Contractor is liable under the Contract.

(2) Notwithstanding any limits which may be implied by the wording of the individual items and/or the explanations in this subsection, the rates and sums in the Bill of Quantities are to be for the work complete in every respect. The Contractor shall be deemed to have taken full account of all requirements and obligations, whether expressed or implied, covered by all parts of this Contract and to have priced the items herein accordingly.

(3) The unit rates, beside the basic costs such as for providing material and gear, for wages and salaries, for workers and other personnel etc., also include all incidental costs and incidental performances, which are necessary for proper execution of the Works in accordance with the Contract. Accordingly contained in the unit rates are among others the costs for:

(3.1) providing and maintaining of the total site installations, work and transportation gear, machines, scaffolding, shuttering and all other Temporary Works as defined under the Conditions of Contract, construction offices, lodgings and material sheds etc., required for the Works, inclusive of all cost for the provision and maintenance of workshops, working areas, storage rooms and areas, approaches to the Site and the like. Further included, are the costs for all working and storage areas used by the Contractor, insofar as they have not been made available by the Employer;

(3.2) provision and proper and safe storage of an adequate number of spare plant and spare parts, as well as of suitable materials for the repair to machines and plant;

(3.3) the required fuels, greases, coal, electric power, oxygen, acetylene, compressed air, water etc;

(3.4) separation allowances and travel allowances, for hotel, meals, flight and other travel costs, for permanent or temporary accommodation for the key, skilled and other personnel and specialists for commissioning of installations, for vacation monies, overtime, additional salaries and all other relevant compensations; also the cost for medical attention, hospitalisation, health and accident insurance and other such costs;.

(3.5) additional cost for two or three-shift operation of personnel and constructional plant, as well as for work on Fridays and/or on locally recognized days of rest and public holidays, insofar as such cannot be avoided in exceptional cases;

(3.6) the required accident prevention facilities and devices;

(3.7) the entire illumination facilities for the Site; further, the providing, maintenance and shifting of warning lights, danger signals and fences, as well as the placing of guards for protecting and securing all Temporary Works, facilities, equipment, material stores on the Site and structures under construction;

(3.8) the required means of communication, such as radio, telephones and telex or facsimile transmission, etc;

(3.9) the procuring of regular information from the storm and flood warning services;

(3.10) the preparation of the time schedules, programmes for construction and mobilisation of plant and labour;

(3.11) the preparation of drawings for the site installation and all Temporary Works, as well as of all otherwise necessary drawings, plans, sketches, lists, tables, calculations and the like, insofar as such are to be prepared pursuant to the Contract, inclusive of the cost for the supply of prints and/or other copies;

(3.12) the responsible checking of the Drawings of the Engineer as prescribed in the Specification relative to this Contract;

(3.13) the supply of additional prints of Drawings, structural calculations and other data, insofar as the Engineer does not supply them without charge (vide Clause 6.1 of the Conditions of Contract);

(3.14) all post, air-mail, air freight and other freight charges, as well as the costs for telephone calls, telegrams, telex and facsimile transmission;

(3.15) the insurances for covering all risks incurring to the Contractor, to the extent such risks have been accepted by insurers, and provided the Bill of Quantities does not contain a separate pay-item for the respective insurance premium;

(3.16) any unforeseen additional supplies and performances, construction measures, repairs etc., falling under the Contractor's risks, as far as not covered or accepted by the insurers;

(3.17) the Agreement of Contract, the Contract Documents, for the Performance Securities, as well as for bank guarantees for advance payment affected by the Employer;

(3.18) taxes within or beyond the jurisdiction of the People's Republic of Bangladesh, port fees, octroi charges, ferry and terminal charges and all other taxes leviable to the Contractor in accordance with Clause 73 of the Conditions of Contract;

(3.19) royalties and patent fees, licences, liability claims of third parties and the like in connection with the Works;

(3.20) all surveying and sounding work, as well as for any subsoil investigations and ground water observations and diving operations, if not paid for separately under the Contract;

(3.21) the expense for protection and curing of the concrete;

(3.22) the execution of all contractually agreed upon tests and laboratory investigations at factories, on the Site and at other localities, inclusive of all required testing and inspection materials and equipment and personnel highly skilled in the use of such materials and equipment and of supplying of certificates;

(3.23) providing of means of transportation and of plant, such as boats, ladders, walkways etc., which are necessary for the inspection, checking and acceptance of the performances under the Contract by the Employer and the Engineer, inclusive of the cost for the provision of personnel required for the acceptance of the Works or parts thereof;

(3.24) protection of all fully or partially completed facilities and/or structures, for the safe transition of respective construction stages, safeguard against construction risks, as well as for any additional supplies and performances, if required and used only due to or in consequence of the construction methods, construction stages, etc., which may or may not become part of the permanent structures;

(3.25) all extra expenses for any work difficulties and work interruptions except those mentioned under Clauses 20.4, 40, 44 and 65 of the Conditions of Contract;

(3.26) all material price, transportation cost and wage increases in accordance with Clause 70 of Part II of the Conditions of Contract, and therefore falling under the Contractor's risks;

(3.27) the Contractor's own prefinancing, as well as for all other special supplies and performances, measures and installations, which are not specially listed here or otherwise in the Contract, but which in the opinion of the Engineer are necessary for proper and complete execution of the Works, and which can be fairly demanded from the Contractor.

(4) All prices and unit rates entered in the Bill of Quantities or any Schedule are fixed rates and prices in accordance with Sub-Clause 70.1 of the Conditions of Contract and are not subject to any adjustment.

(5) In the Bill of Quantities, the price per unit and the total amount are to be indicated at the end of each individual item. Should the total amount here not coincide with the unit price, the unit price is relevant.

(6) Cost for items for which no rate or price has been indicated, will be deemed to be included in the cost of the works under items priced and covered elsewhere.

(7) The quantities inserted in the Bill of Quantities are estimated. The work will be measured in accordance with Contract requirements and paid for at the rates or lump sums as the Contract proceeds.

(8) Temporary Works as far as not listed in the Bill of Quantities, will not be paid separately. All cost related to temporary work items are deemed to be included in the relevant unit rates or lump sums for the individual items of Permanent Works in the Bill of Quantities.

(9) Items with the letter "**A**" placed before them, are regarded as **alternative items** and may be executed only after a written order by the Engineer. For these items, only the unit prices are to be inserted in the relevant columns of the Bill of Quantities. The columns for "amount" have therefore already been dashed in the applicable places of the printed documents.

(10) Items with the letter "**P**" placed before them, are deemed as **provisional items** and may be executed only after a written order by the Engineer. The Contractor does not have any right to claim for the execution of such performances, although the cost of these items are included in the Contract Price.

(11) All prices are to be indicated in Bangladesh currency "Taka".

(12) Where the term "**supply**" including its derivatives such as "to be supplied" is used in any item in the Bill of Quantities, it shall be taken to mean all material supplies and works necessary to supply the approved item, to test it, deliver it to Site and unload, unpack, store, protect and make it available in perfect condition when required, including haulage to the place of installation, all in accordance with the Drawings, Description of Works and Specifications, or as approved by the Engineer.

(13) Where the term "**provide**" including its derivatives such as "to be provided" is used in any item in the Bill of Quantities, it shall be taken to mean all the works necessary to supply, deliver, handle, prepare, preserve, install, erect, fix and test the particular item of Works in accordance with the Drawings, Description of Works and Specifications or as approved by the Engineer.

(14) Where the term "**complete**" is used in any item in the Bill of Quantities, it shall be taken to mean the work finished complete in every respect in accordance with the Drawings, Description of Works and Specifications or as approved by the Engineer, including all tests, surveys, soundings, reports, etc.

(15) Any reference to a specific product or manufacturer shall be deemed to be followed by the words "or equivalent" whether or not specially mentioned in the Contract.

(16) Abbreviations used in the Bill of Quantities are defined as follows:

No.	a piece, the quantity or weight of which must be elaborated and determined by the Tenderer in consideration of manufacturing requirements, tolerances, weldings, wastage etc.
No. * mon.	Number multiplied by month (of 30 calender days)
No. * o.d.	Number multiplied by operation days (of 24 hrs.)
Set	an item which comprises of several individual elements.
kN	kilo Newton
t	metric tonne
kg	kilogramme
m	linear meter
m^2	square meter
km^2	square kilometer
m^3	cubic meter
m^3/km	transport of 1 m^3 of material over 1,000 m distance.
ltr.	liter = 1000 ccm
hr.	hour = 60 minutes
month	a month of 30 calendar days, a day will be considered at 1/30th, irrespective of the actual number of calendar days of the pertinent month.
sum	Lump sum

(17) The Section and Subsection numbers mentioned in any item of the Bill of Quantities refer to Sections of the Specifications, Volume III of the Contract Documents.

Bill No.: 01
General Items

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
1.01	Clearing of site areas in accordance with Subsection 910, complete.	m^2	100,000		
1.02	Preparation and mobilization of the Site as per Section 500, including rental charges etc., complete.	-	sum		
1.03	Mobilization of Contractor's equipment (owned and rented/leased) as per Section 400, including interim haulage to the place(s) of repair, upgrading and outfit, and final haulage to the Site, ready for operation and use.	-	sum		
P 1.04	Provisional Sum for repair, upgrading and outfit of Contractor's rented/leased equipment as per Subsection 410. The extent of repair/upgrading and the type/capacity of additional equipment, gear or accessories to be provided has to be agreed upon at the time with the Engineer. Payments out of this Provisional Sum will only be effected for the completed works and on the basis of Contractor's quotations for the individual works and supplies or as per Daywork Schedules, as approved by the Engineer. Any such work shall be carried out only after Engineer's written approval thereof. The tenderer is obligated to submit a detailed analysis in support of the proposed Provisional Sum as an Attachment to the tender.	-	sum		
1.05	Manufacturing and installing special equipment for laying of geotextile filter mats as per Drawing KA-010, ready for operation.	-	sum		
1.06	Site laboratory in accordance with Subsection 560, to be provided, maintained and operated, complete.	month	7		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 1.07	Project sign board in accordance with Subsection 518, size approx. 2.5 x 3.0 m, height above ground approx. 2.0 m, to be provided, complete.	-	sum		
P 1.08	Provide Contractor's All Risk insurance and Third Party Insurance in accordance with Clauses 21, 23 and 24 of the Conditions of Contract, Part I and II.	-	sum		
A 1.09	Provide Contractor's insurances as under Item P 1.08, but at reduced cover in accordance with Sub-Clause 21.6 of Part II of the Conditions of Contract.	-	sum		- - - - - - -
1.10	Water level recorder, automatic, to be provided, operated and maintained during the entire construction period, records to be handed over to the Engineer's Representative, complete.	month	8		
P 1.11	Loading, transporting and unloading as well as proper storing and protection any surplus materials and construction equipment provided to the Contractor by the Employer for the propose of the Works, complete. The location of the storage yard will be decided by the Employer at the time. Payment under this Provisional Item will be made by agreement between the Employer and the Contractor in accordance with the Conditions of Contract.	-	sum		500,000
1.12	Demobilization and clean-up of the site upon completion of the Works, as per Subsection 580, complete.	-	sum		
			Total Title 01 (carried to Summary)		

Bill No.: 02 (Provisional Work)
Providing Construction Equipment after Completion of the Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 2.01	Provide and maintain equipment as per Sub-section 480 at a suitable location near the Site for use in emergency situations during the monsoon season following the completion of the Works. Operation will be paid under Items P 2.02 to P 2.04.				
	(a) 250-t-pontoon	month	6		
	(b) 250-t-pontoon (to utilize for 30-t-crawler crane)	month	6		
	(c) 30-t-crawler crane	month	6		
P 2.02	Operate the 250-t-pontoon of Item 2.01 on the instruction of the Employer or the Engineer.	hr.	200		
P 2.03	Operate the 250-t-pontoon of Item 2.01 on the instruction of the Employer or the Engineer.	hr.	200		
P 2.04	Operate the 30-t-crawler crane mounted on the 250-t-pontoon of Item 2.01 on the instruction of the Employer or the Engineer.	hr.	100		
P 2.05	Hire operate and a tug-boat of at least 400 HP on the instruction of the Employer or the Engineer.	hr.	200		
	Total Title 02 (Provisional Work) (carried to Summary)				

Bill No.: 03

Taking - Over of Construction Equipment and Material Provided by the Employer for Use in the Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Construction Equipment				
3.01	Power unit for hydraulic pile installation equipment, Type PTC-MH 600, as per Subsection 322, weight approx. 7t, to be loaded at Mongla Port to Contractor's barge, transported to the Site and unloaded, complete.	-	sum		
A 3.02	Power unit as in Item 3.01, but loaded at Chittagong Port.	-	sum		- - - - - - -
3.03	Vibrator pile hammer Type PTC-50 H4 Vibrofonceur, as per Subsection 323, weight approx. 10 t, to be loaded at Mongla Port to Contractor's barge, transported to the Site and unloaded, complete.	-	sum		
A 3.04	Vibrator pile hammer as in Item 3.03, but unloaded at Chittagong Port.	-	sum		- - - - - - -
3.05	Hydraulic piling hammer, Type MHF 10-15, with accessories, piling caps etc., as per Subsection 324, weight approx. 25 t, to be loaded at Mongla Port to Contractor's barge and transported to the Site and unloaded, complete.	-	sum		
A 3.06	Hydraulic piling hammer as in Item 3.05, but unloaded at Chittagong Port.	-	sum		- - - - - - -
3.07	Piling leader and accessories, as per Subsection 325, weight approx. 10 t, to be loaded at Mongla Port to Contractor's barge, transported to the Site and unloaded, complete.	-	sum		
A 3.08	Piling leader and accessories as in Item 3.07, but unloaded at Chittagong Port.	-	sum		- - - - - - -

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
3.09	Piling equipment of Items 3.01 to 3.07 to be unpacked, assembled, erected and mounted on the pile installation barge, including all auxillary works, ready for operation, complete.	-	sum		
3.10	Welding equipment and accessories as per Subsection 330, to be loaded at Mongla Port to Contractor's barge, transported to the Site, unloaded and stored, complete.	-	sum		
A 3.11	Welding equipment as per Item 3.10, but unloaded at Chittagong Port.	-	sum		- - - - - - -
3.12	Welding equipment and accessories of Item 3.10, to be unpacked, assembled, erected, including all auxillary supplies and works, ready for operation, complete.	-	sum		
P 3.13	Crawler crane, 150-t capacity, as per Subsection 340, to be taken-over, loaded to the pile installation barge of Subsection 350, transfered to the Site and assembled, ready for operation, complete.	-	sum		
	Sub-total (a)				
	(b) Tubular Steel Piles				
3.20	Tubular steel piles dia. 711.2 x 14.2 mm, steel grade St 37-3, individual lengths up to 13 m to be loaded at Mongla Port to Contractor's pile barges and transport to the Site, complete.	t	320		
3.21	Tubular steel piles dia. 1016 x 20 mm, steel grade St 37-3, lengths up to 12 m, to be loaded and transported as in Item 3.20, complete.	t	335		
3.22	Tubular steel piles dia. 1220 x 20 mm and 1220 x 14.2 mm, steel grade St 37-3, lengths up to 12 m, to be loaded and transported as in Item 3.20, complete.	t	670		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
A 3.23	Tubular steel piles as in Items 3.20, 3.21 and 3.22, but loaded at Chittagong Port. Rate as addition/reduction to Items 3.20, 3.21 and 3.22.	t	1	±	- - - - - - -
	Sub-total (b)				
	(c) Steel Sheet Piling				
3.30	Steel sheet pile double and single profiles Arbed PU-6, steel grade St Sp 37, individual lengths of 7 m and 8 m, single weight of one double sheet pile 0.65 t, to be loaded at Mongla Port to Contractor's barge and transported to the Site, complete.	t	95		
3.31	Steel anchor sets, dia. 50 mm, steel grade St 52-3, individual lengths approx. 5 m, for Bill No. 11 and No. 41, with anchor plates, turnbuckles and nuts, to be loaded at Mongla Port to Contractor's barge, transported to the Site, unloaded and stored, complete.	t	10		
3.32	Steel walings of profile U 240, steel grade St 37-2, in lengths of 6 m to be loaded at Mongla Port to Contractor's barge, transported to the Site, unloaded and stored, complete.	t	12.5		
3.33	Wale plates of steel grade St 37-2, wale bolts of steel grade St 52-3, etc., to be loaded at Mongla Port to Contractor's barge, transported to the Site, unloaded and stored, complete.	t	3		
A 3.34	Steel sheet pile and anchor materials as in Items 3.30 to 3.33, but loaded at Chittagong Port. Rate as addition/reduction to Items 3.30 to 3.33.	t	1	±	- - - - - - -
	Sub-total (c)				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(d) Rolled Steel Sections				
3.40	Steel girders HEB 140/200/300/360, steel grade St 37, individual lengths up to 12 m, to be loaded at Mongla Port to Contractor's barge, transported to the Site or Contractor's steel fabrication yard, unloaded and stockpiled, complete.	t	40		
3.41	Checkered steel plates, t = 4 mm, steel grade St 37, to be loaded at Mongla Port to Contractor's barge, transported to the Site or Contractor's steel fabrication yard, unloaded and stockpiled, complete.	t	5.5		
A 3.42	Steel girders and plates as in Items 3.40, but unloaded at Chittagong Port. Rate as addition/reduction to Item 3.40 and 3.41.	t	1	±	- - - - - - -
	Sub-total (d)				
	(e) Geotextiles				
3.50	Geotextile filter mats, Type GF-1, in rolls of about 5 m in width, single weight of one roll up to approx. 500 kg, taken over and loaded at Mongla Port, transported to the Site, unloaded, stored and protected, complete (approx. 15,000 m²).	t	12.50		
3.51	Geotextile sandwich-type filter mats, Type GF-3, in rolls of about 5 m in width, single weight of one roll up to approx. 850 kg, taken over and loaded at Mongla Port, transported to the Site, unloaded, stored and protected, complete (approx. 3,250 m²).	t	20		
3.52	Geotextile containers, Type A to be taken over and loaded at Mongla Port, transported to the Site, unloaded, stored and protected, complete (27,500 Nos.)	t	10		
A 3.53	Geotextile materials as in Items 3.50, 3.51 and 3.52, but unloaded at Chittagong Port. Rate as addition/deduction to Items 3.50, 3.51 and 3.52.	t	1	±	- - - - - - -
	Sub-total (e)				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(f) Concrete Piles and Concrete Sheet Piling				
P 3.60	Prestressed spun concrete piles, diameter 500 x 100 mm, individual lengths of 10 m, produced by GEMCON Ltd. Panchagar, stockpiled at Chilmari, to be loaded to barges and transported to the Site, unloaded and stockpiled, complete.	No.	92		
P 3.61	Reinforced concrete sheet piles, size 250 x 490 mm, individual lengths of 8 m, produced by GEMCON Ltd., Panchagar, stockpiled at Chilmari, to be loaded to barges and transported to the Site, unloaded and stockpiled, complete.	No.	316		
	Sub-total (f)				
	(g) Stones and Rubble for Rip-rap				
3.70	Graded stones size D50 = 100 mm to D50 = 250 mm, stockpiled at Chilmari, to be loaded to barges and towed to the Site, ready for use.	m^3	2,000		
3.71	Graded stones as in Item 3.70, but any size above D50 = 260 mm.	m^3	2,500		
	Sub-total (g)				
	Total Title 03 (carried to Summary)				

Bill No.: 04
Engineer's Facilities

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 4.01	Provide Engineer's site office as per Subsection 710, complete.	-	sum		
P 4.02	Operate and maintain Engineer's site office as per Subsection 715, complete. (This item applies also in case the Engineer choosed to use container-type offices).	month	8		
P 4.03	Provide Engineer's permanent accommodation to be constructed as single or double storeyed building within the BWDB-complex, Gaibandha, plan area about 450 m², with 4 bedrooms, 2 guest rooms, living/dining area, bathrooms, kitchen, stores and servant's rooms, with all sanitary and electrical installations, complete.	-	sum		3,000,000
A 4.04	Foundation to be provided for Engineer's 20-ft-container-offices, floor level above + 23.50 m PWD, including all fill work, compaction, concrete and/or brick works, complete.	No	1		- - - - - - -
A 4.05	Septic tank with soak pit, capacity suitable for at least 10 persons, to be provided, complete with all sewer lines to Engineer's container-WC's.	-	sum		- - - - - - -
A 4.06	Ground water deep well, at least 40 m deep, to be provided, including strainers, pump and pipelines to the fresh water tanks of Engineer's container offices/WC's, complete.	-	sum		- - - - - - -
A 4.07	Container-office, 20 ft-size, to be unloaded from a barge/ship, transported and installed on the foundations of Items A 4.03, complete (Total 5 Nos.).	No.	1		- - - - - - -
A 4.08	Roof construction for covering Engineer's container offices and walkways between the containers, to be provided with all foundations, posts, trusses and roofing, complete.	m²	1		- - - - - - -
	Total Title 04 (carried to Summary)				

Bill No.: 05
Monitoring Field Station (M.F.S.)

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Foundation Works				
5.01	Concrete piles dia. 500 x 100 mm, of Item 3.60, individual lengths of 10 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	No.	8		
5.02	Concrete piles dia. 500 x 100 mm, to be installed to design depth (length of pile between ground level and achieved pile tip level will be measured), complete.	m	60		
5.03	Cutting of driven pile head to design level, including disposal of surplus material, complete.	No.	8		
5.04	Reinforced concrete Class B 25 for the pile capping beams and slab, to be provided, including fair-faced formwork Type FF, temporary supports, complete.	m^2	10		
5.05	Reinforced steel, deformed bars, Grade 60, to be provided for Item 5.04, complete.	t	1		
5.06	Steel base plates 200 x 20 x 200 mm, with welded on anchor bars 4 ø 20 ... 500 mm each, to be provided, placed in prepared pockets and levelled, including subsequent concrete fill Class B 25, complete.	No.	8		
	Sub-total (a)				
	(b) Installation of M.F.S.				
5.10	Unloading of 20-ft-container-type office from a barge, transport to the location between groynes G-1 and G-2, placed on the prepared foundations and secured in place by welding to the base plates, complete.	No.	2		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
A 5.11	Monitoring field office, ground area 2 x (2.5 m x 6.0 m), to be provided, including all brickwork (24 cm outer walls, 12 cm inner walls), reinforced concrete roof slab, exterior/interior plaster, terrazzo flooring, tiled bathrooms, sanitary and electrical installations, water proofing and insulation of roof, exterior/interior painting, complete.	-	sum		- - - - - - -
5.12	Roof construction, posts of tubular steel, otherwise rolled steel sections, roofing of corrugated GI-sheets, all adequately designed to suit prevailing wind conditions, to be provided including all mounting material, corrosion protection as per Type II, Subsection 1452, complete. Rate per area of roofing.	m^2	55		
	Sub-total (b)				
	(c) Sewage System				
5.20	Construction or septic tank with brick work in cement mortar (1:6) over brick flat soling and 20 cm thick cement concrete (1:2:4), with 12.5 cm thick partition walls and 2 cm thick cement plaster (1:4) to made on the walls with neat cement finishing, including supplying, fitting, fixing two R.C.C. tees and providing two 45 cm dia. heavy type C.I. manhole covers and 10 cm thick R.C.C. (1:2:4) top slab, including all reinforcement, including centering shuttering, casting, curing, complete to be provided, including of all materials, excavation etc., complete.	-	sum		
5.21	Construction of soak well, 6 m deep, with 24 cm thick brick work with cement mortar (1:6) over R.C.C. (1:2:4) well curbs, with R.C.C. top slab (1:2:4) including supply, fitting and fixing 45 cm dia C.I. manhole cover, filling the well up to required depth with graded khoa and sand, including necessary earth work in well sinking and backfilling etc., to be provided, complete.	-	sum		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
5.22	Supplying and placing 150 mm dia. R.C.C. pipes including cutting trenches and sand filling for pipe bedding and covering etc., complete.	m	100		
5.23	Construction or masonry inspection pit, inside measurement 60 x 60 cm, depth variable, with 24 cm thick brick work with cement mortar (1:4) over 10 cm thick base concrete (1:3:6) over one brick flat soling, including 7.5 cm thick (1:2) cement plaster on the inside floor and wall with neat cement finishing, pipe placing, excavation and backfilling, complete.	No.	4		
5.24	Providing sewer connection between bathrooms of monitoring field station and septic tank, including all pipes, fasteners, supports, vents, complete.	-	sum		
	Sub-total (c)				
	(d) Water Supply				
5.30	Supplying, sinking, fitting, fixing 38 mm dia. tubewell, 40 m deep, including supply of lift and force pump, G.I. pipes, 2 Nos. good quality brass strainers and other fittings, sinking by water jet process etc., including supply of 12 mm ø G.P. pipe for connecting to the roof top water tank etc., with all fittings, controls, values, drains, and accessories, complete.	-	sum		
5.31	Construction of platform for the tubewell, 10 cm thick cement concrete (1:3:6) over a brick flat soling and providing 12.5 x 7.5 cm brick band around, including finishing with 1.5 cm thick cement plaster (1:2) with neat cement finishing etc. all with necessary outlet drain up to 2 m long, complete.	-	sum		
5.32	Supplying, fitting, fixing size 120 x 120 x 120 cm size of 1800 liter capacity of over head tank, including painting the tank with paint of approved colour and quantity and providing G.I. manhole cover on the top. With locking arrangement, providing				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	inlet and outlet pipe with flanged plugs, jum nuts etc. and 38 mm dia ball cock etc., with all other necessary fittings including over flow pipe 12 mm dia. 75 cm long and connection of water supply line to bathrooms of the monitoring field office, complete.	-	sum		
5.33	Steel works with angles and flat bars for fixing the water tank on the roof tightly with required anchorage against over flying etc. complete.	t	0.20		
	Sub-total (d)				
	Total Title 05 (carried to Summary)				

Bill No.: 06 (Provisional Work)
Bathymetric Survey Work

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 6.01	Bathymetric survey to be provided in accordance with Subsection 650, to be carried out prior to commencement of Construction Works at Site, including survey drawings, complete.	km^2	3.5		
Total Title 06 (Provisional Work) (carried to Summary)					

Bill No.: 10
Pile Preparation and Installation Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Preparation of Tubular Steel Piles				
10.01	Tubular steel piles, dia. 711.2 x 14.2 mm, steel grade St 37-3, of Item 3.20, individual lengths up to 13 m, to be handled between pile transportation/storage barge and Contractor's pile assembly and welding place, laying-out at prepared roller supports, ready for welding, complete.	m	400		
10.02	Tubular steel piles, dia. 1016 x 20 mm, of Item 3.21, steel grade St 37-3, lengths up to 12 m, otherwise as in Item 10.01, complete.	m	224		
10.03	Tubular steel piles, dia. 1220 x 20 mm of Item 3.22, steel grade St 37-3, lengths of 12 m, otherwise as in Item 10.01, complete.	m	348		
10.04	Welded butt joint of pile dia. 711.2 x 14.2 mm, including backing ring, full penetration weld and testing of weld, to be provided, complete.	No.	14		
10.05	Welded butt joint of pile dia. 1016 x 20 mm, at least one welding pass (root welding) to be done from inside the pile, full penetration weld, testing of weld, to be provided, complete.	No.	14		
10.06	Welded butt joint of pile dia. 1220 x 20 mm, at least one welding pass (root welding) to be done from inside the pile, full penetration weld, testing of weld, to be provided, complete.	No.	18		
P 10.07	Square steel tube size 75 x 75 mm, in standard lengths, to be provided, including bottom closure plate and attach by welding to the interior wall of piles No. 29B and No. 24, complete.	t	1		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
A 10.08	Cutting of tubular steel pile section dia. 711.2 x 14.2 mm, ends straight or V-shaped as weld preparation, at the pile assembly and welding place, complete.	No.	1		- - - - - - -
A 10.09	Cutting of tubular steel pile section dia. 1016 x 20 mm, ends straight or V-shaped as weld preparation, at the pile assembly and welding place, complete.	No.	1		- - - - - - -
A 10.10	Cutting of tubular steel pile section dia. 1220 x 20 mm, ends straight or V-shaped as weld preparation, at the pile assembly and welding place, complete.	No.	1		- - - - - - -
A 10.11	Pile point reinforcement dia. 690 x 16 x 220 mm, to be provided to pile dia. 711.2 x 14.2 mm, including material, complete.	No.	1		- - - - - - -
A 10.12	Pile point reinforcement dia. 990 x 20 x 220 mm, to be provided to pile dia. 1016 x 20 mm, including material, complete.	No.	1		- - - - - - -
A 10.13	Pile point reinforcement dia. 1178 x 20 x 220 mm, to be provided to pile dia. 1220 x 20 mm, including material, complete.	No.	1		- - - - - - -
P 10.14	Pile head reinforcement by L 100 x 8 x 800 mm, to be provided, including material, complete.	t	2		
P 10.15	Tubular steel pile surfaces to be blasted to Grade Sa. 2.5, complete.	m^2	1,100		
P 10.16	Blasted steel pile surfaces to be provided with epoxy-zinc-rich primer coat, dry film thickness 40 microns, as per Subsection 1451, Type I, complete.	m^2	1,100		
P 10.17	Preservation coating on epoxy-tar basis to be provided, total dry film thickness 200 microns, as per Subsection 1451, Type I, complete.	m^2	1,100		
	Sub-total (a)				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(b) Installation of Tubular Steel Piles				
10.20	Steel pile dia. 711.2 x 14.2 mm, lengths 13 m, 19.5 m and 26 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	350		
10.21	Steel pile dia. 1016 x 20 mm, lengths 32 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	192		
10.22	Steel pile dia. 1220 x 20 mm, lengths 36 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	288		
10.23	Steel pile dia. 711.2 x 14.2 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	310		
10.24	Steel pile dia. 1016 x 20 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	150		
10.25	Steel pile dia. 1220 x 20 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	210		
A 10.26	Steel pile dia. 711.2 x 14.2 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
A 10.27	Steel pile dia. 1016 x 20 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
A 10.28	Steel pile dia. 1220 x 20 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
	Sub-total (b)				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(c) Pile Head Preparation				
10.40	Cutting of steel piles dia. 711.2 x 14.2 mm after complete installation, horizontally, to design level, complete.	No.	18		
10.41	Cutting of steel piles dia. 1016 x 20 mm after complete installation, horizontally, to design level, complete.	No.	6		
10.42	Cutting of steel piles dia. 1220 x 20 mm after complete installation, horizontally, to design level, complete.	No.	2		
10.43	Cutting of steel pile heads dia. 1220x20 mm after installation, to designed inclination and level, complete.	No.	6		
10.44	Steel plate, dia. 735 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 10.40, complete.	No.	18		
10.45	Steel plate, dia. 1050 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 10.41, complete.	No.	6		
10.46	Steel plate, dia. 1260 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 10.42, complete.	No.	2		
10.47	Steel plate, oval shaped 1280 x 20 x 1785 mm, steel grade St 37-3, to be provided and welded to prepared pile heads of Item 10.43, complete.	No.	6		
10.48	Tubular steel tube section dia.1220x20 mm, to be cut as per site measurement from material of Item 3.22, hauled to the place and welded to the steel base plates of Item 10.47, complete.	No.	3		
	Sub-total (c)				
	Total Title 10 (carried to Summary)				

Bill No.: 11
Steel Sheet Pile Cofferdam

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Steel Sheet Piling				
11.01	Steel sheet pile double profiles and single profiles Arbed PU-6, of Item 3.30, steel grade St Sp 37, individual lengths of 7 m and 8 m, to be unloaded and stored next to the place of installation, complete.	t	95		
11.02	Steel sheet double and single piles of Item 11.01 to be hauled and pitched in place, ready for driving, including providing of guide frames and lateral supports at two elevations, complete.	No.	160		
11.03	Steel sheet double piles to be driven to design depth in the sequence 1-5-3-2-4 and so on, complete.	m	1,200		
11.04	Steel sheet pile profile of Item 11.01, length 8 m, to be cut in longitudinal and be prepared as adapter sheet pile according to Drawings and site measurements, by oxy-cutting, butt welding, complete. Welding of a steel strap as joint reinforcement will be measured and paid as per Item 11.10.	lin. m.	32		
11.05	Driven steel sheet piles to be cut to design level and slope, complete.	m	30		
11.06	Steel brackets to be provided and welded to the driven steel sheet piles as support for Item 11.07, complete.	t	1		
11.07	Steel walings of Item 3.32 to be hauled to the site of installation, cut and/or jointed to the desired lengths, placed on the bracket supports of Item 11.06 and secured in place, including all welding work, complete.	m	170		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
11.08	Wale bolts and anchor plates of Item 3.33 to be hauled to the Site and to be installed and tightened, including all oxy - cutting of bolt holes into the steel sheet pile wall and temporary securing of anchor plates, complete.	Set	124		
11.09	Steel anchor sets of Item 3.31 to be hauled to the Site and installed force locking, including all oxy-cutting of anchor holes into the steel sheet piles, temporary supports for the anchor sets, complete.	Set	23		
11.10	Steel material, grade St 37-3, to be supplied, cut and installed for lashings, butt joints, straps, etc., complete.	t	1		
	Sub-total (a)				
	(b) Earthworks and Pavement				
11.20	Excavation of soil within the cofferdam, for installation of tie anchors, interim storage of material, complete.	m^3	170		
11.21	Backfilling of cofferdam, using material of Item 11.20, inclusive layerwise compaction to a degree of density of D=0.6 to 0.75, complete.	m^3	170		
11.22	Backfilling of cofferdam as in Item 11.21, but including providing the fill material from approved borrow pit, complete.	m^3	1,000		
11.23	Mixed granular filter Type IV to be provided and placed true to slope and levels, as sub-base for Item 11.24, complete.	m^3	40		
11.24	Concrete block pavement, block size 20 x 20 x 20 cm, to be provided and laid at interlocking pattern, including supply of blocks, filling any gaps to the sheet pile profiles by lean concrete of 20 cm thickness, complete.	m^2	120		
11.25	Concrete block pavement as in Item 11.24, but block size 20 x 20 x 8 cm, complete.	m^2	400		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
A 11.26	Fine dressing and closed turfing with Durba, Charkata or other good quality grass sods, to be provided on top of the cofferdam fill, including 10 cm thick sublayer of suitable top soil, securing the grass sods against displacement by 30 cm long wooden pegs at 1.5 m intervals, adequate watering after laying the turf, and first cut, complete.	m^2	1		- - - - - - -
	Sub-total (b)				
	Total Title 11 (carried to Summary)				

Bill No.: 12
Revetments and Bed Protections

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
12.01	Excavation of any soil above and below water level to facilitate pile installation near bankline and for construction of revetments and bed protection around the cofferdam, to true slope and levels, material to stock pile for reuse, complete.	m^3	6,200		
12.02	Geotextile - sandwich - filter mattress, Type GF-3 of Item 3.51, to be laid under water on the river bed using special equipment as per Item P 1.05, including checking of correct positioning and overlapping of mattresses by divers, complete.	m^2	3,250		
12.03	Granular filter material filled in jute bags, grading range Type IV, to be provided around the piles of groyne G-1 to fill any gap to the geotextile filter of Item 12.02 by dumping below water level at an overall thickness of minimum 60 cm, complete.	m^3	200		
A 12.04	Geotextile containers Type A, of Item 3.52, to be filled with suitable soil (80-85 kg), closed by proper stiching, using special sewing gear supplied by Employer, to be loaded, transported to location and dumped around the tubular piles of the permeable groyne, complete.	Nos.	1		- - - - - - -
12.05	Granular filter, grading range Type II, to be provided above water level, true to slope and levels, at a minimum layer thickness of 30 cm, complete.	m^3	450		
12.06	Granular filter, grading range Type III, to be provided above water level, true to slope and levels, at a minimum thickness of 30 cm, complete.	m^3	450		
12.07	Geotextile filter mat Type GF-1 of Item 3.50, to be placed above water level on the prepared slopes and areas, including workmanlike overlappings, ballasting for temporary securing, complete.	m^2	600		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
12.08	Bed protection by stones, Grading Range C, D50 = 20 cm, transported to the Site under Item 3.70, to be placed under water within well defined areal limits and to the designed layer thickness, complete.	m^3	350		
12.09	Bed protection by stones, Grading Range D, D50 = 25 cm, transported to the Site under Item 3.70, to be placed under water within well defined areal limits and to the designed thickness, complete.	m^3	130		
A 12.10	Bed protection by stones, Grading Range E, D50 = 30 cm, transported to the Site under Item 3.71, to be placed under water within well defined areal limits and to the designed layer thickness, complete.	m^3	1		- - - - - - -
12.11	Revetment by stones, Grading Range D, D50 = 25 cm, transported to the Site under Item 3.70, to be placed under water within well defined limits and to the designed slope and layer thickness, complete.	m^3	500		
12.12	Revetment by stones, Grading Range E, D50 = 30 cm, transported to the Site under Item 3.71, to be placed above water level within well defined limits and to the designed slope and layer thickness, complete.	m^3	550		
A 12.13	Revetment by stones, Grading Range F, D50 = 35 cm, transported to the Site under Item 3.71, to be placed above water level within well defined limits and to the designed slope and layer thickness, complete.	m^3	1		- - - - - - -
A 12.14	Bed protection along cofferdam, Grading Range A, D50 = 10 cm, transported to the Site under Item 3.70, to be placed above water level within well defined limits and to the designed layer thickness, complete.	m^3	1		- - - - - - -

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
12.15	Bed protection along cofferdam, Grading Range B, D50 = 15 cm, transported to the Site under Item 3.70, to be placed above water level within well defined limits and to the designed layer thickness, complete.	m^3	130		
12.16	Cement concret blocks of different sizes up to 20 x 20 x 20 cm, mix proportion 1:3:6, using machine mixing and vibrator compaction, approved formwork boxes, first class aggregates, including downgraded khoa of first class bricks, to be provided and stored, ready for use, complete	m^3	450		
12.17	Falling apron of concrete blocks, size 15 x 15 x 15 cm, using material provided as per Item 12.16, to be placed within well defined areal limits and to the designed layer thickness, including haulage of the blocks to place of dumping, complete.	m^3	450		
A 12.18	Falling apron of concrete blocks, size 10 x 10 x 10 cm, otherwise as in Item 12.17, complete.	m^3	1		- - - - - - -
12.19	Brick mattressing of first class bricks, 20 cm thick, in double layers (one layer brick flat soling and cover layer of herring bone bond with bricks in upright position), with lower and upper layer of 12 SWG galvanized wire netting of 100 mm hexagonal mesh, tying of both wire mesh layers with 12 SWG galvanized wire at 30 cm centre to centre, including anchoring with 1.0 m long timber pegs at 2.0 m centre to centre, complete.	m^2	650		
12.20	Backfilling of designated areas above water level, after complete laying of revetments and bed protection of Items 12.11 to 12.19, by layerwise filling and compaction to at least its original density, utilizing material of Item 12.01, inclusive providing jute sand bags dyke along bankline, complete.	m^3	4,500		
	Total Title 12 (carried to Summary)				

Bill No.: 13

Monitoring Gangway and Platform

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
13.01	Steel sections and platings, steel grade St. 37, to be supplied.	t	12		
13.02	Steel construction for monitoring gangway to be manufactured, utilizing material of Items 3.30, 3.31 and 13.01, inclusive transportation to the Site, complete.	t	10		
13.03	Steel construction for monitoring platform to be manufactured, utilizing material of Items 3.40, 3.41 and 13.01, inclusive transportation to the Site, complete.	t	3		
13.04	Pile supports for monitoring gangway and platform to be manufactured as per site measurement, utilizing material of Items 3.40 and 13.01, and to be installed at the pile heads, complete.	t	6		
13.05	Monitoring gangways of Item 13.02, individual length of 10 m, to be hauled to place of installation and mounted on the prepared pile supports, complete.	No.	5		
13.06	Steel construction of Item 13.03 for monitoring platform to be installed in place, complete.	t	3		
13.07	Steel constructions and guard railings of monitoring platform and gangways to be provided with anti-corrosive paint, Type II, Subsection 1452, including derusting of steel surfaces as per requirements, complete. (Rate per square mater of ground area of gangway or platform)	m^2	80		
13.08	Steel construction for "East Cardinal Mark" to be provided, using material of Item 13.01, and to be installed at the groyne head, including anti-corrosive paint, Type II, Subsection 1452, tinted yellow/black alternately, including derusting of steel surfaces as per requirements, complete.	t	0.7		
	Total Title 13 (carried to Summary)				

Bill No.: 20
Pile Preparation and Installation Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Preparation of Tubular Steel Piles				
20.01	Tubular steel piles, dia. 711.2 x 14.2 mm, steel grade St 37-3, of Item 3.20, individual lengths up to 13 m, to be handled between pile transportation/storage barge and Contractor's pile assembly and welding place, laying-out at prepared roller supports, ready for welding, complete.	m	455		
20.02	Tubular steel piles, dia. 1016 x 20 mm, of Item 3.21, steel grade St 37-3, lengths up to 12 m, otherwise as in Item 20.01, complete.	m	224		
20.03	Tubular steel piles, dia. 1220 x 20 mm and 1220 x 14.2 mm of Item 3.22, steel grade St 37-3, lengths of 12 m, otherwise as in Item 20.01, complete.	m	324		
20.04	Welded butt joint of pile dia. 711.2 x 14.2 mm, including backing ring, full penetration weld and testing of weld, to be provided, complete.	No.	20		
20.05	Welded butt joint of pile dia. 1016 x 20 mm, at least one welding pass (root welding) to be done from inside the pile, full penetration weld, testing of weld, to be provided, complete.	No.	14		
20.06	Welded butt joint of pile dia. 1220 x 20 mm, at least one welding pass (root welding) to be done from inside the pile, full penetration weld, testing of weld, to be provided, complete.	No.	16		
20.07	Welded butt joint of pile dia. 1220 x 14.2 mm, otherwise as Item 20.06.	No.	2		
P 20.08	Square steel tube size 75 x 75 mm, in standard lengths, to be provided, including bottom closure plate and attach by welding to the interior wall of pile No. 30, complete.	t	0.5		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
A 20.09	Cutting of tubular steel pile section dia. 711.2 x 14.2 mm, ends straight or V-shaped as weld preparation, at the pile assembly and welding place, complete.	No.	1		- - - - - - -
A 20.10	Cutting of tubular steel pile section dia. 1016 x 20 mm, ends straight or V-shaped as weld preparation, at the pile assembly and welding place, complete.	No.	1		- - - - - - -
A 20.11	Cutting of tubular steel pile section dia. 1220 x 20 mm, ends straight or V-shaped as weld preparation, at the pile assembly and welding place, complete.	No.	1		- - - - - - -
A 20.12	Pile point reinforcement dia. 690 x 16 x 220 mm, to be provided to pile dia. 711.2 x 14.2 mm, including material, complete.	No.	1		- - - - - - -
A 20.13	Pile point reinforcement dia. 990 x 20 x 220 mm, to be provided to pile dia. 1016 x 20 mm, including material, complete.	No.	1		- - - - - - -
A 20.14	Pile point reinforcement dia. 1178 x 20 x 220 mm, to be provided to pile dia. 1220 x 20 mm, including material, complete.	No.	1		- - - - - - -
P 20.15	Pile head reinforcement by L 100 x 8 x 800 mm, to be provided, including material, complete.	t	2		
P 20.16	Tubular steel pile surfaces to be blasted to Grade Sa. 2.5, complete.	m^2	1,100		
P 20.17	Blasted steel pile surfaces to be provided with epoxy-zinc-rich primer coat, dry film thickness 40 microns, as per Subsection 1451, Type I, complete.	m^2	1,100		
P 20.18	Preservation coating on epoxy-tar basis to be provided, total dry film thickness 200 microns, as per Subsection 1451, Type I, complete.	m^2	1,100		
	Sub-total (a)				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(b) Installation of Tubular Steel Piles				
20.20	Steel pile dia. 711.2 x 14.2 mm, lengths 19.5 m and 26 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	410		
20.21	Steel pile dia. 1016 x 20 mm, lengths 32 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	192		
20.22	Steel pile dia. 1220 x 20/14.2 mm, lengths 36 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	288		
20.23	Steel pile dia. 711.2 x 14.2 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	360		
20.24	Steel pile dia. 1016 x 20 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	150		
20.25	Steel pile dia. 1220 x 20/14.2 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	200		
A 20.26	Steel pile dia. 711.2 x 14.2 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
A 20.27	Steel pile dia. 1016 x 20 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
A 20.28	Steel pile dia. 1220 x 20/14.2 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
	Sub-total (b)				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(c) Pile Head Preparation				
20.40	Cutting of steel piles dia. 711.2 x 14.2 mm after complete installation, horizontally, to design level, complete.	No.	18		
20.41	Cutting of steel piles dia. 1016 x 20 mm after complete installation, horizontally, to design level, complete.	No.	6		
20.42	Cutting of steel piles dia. 1220 x 20 mm after complete installation, horizontally, to design level, complete.	No.	6		
20.43	Cutting of steel pile heads dia. 1220x20 mm after installation, to designed inclination and level, complete.	No.	2		
20.44	Steel plate, dia. 735 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 20.40, complete.	No.	18		
20.45	Steel plate, dia. 1050 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 20.41, complete.	No.	6		
20.46	Steel plate, dia. 1260 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 20.42, complete.	No.	6		
20.47	Steel plate, oval shaped 1280 x 20 x 1785 mm, steel grade St 37-3, to be provided and welded to prepared pile heads of Item 20.43, complete.	No.	2		
20.48	Tubular steel tube section dia.1220x20 mm, to be cut as per site measurement from material of Item 3.22, hauled to the place and welded to the steel base plates of Item 20.47, complete.	No.	1		
	Sub-total (c)				
	Total Title 20 (carried to Summary)				

Bill No.: 21
Earth Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
21.01	Excavation of any soil to facilitate floating pile installation near bankline and for construction of revetment, true to slope and level, material to stock pile for reuse, complete.	m^3	6,500		
A 21.02	Compaction of existing subsoil surface to a degree of density of D=0.35 - 0.45, prior to placing fill for build-up of groyne, complete.	m^2	1		- - - - - - -
21.03	Excavation of any soil above water level, direct placing for build-up of impermeable groyne, levelling and compaction to a density of D=0.6 to 0.75 in layers of maximal 30 cm, complete.	m^3	2,600		
21.04	Soil to be excavated from approved borrow pits, transported within 300 m, placed in layers of maximal 30 cm, compacted to a density of D=0.6 to 0.75 and profiled to design slopes, complete.	m^3	500		
21.05	Soil to be excavated from approved borrow pits, transported within 300 m and placed on top of the completed bed protection parallel to the impermeable groyne, including compaction to at least original degree of density of surrounding flood plain and final trimming to flood plain level, complete.	m^3	1,500		
21.06	Backfilling of designated areas above water level after complete laying of revetment at the head of the impermeable groyne, by layerwise filling and compaction to at least its original density, utilizing material of Item 21.01, inclusive providing jute sand bags dyke along bankline, complete.	m^3	3,100		
				Total Title 21 (carried to Summary)	

Bill No.: 22
Revetments and Bed Protections

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
22.01	Granular filter, grading range Type I, to be provided above water level, true to slope and levels, at a minimum thickness of 30 cm, complete.	m^3	350		
22.02	Granular filter, grading range Type II, to be provided above water level true to slope and levels, at a minimum layer thickness of 30 cm, complete.	m^3	650		
22.03	Granular filter, grading range Type III, to be provided above water level, true to slope and levels, at a minimum thickness of 30 cm, complete.	m^3	650		
22.04	Geotextile filter mat Type GF-1, of Item 3.50, to be placed above water level on the prepared slopes and areas, including workmanlike overlappings, ballasting for temporary securing, complete.	m^2	750		
22.05	Cement concrete blocks of different sizes up to 20 x 20 20 cm, mix proportion 1:3:6, using machine mixing and vibrator compaction, approved formwork boxes, first class aggregates, including downgraded khoa of first class bricks, to be provided and stored, ready for use, complete.	m^3	1,150		
22.06	Cement concrete block of different sizes 25 x 25 x 25 cm to 40 x 40 x 40 cm, to be provided as in Item 22.05.	m^3	1,000		
22.07	Falling apron of concrete blocks, size 30 x 30 x 30 cm, using material provided as per Item 22.06, to be placed under water within well defined areal limits and to the designed layer thickness, including haulage of the blocks to place of dumping, complete.	m^3	1,000		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
22.08	Falling apron of concrete blocks, size 20 x 20 x 20 cm, using material as per Item 20.05, otherwise as in Item 22.07, complete.	m^3	800		
22.09	Falling apron of concrete blocks, size 15 x 15 x 15 cm, using material as per Item 20.05, to be placed below and above water, otherwise as in Item 22.07, complete.	m^3	350		
A 22.10	Falling apron of concrete blocks, size 10 x 10 x 10 cm, to be placed below and above water, otherwise as in Item 22.08, complete.	m^3	1		-------
22.11	Revetment by stones, Grading Range E, D50 = 30 cm, transported to the Site under Item 3.71, to be placed above water within well defined limits and to the designed slope and layer thickness, complete.	m^3	900		
A 22.12	Revetment by stones, Grading Range D, D50 = 25 cm, transported to the Site under Item 3.70, to be placed above water level within well defined limits and to the designed slope and layer thickness, complete.	m^3	1		-------
22.13	Revetment by stones, Grading Range C, D50 = 20 cm, transported to the Site under Item 3.70, to be placed above water level within well defined limits and to the designed slope and layer thickness, complete.	m^3	300		
A 22.14	Granular filter of khoa (38 mm downgraded) of first class bricks and well adjusted sand, to be provided at 30 cm thickness as sublayer for Item 22.15, including final trimming of surfaces to designed slope, complete.	m^3	1		-------
22.15	Brick mattressing of first class bricks, 15 cm thick, in double layers (one layer brick flat soling and cover layer of herring bone bond with bricks in upright position), with lower and upper layer of 12 SWG galvanized wire netting of 100 mm				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	hexagonal mesh, tying of both wire mesh layers with 12 SWG galvanized wire at 30 cm centre to centre, including anchoring with 1.0 m long timber pegs at 2.0 m centre to centre, complete.	m^2	650		
22.16	Turfing of groyne surface or embankment slopes with Durba, Charkata or other good quality grass sods, to be provided, including 10 cm top soil and securing the closely laid grass sods against displacement by 30 cm long timber pegs at 1.5 m intervals and adequate watering after laying the turf, and first cutting, complete.	m^2	500		
22.17	Planting of Vetiver (Binna) grass at 15 cm center to center, otherwise as in Item 22.18, complete.	m^2	750		
	Total Title 22 (carried to Summary)				

Bill No.: 23
Monitoring Gangway and Platform

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
23.01	Steel sections and platings, steel grade St. 37, to be supplied.	t	13		
23.02	Steel construction for monitoring gangway to be manufactured, utilizing material of Items 3.40, 3.41 and 23.01, inclusive transportation to the Site, complete.	t	15		
23.03	Pile supports for monitoring gangway and preparation of Test Pile No. 30, to be manufactured as per site measurement, utilizing material of Items 3.40 and 23.01, and to be installed at the pile heads, complete.	t	6		
23.04	Monitoring gangways of Item 23.02, individual length of 10 m, to be hauled to place of installation and mounted on the prepared pile supports, complete.	No.	7		
23.05	Steel constructions and guard railings of monitoring gangway to be provided with anti-corrosive paint, Type II, Subsection 1452, including derusting of steel surfaces as per requirements, complete. (Rate per square meter of ground area of gangway).	m^2	90		
23.06	Steel construction for "East Cardinal Mark" to be provided, using material of Item 23.01, and to be installed at the groyne head, including anti-corrosive paint, Type II, Subsection 1452, tinted yellow/black alternately, including derusting of steel surfaces as per requirements, complete.	t	0.7		
	Total Title 23 (carried to Summary)				

Bill No.: 30
Pile Preparation and Installation Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Preparation of Tubular Steel Piles				
30.01	Tubular steel piles, dia. 711.2 x 14.2 mm, steel grade St 37-3, of Item 3.20, individual lengths up to 13 m, to be handled between pile transportation/storage barge and Contractor's pile assembly and welding place, laying-out at prepared roller supports, ready for welding, complete.	m	440		
30.02	Tubular steel piles, dia. 1016 x 20 mm, of Item 3.21, steel grade St 37-3, lengths up to 12 m, otherwise as in Item 30.01, complete.	m	224		
30.03	Tubular steel piles, dia. 1220 x 20 mm of Item 3.22, steel grade St 37-3, lengths of 12 m, otherwise as in Item 30.01, complete.	m	444		
30.04	Welded butt joint of pile dia. 711.2x4.2 mm, including backing ring, full penetration weld and testing of weld, to be provided, complete.	No.	19		
30.05	Welded butt joint of pile dia. 1016 x 20 mm, at least one welding pass (root welding) to be done from inside the pile, full penetration weld, testing of weld, to be provided, complete.	No.	14		
30.06	Welded butt joint of pile dia. 1220 x 20 mm, at least one welding pass (root welding) to be done from inside the pile, full penetration weld, testing of weld, to be provided, complete.	No.	26		
A 30.07	Pile point reinforcement dia. 690 x 16 x 220 mm, to be provided to pile dia. 711.2 x 14.2 mm, including material, complete.	No.	1		-------
A 30.08	Pile point reinforcement dia. 990 x 20 x 220 mm, to be provided to pile dia. 1016 x 20 mm, including material, complete.	No.	1		-------

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
A 30.09	Pile point reinforcement dia. 1178 x 20 x 220 mm, to be provided to pile dia. 1220 x 20 mm, including material, complete.	No.	1		- - - - - - -
P 30.10	Pile head reinforcement by L 100 x 8 x 800 mm, to be provided, including material, complete.	t	2		
P 30.11	Tubular steel pile surfaces to be blasted to Grade Sa. 2.5, complete.	m^2	1,250		
P 30.12	Blasted steel pile surfaces to be provided with epoxy-zinc-rich primer coat, dry film thickness 40 microns, as per Subsection 1451, Type I, complete.	m^2	1,250		
P 30.13	Preservation coating on epoxy-tar basis to be provided, total dry film thickness 200 microns, as per Subsection 1451, Type I, complete.	m^2	1,250		
	Sub-total (a)				
	(b) Installation of Tubular Steel Piles				
30.20	Steel pile dia. 711.2 x 14.2 mm, lengths 19.5 m and 26 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	390		
30.21	Steel pile dia. 1016 x 20 mm, lengths 32 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	192		
30.22	Steel pile dia. 1220 x 20 mm, lengths 36 m and 39 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	m	402		
30.23	Steel pile dia. 711.2 x 14.2 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	360		
30.24	Steel pile dia. 1016 x 20 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	150		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
30.25	Steel pile dia. 1220 x 20 mm, to be installed to design depth (length of pile between existing ground level and achieved pile tip level will be measured), complete.	m	300		
A 30.26	Steel pile dia. 711.2 x 14.2 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
A 30.27	Steel pile dia. 1016 x 20 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
A 30.28	Steel pile dia. 1220 x 20 mm to be butt jointed during the pile installation procedure, including cutting and bevelling the pile ends to be joined, providing of weld backing ring and testing of weld, complete.	No.	1		- - - - - - -
	Sub-total (b)				
	(c) Pile Head Preparation				
30.40	Cutting of steel piles dia. 711.2 x 14.2 mm after complete installation, horizontally, to design level, complete.	No.	17		
30.41	Cutting of steel piles dia. 1016 x 20 mm after complete installation, horizontally and sloped, to design level, complete.	No.	6		
30.42	Cutting of steel piles dia. 1220 x 20 mm after complete installation, sloped, to design level, complete.	No.	9		
30.43	Cutting of steel pile heads dia. 1220x20 mm after installation, to designed inclination and level, complete.	No.	2		
30.44	Steel plate, dia. 735 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 30.40, complete.	No.	17		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
30.45	Steel plate, dia. 1050 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 30.41, complete.	No.	6		
30.46	Steel plate, dia. 1260 x 10 mm, steel St 37-2, to be provided and welded to prepared pile heads of Item 30.42, complete.	No.	9		
30.47	Steel plate, oval shaped 1280 x 20 x 1785 mm, steel grade St 37-3, to be provided and welded to prepared pile heads of Item 30.43, complete.	No.	2		
30.48	Tubular steel tube section dia.1220x20 mm, to be cut as per site measurement from material of Item 3.22, hauled to the place and welded to the steel base plates of Item 30.47, complete.	No.	1		
	Sub-total (c)				
	Total Title 30 (carried to Summary)				

Bill No.: 31
Earth Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
31.01	Excavation of any soil to facilitate floating pile installation near bankline and for construction of revetment, true to slope and level, material to stock pile for reuse, complete.	m^3	3,500		
A 31.02	Compaction of existing subsoil surface to a degree of density of D = 0.35 - 0.45, prior to placing fill for build-up of groyne, complete.	m^2	1		- - - - - - -
31.03	Excavation of any soil above water level, direct placing for build-up of impermeable groyne, levelling and compaction to a density of D = 0.6 to 0.75 in layers of maximal 30 cm, complete.	m^3	1,600		
31.04	Soil to be excavated from approved borrow pits, transported within 300 m, placed in layers of maximal 30 cm, compacted to a density of D = 0.6 to 0.75 and profiled to design slopes, complete.	m^3	1,000		
31.05	Soil to be excavated from approved borrow pits, transported within 300 m and placed on top of the completed bed protection parallel to the impermeable groyne, including compaction to at least original degree of density of surrounding flood plain and final trimming to flood plain level, complete.	m^3	1,000		
31.06	Backfilling of designated areas above water level after complete laying of revetment at the head of the impermeable groyne, by layerwise filling and compaction to at least its original density, utilizing material of Item 31.01, inclusive providing jute sand bags dyke along bankline, complete.	m^3	3,000		
			Total Title 31 (carried to Summary)		

Bill No.: 32

Revetments and Bed Protections

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
32.01	Geotextile filter mat Type GF-1, of Item 3.50, to be placed above water level on the prepared slopes and areas, including workmanlike overlappings, ballasting for temporary securing, complete.	m^2	2,500		
A 32.02	Granular filter, grading range Type II, to be provided above water level true to slope and levels, at a minimum layer thickness of 30 cm, complete.	m^3	1		- - - - - - -
A 32.03	Granular filter, grading range Type III, to be provided above water level, true to slope and levels, at a minimum thickness of 30 cm, complete.	m^3	1		- - - - - - -
32.04	Cement concrete blocks of different sizes up to 20 x 20 x 20 cm, mix proportion 1:3:6, using machine mixing and vibrator compaction, approved formwork boxes, first class aggregates, including downgraded khoa of first class bricks, to be provided and stored, ready for use, complete.	m^3	550		
32.05	Cement concrete blocks of different sizes 25 x 25 x 25 cm to 40 x 40 x 40 cm, to be provided as in Item 32.04.	m^3	1,800		
32.06	Falling apron of concrete blocks, size 30 x 30 x 30 cm, using material provided as per Item 32.05, to be placed under water within well defined areal limits and to the designed layer thickness, including haulage of the blocks to place of dumping, complete.	m^3	1,800		
32.07	Falling apron of concrete blocks, size 20 x 20 x 20 cm, using material of Item 32.04, to be placed above water, otherwise as in Item 32.06, complete.	m^3	280		
32.08	Falling apron of concrete blocks, size 15 x 15 x 15 cm, using material of Item 32.04, to be placed above water, otherwise as in Item 32.06, complete.	m^3	270		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
32.09	Revetment by stones, Grading Range E, D50 = 30 cm, transported to the Site under Item 3.71, to be placed above water within well defined limits and to the designed slope and layer thickness, complete.	m^3	700		
32.10	Revetment by stones, Grading Range D, D50 = 25 cm, transported to the Site under Item 3.70, to be placed above water level within well defined limits and to the designed slope and layer thickness, complete.	m^3	200		
A 32.11	Revetment by stones, Grading Range C, D50 = 20 cm, transported to the Site under Item 3.70, to be placed above water level within well defined limits and to the designed slope and layer thickness, complete.	m^3	1		- - - - - - -
A 32.12	Granular filter of khoa (38 mm downgraded) of first class bricks and well adjusted sand, to be provided at 30 cm thickness as sublayer for Item 32.13, including final trimming of surfaces to designed slope, complete.	m^3	1		- - - - - - -
32.13	Brick mattressing of first class bricks, 20 cm thick, in double layers (one layer brick flat soling and cover layer of herring bone bond with bricks in upright position), with lower and upper layer of 12 SWG galvanized wire netting of 100 mm hexagonal mesh, tying of both wire mesh layers with 12 SWG galvanized wire at 30 cm centre to centre, complete.	m^2	600		
32.14	Turfing of groyne surface and embankment slopes with Durba, Charkata or other good quality grass sods, to be provided, including securing the closely laid grass sods against displacement by 30 cm long timber pegs at 1.5 m intervals and adequate watering after laying the turf, complete.	m^2	1,100		
32.15	Planting of Vetiver (Binna) grass at 15 cm center to center, otherwise as in Item 32.14, complete.	m^2	750		
	Total Title 32 (carried to Summary)				

Bill No.: 33
Pile Bracing and Navigation Mark

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
33.01	Steel sections and platings, steel grade St 37, to be supplied.	t	3		
33.02	Steel construction for pile bracings to be manufactured as per site measurement, utilizing material of Items 3.40 and 33.01, inclusive transportation to the Site and to be installed at the pile heads, complete.	t	7		
33.03	Steel construction for "East Cardinal Mark" to be provided, using material of Item 33.01, and to be installed at the groyne head, including anti-corrosive paint, Type II, Subsection 1452, tinted yellow/black alternately, including derusting of steel surfaces as per requirements, complete.	t	0.7		
	Total Title 33 (carried to Summary)				

Bill No.: 40
Pile Installation Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Providing In-situ Concrete Piles				
40.01	Bored in-situ concrete piles, diameter 914 mm, length 22 m each, to be provided, including drilling the bore, temporary casing, concrete Class B 35 with at least 400 kg cement content per one m^3 of ready mixed concrete, securing the permanent casing in position during concreting, and all auxillary measures, complete.	m	290		
A 40.02	Bored in-site concrete piles, diameter 508 mm, length 20 m each, to be provided as in Item 40.01, complete.	m	1		- - - - - - -
40.03	Permanent bored pile steel tube lining, diameter 914 x 6 mm, lengths 11 m to 15 m, steel grade St 37 or equivalent, to be provided for the bored piles of Item 40.01, including all on-site welding, jointing, etc., complete.	t	22		
A 40.04	Permanent bored pile steel tube lining, diameter 508 x 6 mm, lengths 6 m to 10 m, steel grade St 37 or equivalent, to be provided for the bored piles of Item A 40.02, including all on-site welding, jointing, etc., complete.	t	1		- - - - - - -
40.05	Reinforcement steel cage of deformed bars, steel grade 60, ASTM A-615, to be provided and placed in full length for the bored piles, complete.	t	40		
	Sub-total (a)				
	(b) Installation of Prestressed Spun Concrete Piles				
40.10	Concrete piles dia. 500 x 100 mm, of Item 3.60, individual lengths of 10 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	No.	32		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
40.11	Concrete piles dia. 500 x 100 mm, to be installed to design depth (length of pile between ground level and achieved pile tip level will be measured), complete.	m	300		
40.12	Welded butt joint of concrete piles to be executed during the pile installation process, including temporary guide ring for adjusting the extension pile section at the joint level, all welding and testing of weld, and corrosion protection coat to the exposed surface of the joint plates, complete.	No.	16		
P 40.13	Cutting of driven pile head to design level, including disposal of surplus material, complete.	No.	16		
	Sub-total (b)				
	Total Title 40 (carried to Summary)				

Bill No.: 41
Concrete Sheet Pile Cofferdam

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Concrete Sheet Pile Installation				
41.01	Reinforced concrete sheet piles size 490 x 250 mm, of Item 3.61, lengths of 8 m each, to be hauled to the pile driver and pitched in place, ready for driving,, including providing guide frames, lateral supports, and any other auxiliary measures for proper pitching, complete.	No.	316		
41.02	Reinforced concrete sheet piles to be driven to design depth, (length of pile between ground level and achieved pile tip level will be measured), complete.	m	2,250		
41.03	Heads of driven concrete sheet piles to be cut to design level, reinforcement to be exposed and bend to match the dimensions of the capping beam, complete.	No.	284		
	Sub-total (b)				
	(b) Anchor Installation and Concrete Works				
41.10	Cutting of anchor holes dia. 100 mm at design level into the installed concrete sheet piles, by appropriate means, complete.	No.	46		
41.11	Cutting of steel dowel holes, dia. 100 mm, 200 mm deep into the installed concrete sheet piles, at designed level, by appropriate means, complete.	No.	16		
41.12	Providing of steel bar dowels, dia. 50 mm, length 450 mm, as support for waling beams, including cement mortar grouting, complete.	No.	16		
41.13	Steel anchor sets of Item 3.31 to be hauled to the site and installed in the formwork of capping beams and waling beams, including all temporary supports, complete.	Set	23		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
41.14	Reinforced concrete Class B 25, for waling beams, to be provided, including formwork, Type FN, temporary supports, complete.	m^3	5		
41.15	Reinforced concrete Class B 25 for the sheet pile capping beam, to be provided, including fair-faced formwork Type FF, temporary supports, complete.	m^3	26		
41.16	Reinforcing steel, deformed bars, Grade 60, to be provided for Items 41.14 and 41.15, complete.	t	5		
41.17	Expansion joints to be provided in the reinforced concrete capping beam, including all special formwork, joint fillers, complete.	No.	12		
	Sub-total (b)				
	(c) Earthworks and Pavement				
41.20	Excavation of soil within the cofferdam, for installation of tie anchors and placing of granular filter, interim storage of material, complete.	m^3	200		
41.21	Granular filter, Type IV, to be provided and installed in place within the concrete sheet pile cofferdam to required shape and levels.	m^3	450		
41.22	Backfilling of cofferdam, using material of Item 41.20, inclusive layerwise compaction to a degree of density of D = 0.6 to 0.75, complete.	m^3	200		
41.23	Backfilling of cofferdam as in Item 41.22, but including providing the fill material from approved borrow pit, complete.	m^3	650		
41.24	Granular filter, Type IV, to provided and placed as 30 cm thick layer, true to slope and levels, as sub-base for Item 41.25, complete.	m^3	35		
41.25	Concrete block pavement, block size 20 x 20 x 8 cm, to be provided and laid at interlocking pattern, including filling any gaps to the sheet pile profiles by lean concrete of 10 cm thickness, complete.	m^2	130		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
41.26	Fine dressing and closed turfing with Durba, Charkata or other good quality grass sods, to be provided on top of the cofferdam fill, including 10 cm thick sublayer of suitable top soil, securing the grass sods against displacement by 30 cm long wooden pegs at 1.5 m intervals, adequate watering after laying the turf and first cut, complete.	m^3	400		
	Sub-total (c)				
	Total Title 41 (carried to Summary)				

Bill No.: 50
Pile Installation Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	(a) Providing In-situ Concrete Piles				
50.01	Bored in-situ concrete piles, diameter 914 mm, length 22 m each, to be provided, including drilling the bore, temporary casing, concrete Class B 35 with at least 400 kg cement content per one m^3 of ready mixed concrete, securing the permanent casing in position during concreting, and all auxillary measures, complete.	m	290		
A 50.02	Bored in-situ concrete piles, diameter 508 mm, lengths of 10 m and 20 m each, to be provided as in Item 50.01, complete.	m	1		- - - - - - -
50.03	Permanent bored piled steel tube lining, diameter 914 x 6 mm, lengths 11 m to 15 m, steel grade St 37 or equivalent, to be provided for the bored piles of Item 50.01, including all on-site welding, jointing, etc., complete.	t	22		
A 50.04	Permanent bored pile steel tube lining, diameter 508 x 6 mm, lengths 6 m to 10 m, steel grade St 37 or equivalent, to be provided for the bored piles of Item A 50.02, including all on-site welding, jointing, complete.	t	1		- - - - - - -
50.05	Reinforcement steel cage of deformed bars, steel grade 60, ASTM A-615, to be provided and placed in full length for the bored piles, complete.	t	40		
	Sub-total (a)				
	(b) Installation of Prestressed Spun Concrete Piles				
50.10	Concrete piles dia. 500 x 100 mm, of Item 3.60, individual lengths of 10 m, to be hauled to the pile driver and pitched at position, ready for driving, complete.	No.	49		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
50.11	Concrete piles dia. 500 x 100 mm, to be installed to design depth (length of pile between ground level and achieved pile tip level will be measured), complete.	m	450		
50.12	Welded butt joint of concrete piles to be executed during the pile installation process, including temporary guide ring for adjusting the extension pile section at the joint level, all welding and testing of weld, and corrosion protection coat to the exposed surface of the joint plates, complete.	No.	20		
P 50.13	Cutting of driven pile head to design level, including disposal of surplus material, complete.	No.	20		
	Sub-total (b)				
	Total Title 50 (carried to Summary)				

Bill No.: 60
Earth Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
60.01	Excavation of any soil near bankline for construction of revetment, true to slope and level, material to stock pile for reuse, complete.	m^3	5,000		
60.02	Excavation of any soil above water level, direct placing for build-up of impermeable groyne, levelling and compaction to a density of D=0.6 to 0.75 in layers of maximal 30 cm, complete.	m^3	1,800		
A 60.03	Soil to be excavated from approved borrow pits, transported within 300 m, placed in layers of maximal 30 cm, compacted to a density of D=0.6 to 0.75 and profiled to design slopes, complete.	m^3	1		- - - - - - -
60.04	Soil to be excavated from approved borrow pits, transported within 300 m and placed on top of the completed bed protection parallel to the impermeable groyne, including compaction to at least original degree of density of surrounding flood plain and final trimming to flood plain level, complete.	m^3	1,300		
60.05	Backfilling of designated areas above water level after complete laying of revetment at the head of the impermeable groyne, by layerwise filling and compaction to at least its original density, utilizing material of Item 60.01, inclusive providing jute sand bags dyke along bankline, complete.	m^3	4,000		
				Total Title 60 (carried to Summary)	

Bill No.: 61

Revetments and Bed Protections

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
61.01	Geotextile filter mat Type GF-1, of Item 3.50, to be placed above water level on the prepared slopes and areas, including workmanlike overlappings, ballasting for temporary securing, complete.	m^2	2,500		
A 61.02	Granular filter, grading range Type II, to be provided above water level as first filter layer, true to slope and levels, at a minimum layer thickness of 30 cm, complete.	m^3	1		- - - - - - -
A 61.03	Granular filter, grading range Type III, to be provided above water level, as second filter layer, true to slope and levels, at a minimum thickness of 30 cm, complete.	m^3	1		- - - - - - -
61.04	Cement concrete blocks of different sizes, up to 20 x 20 x 20 cm, mix proportion 1:3:6, using machine mixing and vibrator compaction, approved formwork boxes, first class aggregates, including downgraded khoa of first class bricks, to be provided and stored, ready for use, complete.	m^3	850		
61.05	Cement concrete blocks of different sizes 25 x 25 x 25 cm to 40 x 40 x 40 cm, to be provided as in Item 61.04.	m^3	2,000		
61.06	Falling apron of concrete blocks, size 30 x 30 x 30 cm, using material provided as per Item 61.05, to be placed under water within well defined areal limits and to the designed layer thickness, including haulage of the blocks to place of dumping, complete.	m^3	1,500		
61.07	Falling apron of concrete blocks, size 20 x 20 x 20 cm, to be placed above water, using material of Item 61.04, otherwise as in Item 61.06, complete.	m^3	400		
61.08	Falling apron of concrete blocks, size 15 x 15 x 15 cm, to be placed above water, otherwise as in Item 61.07, complete.	m^3	450		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
61.09	Concrete blocks, size 30 x 30 x 30 cm, to be laid on the geotextile filter in parallel rows with staggered joints between the layers, using material provided as per Item 61.05, true to level and slope, complete.	m^3	250		
61.10	Concrete blocks, size 25 x 25 x 25 cm, using material of item 61.04, to be laid as in Item 61.09, complete.	m^3	250		
61.11	Brick blocks, size 24 x 24 x 24 cm, to be laid on a geotextile filter, in parallel rows with staggered joints between the rows, including providing all brick blocks, complete.	m^3	70		
A 61.12	Granular filter of khoa (38 mm downgraded) of first class bricks and well adjusted sand, to be provided at 30 cm thickness as sublayer for Item 61.13, including final trimming of surfaces to designed slope, complete.	m^3	1		- - - - - - -
61.13	Brick mattressing of first class bricks, 20 cm thick, in double layers (one layer brick flat soling and cover layer of herring bone bond with bricks in upright position), with lower and upper layer of 12 SWG galvanized wire netting of 100 mm hexagonal mesh, tying of both wire mesh layers with 12 SWG galvanized wire at 30 cm centre to centre, complete.	m^2	250		
61.14	Turfing of embankment slopes with Durba, Charkata or other good quality grass sods, to be provided, including securing the closely laid grass sods against displacement by 30 cm long timber pegs at 1.5 m intervals and adequate watering after laying the turf, and first cutting, complete.	m^2	600		
61.15	Planting of Vetiver (Binna) grass at 15 cm center to center, otherwise as in Item 61.14, complete.	m^2	1,000		
	Total Title 61 (carried to Summary)				

Bill No.: 70 (Provisional Work)
Earth Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 70.01	Excavation of any soil above water level, direct placing for levelling and profiling existing embankment, including compaction to a density of D=0.6 to 0.75 in layers of maximal 30 cm, complete.	m^3	1,000		
P 70.02	Excavation of any soil above water level, true to slope and level, material to stock pile for reuse, complete.	m^3	3,000		
P 70.03	Soil to be excavated from approved borrow pits, transported within 300 m, placed in layers of maximal 30 cm, compacted to a density of D=0.6 to 0.75 and profiled to design slopes, complete.	m^3	50,000		
P 70.04	Backfilling of designated areas above water level after complete laying of revetments by layerwise filling and compaction to at least its original density, utilizing material of Item P 70.02, complete.	m^3	3,000		
	Total Title 70 (Provisional Work) (carried to Summary)				

Bill No.: 71 (Provisional Work)
Revetments and Bed Protections

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 71.01	Geotextile filter mat Type GF-1, of Item 3.50, to be placed above water level on the prepared slopes and areas, including workmanlike overlappings, ballasting for temporary securing, complete.	m^2	5,000		
A 71.02	Granular filter, grading range Type II, to be provided above water level true to slope and levels, at a minimum layer thickness of 30 cm, complete.	m^3	1		- - - - - - -
A 71.03	Granular filter, grading range Type III, to be provided above water level, true to slope and levels, at a minimum thickness of 30 cm, complete.	m^3	1		- - - - - - -
P 71.04	Cement concrete blocks of different sizes, up to 20 x 20 x 20 cm, mix proportion 1:3:6, using machine mixing and vibrator compaction, approved formwork boxes, first class aggregates, including downgraded khoa of first class bricks, to be provided and stored, ready for use, complete.	m^3	3,250		
P 71.05	Falling apron of concrete blocks, size 15 x 15 x 15 cm, using material provided as per Item P 71.04, to be placed above water within well defined areal limits and to the designed layer thickness, including haulage of the blocks to place of dumping, complete.	m^3	1,000		
P 71.06	Falling apron of concrete blocks, size 20 x 20 x 20 cm, to be placed above water, otherwise as in Item P 71.05, complete.	m^3	1,400		
P 71.07	Concrete blocks, size 15 x 15 x 15 cm, to be laid on the filter in parallel rows with staggered joints between the layers, using material provided as per ite P 71.04, true to level and slope, complete.	m^3	350		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 71.08	Concrete blocks, size 20 x 20 x 20 cm, to be laid on a filter, as in Item P 71.07, complete.	m^3	250		
P 71.09	Brick blocks size 24 x 24 x 24 cm, to be laid on a geotextile filter in parallel rows with staggered joints between the rows, including providing all brick blocks, complete.	m^3	300		
A 71.10	Granular filter of khoa (38 mm downgraded) of first class bricks and well adjusted sand, to be provided at 30 cm thickness as sublayer for Item A 71.11, including final trimming of surfaces to designed slope, complete.	m^3	1		- - - - - - -
A 71.11	Brick mattressing of first class bricks, 20 cm thick, in double layers (one layer brick flat soling and cover layer of herring bone bond with bricks in upright position), with lower and upper layer of 12 SWG galvanized wire netting of 100 mm hexagonal mesh, tying of both wire mesh layers with 12 SWG galvanized wire at 30 cm centre to centre, complete.	m^2	1		- - - - - - -
A 71.12	Brick mattressing as in Item A 71.11, but 15 cm, thick, complete.	m^2	1		- - - - - - -
P 71.13	Turfing of embankment slopes with Durba, Charkata or other good quality grass sods, to be provided, including securing the closely laid grass sods against displacement by 30 cm long timber pegs at 1.5 m intervals and adequate watering after laying the turf, and first cutting, complete.	m^2	10,000		
P 71.14	Planting of Vetiver (Binna) grass at 15 cm center to center, otherwise as in Item 71.13, complete.	m^3	2,000		
	Total Title 71 (Provisional Work) (carried to Summary)				

BILL OF QUANTITIES
DAYWORK SCHEDULE
(to be completed by the Tenderer)

General

Work shall not be executed on a daywork basis except by written order of the Engineer in accordance with Sub-Clause 52.(4) of the Conditions of Contract. Tenderers shall enter basic rates for daywork items in the Schedules, which rates shall apply to any quantity of daywork ordered by the Engineer. Nominal quantities have been indicated against each item of daywork, and the extended total for daywork shall be carried forward as a Provisional Sum to the Summary of Bill of Quantities of the Tender.

1. Daywork Labour

1.1 In calculating payments due to the Contractor for the execution of dayworks, the hours for labour will be reckoned from the time of arrival of the labour at the job site to execute the particular item of daywork to the time of return to the original place of departure, but excluding meal breaks and rest periods. Only the time of classes of labour directly doing work ordered by the Engineer and for which they are competent to perform will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.

1.2 The Contractor shall be entitled to payment in respect of the total time that labour is employed on daywork, calculated at the basic rates entered by him in the "SCHEDULE OF DAYWORK RATES: 1. LABOUR", together with an additional percentage payment on basic rates representing the Contractor's profit, overheads, etc., as described below:

(a) the basic rates for labour shall cover all direct costs to the Contractor, including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, and any sums paid to or on behalf of such labour for social benefits in accordance with Bangladesh law. The basic rates will be payable in local currency only; and

(b) the additional percentage payment to be quoted by the Tenderer and applied to costs incurred under (a) above shall be deemed to cover the Contractor's profit, over-heads, superintendence, liabilities and insurances and allowances to labour, timekeeping and clerical and office work, the use of consumable stores, water, lighting and power; the use and repair of stagings, scaffolding, workshops and stores, portable power tools, manual plant and tools; supervision by the Contractor's staff, foremen and other supervisory personnel; and charges incidental to the fore-going. Payments under this item shall be made in local currency only.

SCHEDULE OF DAYWORK RATES
1. LABOUR

Item No.	Description	Nominal Quantity (hrs)	Rate)* (Taka)	Extended Amount)* (Taka)
D 100	Gangers	200		
D 101	Skilled pile driving workmen	400		
D 102	Skilled concrete workmen	100		
D 103	Skilled steel bar benders	100		
D 104	Skilled carpenters	100		
D 105	Skilled masons	100		
D 106	Skilled plasterer	100		
D 107	Structural steel erector	100		
D 108	Skilled painters	50		
D 109	Skilled workman	100		
D 110	Skilled welders	100		
D 111	Skilled machine operators	300		
D 112	Driver for vehicle up to 10 t	300		
D 113	Operator for excavator, dragline, shovel, crane etc.	300		
D 114	Skilled mechanics	300		
D 115	Skilled electricians	100		
D 116	Skilled diver crew	50		
D 117	Unskilled workmen	3,000		
			Sub-total:	
D 118	Allow ..... *) percent of Subtotal for Contractor's overhead, profit, etc., in accordance with para 1.2 above			
			TOTAL FOR DAYWORK: LABOUR (Carried to Daywork Summary Sheet)	

*) to be entered by the Tenderer

2. Daywork Materials

The Contractor shall be entitled to payment in respect of materials used for daywork (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the basic rates entered by him in the "SCHEDULE OF DAYWORK RATES: 2. MATERIALS", or if not listed therein, at comparable rates, together with an additional percentage payment on the basic rates to cover overhead charges and profit, as follows:

(a) the basic rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc., and shall provide for delivery to store for stockpiling at the Site. The basic rates shall be stated in local currency and payment will be made in local currency;

(b) the cost of hauling materials for use on work ordered to be carried out as daywork from the store or stockpile on the Site to the place where it is to be used will be paid in accordance with the terms for Labour and Constructional Plant in this Schedule.

SCHEDULE OF DAYWORK RATES
2. MATERIALS

Item No.	Description	Unit	Nominal Quantity	Basic Rate)* (Taka)	Extended Amount)* (Taka)
D 201	Cement Type I, in bags	t	20		
D 202	Concrete Class B 15	m^3	20		
D 203	Concrete Class B 25	m^3	20		
D 204	Concrete Class B 35	m^3	20		
D 205	Formwork Type FN, incl. supports, bracings etc.	m^2	50		
D 206	Formwork Type FF, incl. supports, bracings etc.	m^2	50		
D 207	Reinforcing steel grade 60, ASTM-A 615	t	10		
D 208	Tubular steel pile (local manufacture)	t	50		
D 209	Structural steel	t	5		
D 210	Blasting and preservation coating on steel, Type II	m^2	100		
D 211	Sand for backfilling	m^3	100		
D 212	Graded gravel filter	m^3	20		
D 213	Graded Khoa filter	m^3	50		
D 214	Rock for cushion layer	m^3	20		
D 215	Rock for cover layer, W_{50} = 2-30 kg	m^3	500		
D 216	Rock for cover layer, W_{50} = 35-100 kg	m^3	500		
D 217	Brickwork d = 120 mm	m^2	50		
D 218	Brickwork d = 240 mm	m^2	50		
D 219	Cement plaster d = 20 mm	m^2	100		
D 220	Ceramic glased wall tiles	m^2	10		
D 221	Terrazzo floor tiles	m^2	10		
D 222	Zink steel sheets	m^2	20		
D 223	Clear glass 3 mm	m^2	5		
D 224	Clear glass 5 mm	m^2	5		
D 225	Water closet (monoblock)	No.	1		
D 226	Wash basin complete	No.	1		
D 227	Squatting closet	No.	1		
D 228	Urinal	No.	1		
D 229	Shower	No.	1		
				Sub-total:	
D 230	Allow ..... *) percent of Subtotal for Contractor's overhead, profit, etc., in accordance with para 2 above				
				TOTAL FOR DAYWORK: MATERIAL (Carried to Daywork Summary Sheet)	

*) to be entered by the Tenderer

3. Daywork Constructional Plant

3.1 The Contractor shall be entitled to payments in respect of Constructional Plant already on Site and employed on daywork at the basic rental rates entered by him in the "SCHEDULE OF DAYWORK RATES: 3. CONSTRUCTIONAL PLANT", or, if not listed therein, at comparable rates. The said rates shall be based on an 8-hour working day and shall be deemed to included due and complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables, and all overhead, profit and administrative costs related to the use of such equipment. The cost of drivers, operators and assistants will be paid for separately as described under the section of Daywork Labour.

3.2 In calculating the payment due to the Contractor for Constructional Plant employed on daywork, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Engineer, the travelling time from the part of the Site where the Constructional Plant was located when ordered by the Engineer to be employed on daywork and the time for return journey thereto shall be included for payment.

3.3 The daily rates for idle time shall likewise be based on an 8-hour working day. Idle time will be considered as per actual duration of work interruption for which the Contractor is entitled to receive compensation, but only up to a maximum of 8 hours per working day, irrespective of the otherwise regular daily working timings.

3.4 The basic rental rates for Constructional Plant employed on daywork shall be stated in local currency.

3.5 Should it be necessary with the Engineer's approval, to employ a plant on hire from another contractor, then the additional charge which the Contractor would require to the cost of plant hirer's account is ..... % (in words: ..... percent) (to be stated by the Tenderer).

SCHEDULE OF DAYWORK RATES
3. CONSTRUCTIONAL PLANT

Item No.	Description	Nominal Quantity (hrs)	Rate)* (Taka)	Extended Amount)* (Taka)
D 301	Flat top barge, 400 t	100		
D 302	Flat top barge, 250 t	100		
D 303	Transport barge	500		
D 304	Tug boat up to 200 HP	500		
D 305	Tug boat over 200 HP	500		
D 306	Crawler crane, 150 t, 200 ft boom	200		
D 307	Crawler crane, 100 t	200		
D 308	Crawler crane, 50 t	200		
D 309	Crawler crane, 30 t	200		
D 310	Piling leader, $<$ 20 m	200		
D 311	Piling leader, $\geq$ 35 m	200		
D 312	Piling hammer, K-35	200		
D 313	Piling hammer, K-22	200		
D 314	Air compressor, 20 m^3/min.	100		
D 315	Air compressor, 80 m^3/min.	100		
D 316	Welding generator up to 50 KVA	50		
D 317	Welding generator over 50 to 100 KVA	50		
D 318	Welding transformer up to 200 A	50		
D 319	Welding transformer over 200 A to 300 A	50		
D 320	Generator set up to 25 KVA	200		
D 321	Generator set over 25 to 75 KVA	200		
D 322	Generator set over 75 KVA	50		
D 323	Excavator, up to 1 m^3	100		
D 324	Excavator over 1 m^3 to 3 m^3	50		
D 325	Dump truck, up to 3 m^3	50		
D 326	Dump truck, over 3 m^3 to 10m^3	50		
D 327	Front loader, up to 1.5 m^3	50		
D 328	Front loader, over 1.5 to 3 m^3	50		
D 329	Dozer, up to 75 KW	20		
D 330	Dozer, over 75KW to 150 KW	20		
D 331	Grader, up to 50 KW	20		
D 332	Grader, over 50 KW to 100 KW	20		
D 333	Surface plate vibrator	20		
D 334	Vibrating roller, up to 5 t	50		
D 335	Vibrating roller, over 5 t to 7.5 t	50		
D 336	Concrete mixer,mixing drum volume over 250 l to 750 l	20		
	TOTAL FOR DAYWORK: CONSTRUCTIONAL PLANT (Carried to Daywork Summary Sheet)			

*) to be entered by the Tenderer

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DAYWORK SUMMARY

	Amount (Taka)
1. Total for Daywork: LABOUR 2. Total For Daywork: MATERIAL 3. Total For Dayfork: CONSTRUCTIONAL PLANT	
TOTAL FOR DAYWORK **(Provisional Sum)** (Carried to Summary of Bill of Quantities)	

Summary of Bill of Quantities

Bill No.	Title / Contents	Amount [Taka]	Total Amount [Taka]
GENERAL			
01	General Items		
P 02	Providing Construction Equipment after Completion of the Works		
03	Taking-over Construction Equipment and Material Provided by the Employer for Use in the Works		
04	Engineer's Facilities		
05	Monitoring Field Office		
P 06	Bathymetric Survey Work		
	Sub-total General		
GROYNE G-1			
10	Pile Preparation and Installation Works		
11	Steel Sheet Pile Cofferdam		
12	Revetments and Bed Protections		
13	Monitoring Gangway and Platform		
	Sub-total Groyne G-1		
GROYNE G-2			
20	Pile Preparation and Installation Works		
21	Earth Works		
22	Revetments and Bed Protections		
23	Monitoring Gangway and Platform		
	Sub-total Groyne G-2		
GROYNE G-3			
30	Pile Preparation and Installation Works		
31	Earth Works		
32	Revetments and Bed Protections		
33	Pile Bracing and Navigation Mark		
	Sub-total Groyne G-3		
GROYNE G-A			
40	Pile Installation Works		
41	Concrete Sheet Pile Cofferdam		
	Sub-total Groyne G-A		
GROYNE G-B			
50	Pile Installation Works		
	Sub-total Groyne G-B		

Bill No.	Title / Contents	Amount [Taka]	Total Amount [Taka]
CROSS-BAR C-1			
60	Earth Works		
61	Revetments and Bed Protections		
	Sub-total Cross-Bar C-1		
IMPROVEMENT OF BWDB EMBANKMENT			
P 70	Earth Works		
P 71	Revetments and Bed Protections		
	Sub-total BWDB-Embankment		
	Total of Bills		
	Total for Daywork (Provisional Sum)		
	Add 10% of the Total of Bills for Contingencies (Provisional Sum)		
	TOTAL NET TENDER PRICE (excluding Value Added Tax)		

Note:
All sums for Provisional Work or Provisional Items included in the Bill of Quantities or any or all of the Provisional Sums included in the Total Tender Price are to be expended in the whole or in part at the direction and the discretion of the Engineer in accordance with Sub-Clause 52.4 and Clause 58 of the Conditions of Contract.

Section 5
Miscellaneous Schedules

SCHEDULE I

MAJOR ITEMS OF CONSTRUCTIONAL PLANT

Description (Type, model, Make [1])	No. of Each	Year of Manufacture	New or Used	Owned (O) or Leased (L)	Power Rating	Capacity t, m3, KW HP, KVA, etc.
1. River Transportation 1.1 1.2 etc.						
2. Earth Excavation 2.1 2.2 etc.						
3. Embankment Revetments etc. (above water) 3.1 3.2 etc.						
4. Bed Protections, Falling Aprons (below water) 4.1 4.2 etc.						
5. Haulage and Lifting 5.1 5.2 etc.						
6. Pile Installation 6.1 6.2 etc.						
7. Pile Welding yard 7.1 7.2 etc.						
8. Bored Pile Works 8.1 8.2 etc.						
9. Concreting 9.1 9.2 etc.						
10. Miscellaneous 10.1 10.2 etc.						

1) The Tenderer shall enter in this Schedule all mayor items of Construction Equipment which he proposes to bring on Site, both owned and leased (rented).

SCHEDULE II

KEY PERSONNEL

The Tenderer shall list in this Schedule the key personnel (including first nominee and the second choise alternate) he will employ from headquarters and from Site Office to direct and execute the Work, together with their qualification, experience, positions held and their nationalities.

	Name of (i) Nominee (ii) Alternate	Summary of Qualifications Experience and Present Occupation
Headquarters Partner/Director	 (i) (ii)	
Other Key Staff (given designation)	(i) (ii) ..... (i) (ii)	.....
Site Office Site Superintendent	 (i) (ii)	
Deputy Superintendent	(i) (ii)	
Mechanical Engineer-in-charge	(i) (ii)	
Supervising Engineers	(i) (ii) ..... (i) (ii)	.....
Construction Supervisors	(i) (ii) ..... (i) (ii)	.....
Other Key Staff	(i) (ii) ..... (i) (ii)	.....

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SCHEDULE III

PROJECT ORGANIZATION CHART

The Tenderer shall provide an organization chart for the project with functions and nominated key personnel. This organization chart shall clearly define the responsibilities both on site and in the tenderers head office.

SCHEDULE IV

SUBCONTRACTORS

The Tenderer shall enter in this Schedule a list of the sections and appropriate value of the work for which he proposes to use subcontractors, together with the names and addresses of proposed subcontractors, including description, location and value of work, year completed, and name and address of employer/ engineer. Notwithstanding such information the tenderer, if awarded the Contract, shall remain entirely and solely responsible for the satisfactory execution and completion of the Works.

Element of Work	Approximate Value (Taka)	Name and Address of Subcontractor	Statement of Similar Works Previously Executed

SCHEDULE V

TENDERERS PROPOSED CONSTRUCTION SCHEDULE AND METHOD STATEMENT

The Tenderer shall submit with his Tender the following items:

1. A detailed Construction and Equipment Employment Schedule taking into consideration his method of working and the particular local conditions, e.g. river water levels during the construction period, etc.

2. Detailed Method Statements for all the mayor portions of the Works:

   - Joint welding of pile sections supplied by Employer;
   - Pile installation works off-shore;
   - Pile and sheet-pile installation works on-shore;
   - Execution of bed protection works below water level (e.g. in consideration of current flow velocities to be expected);
   - Construction of embankment, revetments, falling aprons.