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# BANK PROTECTION PILOT PROJECT

FAP 21

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TEST SITE II

(30)

## TENDER DOCUMENTS

FOR



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## CONSTRUCTION OF REVETMENT TEST STRUCTURES

VOLUME I

FORM OF TENDER  
INSTRUCTIONS TO TENDERERS  
SAMPLE FORM OF AGREEMENT  
BILL OF QUANTITIES  
SCHEDULES

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(April 1995)



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

RHEIN-RUHR ING.-GES.MBH, DORTMUND/GERMANY In association with:

COMPAGNIE NATIONALE DU RHONE, LYON/FRANCE BANGLADESH ENGINEERING &  
PROF. DR. LACKNER & PARTNERS, BREMEN/GERMANY TECHNOLOGICAL SERVICES LTD.(BETS)  
DELFT HYDRAULICS, DELFT/NETHERLANDS DESH UPODESH LIMITED (DUL)

2

**BANK PROTECTION PILOT PROJECT  
FAP 21**

**TEST SITE II**

**TENDER DOCUMENTS**

**FOR**

**CONSTRUCTION OF REVETMENT  
TEST STRUCTURES**

**VOLUME I**

**FORM OF TENDER  
INSTRUCTIONS TO TENDERERS  
SAMPLE FORM OF AGREEMENT  
BILL OF QUANTITIES  
SCHEDULES**



(April 1995)

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

RHEIN-RUHR ING.-GES.MBH, DORTMUND/GERMANY In association with:

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TECHNOLOGICAL SERVICES LTD.(BETS)  
DESH UPODESH LIMITED (DUL)

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Section 1

**Form of Tender  
Appendix to Tender  
Tender Security**

# FORM OF TENDER

## Bank Protection Pilot Project FAP-21

### Construction of Revetment Test Structures - Test Site II -

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, 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, 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 Employer'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 ..... 1995.

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 TO TENDER

Sub-Clause  
(General Conditions of Contract)

Amount of Performance Security	10.1	10	percent of the Contract Price (for banker's guarantee)
Insurance of Works	21.1(d)(e)		amounts to be covered by Contractor's insurance:
		100	mill. Tk. for permanent material supplied by the Employer (which amount includes customs duties, etc. payable on imported materials)
		20	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 15, 1995, 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
Minimum amount of Interim Payment Certificates	60.2		Tk. 20,000,000
Limit of Retention Money	60.4	5	percent of the Statement at Completion
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

**SAMPLE FORM****TENDER SECURITY (BANK GUARANTEE)**

WHEREAS, . . . . . [Name of Tenderer] (hereinafter called "the Tenderer") has submitted his tender dated . . . . . [date] for the Construction of Revetment Test Structures, Test Site II (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. 5,000,000 (five 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. . . . 1995.

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 Revetment Test Structures, Test Site II, 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 15, 1995.
- 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 Développement (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, which has provided consulting services during the preparatory stages of the Works or of the project of which the Works form a part.

- 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 two tentatively selected sites for the 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 sites 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: - Conditions of Contract

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:



**Subsection  
of Specifications**

**Description**

601	Surveying method and equipment
810	Dredging method and equipment
922	Common excavation
932	Filling and compaction works
1002	Installation of filters (granular and geotextile materials), embankment revetments, fabric mattress systems, scour protections and falling aprons.

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.

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## 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. 5,000,000 (five 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 the sample form 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 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 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

bear the following identification:

- Tender for Construction of Revetment Test Structures, Test Site II
- 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 accompanied by the required construction schedules and work method statements,
  - (iv) is substantially responsive to the requirements of the Tender Documents, and
  - (v) provides any clarification and/or substantiation that the Employer may require pursuant to Sub-Clause 27.1.
- 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.



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- 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, if any, 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 none 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 14 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 issued 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**  
**Sample Form of Performance Security**  
**Sample Form of Bank Guarantee for Advance Mobilization Payment**

**SAMPLE FORM OF AGREEMENT****AGREEMENT**

**This Agreement** made the . . . . . day of . . . . . 1995 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 Revetment Test Structures at Test Site II 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 General Conditions of Contract
  - (d) The Technical Specifications;
  - (e) The Tender Drawings; and
  - (f) 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 : .....

## 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 Revetment Test Structures at Test Site II, 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*)<sup>1</sup> . . . . . (*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 . . . . .

<sup>1</sup> Equivalent to 10% of the Contract Price named in the Letter of Acceptance

## 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 Revetment Test Structures at Test Site II**

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 Schedules**



**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 General 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 Employer 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 Employer 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 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;
  - (3.22) 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, inclusive of the cost for the provision of personnel required for the acceptance of the Works or parts thereof;
  - (3.23) 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;
  - (3.24) 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;
  - (3.25) all material price, transportation cost and wage increases in accordance with Sub-Clause 70.1 of the Conditions of Contract, and therefore falling under the Contractor's risks;
  - (3.26) 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 Employer 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) All prices are to be indicated in Bangladesh currency "Taka".
  - (6) 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.

- (7) 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.
- (8) 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.
- (9) 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.
- (10) Items with the letter "A" placed before them, are regarded as **alternative items** and may be executed only after a written order by the Employer. 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.
- (11) Items with the letter "P" placed before them, are deemed as **provisional items** and may be executed only after a written order by the Employer. 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.
- (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 Employer.
- (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 Employer.
- (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 Employer, 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 calendar 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 <sup>2</sup>	square meter
km <sup>2</sup>	square kilometer
m <sup>3</sup>	cubic meter
m <sup>3</sup> /km	transport of 1 m <sup>3</sup> of material over 1,000 m distance.
t/km	transport of 1 tonne (1,000 kg) 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 Technical Specifications, Volume III of the Contract Documents.

## Summary of Bill of Quantities

Bill No.	Title / Contents	Amount [Taka]	Total Amount [Taka]
	<b>GENERAL</b>		
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	Employer's Facilities		
05	Monitoring Field Station		
P 06	Monitoring - Piezometer Stations		
	Sub-total		
	<b>CONSTRUCTION WORKS</b>		
10	General Earth Works		
11	Design Section A (Upstream Termination)		
12	Design Section B (Upstream Termination)		
13	Design Section C		
14	Design Section D		
15	Design Section E		
16	Design Section F		
17	Design Section G		
18	Design Section H		
19	Design Section I (Downstream Termination)		
	Total of Bills		
	Total for Daywork (Provisional Sum)		
	Add 10% of the Total of Bills for Contingencies (Provisional Sum)		
<b>TOTAL NET TENDER PRICE</b> (excluding Value Added Tax)			

**Note:**

Any Provisional Sum and 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 Employer in accordance with



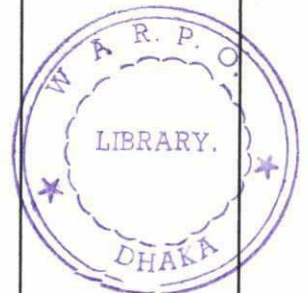
## Bill No.: 01

## General Items

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
1.01	Clearing of site areas in accordance with Subsection 910, complete.	m <sup>2</sup>	100,000		
1.02	Preparation and mobilization of the Site at <b>Bahadurabad Ghat</b> as per Section 500, including rental charges etc., complete.	sum	---		
A 1.03	Preparation and mobilization of the Site at <b>Rasulpur Ghat</b> (Belashi Port) as per Section 500, including rental charges etc., complete.	sum	---		----
1.04	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 1.05	Provisional Sum for repair, upgrading and outfit of Contractor's rented/leased equipment as per Subsection 410(3). 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 Employer. 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 Employer. Any such work shall be carried out only after Employer'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	---		
P 1.06	Manufacturing and installing special equipment for laying of geotextile filter mats and textile mattresses as per Drawings, ready for operation.	t	10		



Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
1.07	Site laboratory in accordance with Subsection 560, to be provided, maintained and operated, complete.	month	7		
P 1.08	Provide Contractor's All Risk and Third Party Insurance in accordance with Clause 21, 22 and 23 of the Conditions of Contract.	sum	---		
A 1.09	Provide Contractor's insurance as under Item P 1.08, but at reduced cover in accordance with Sub-Clause 21.6 of the Conditions of Contract.	sum	---		----
P 1.10	Supply of hydrographic survey equipment as per Subsection 651 (2), complete.	sum	---		6,750,000
P 1.11	Providing of motor boat for hydrographic surveys in accordance with Subsection 651 (1), complete.	month	7		
P 1.12	Project sign board in accordance with Subsection 518, size approx. 2.5 x 3.0 m, height above ground approx. 3.0 m, to be provided, complete.	sum	---		
1.13	Water level recorder, automatic, to be provided, operated and maintained during the entire construction period, records to be handed over to the Employer's Representative, complete.	month	8		
P 1.14	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	---		
P 1.15	Provisional Sum for implementation of contingency measures to temporarily divert the current attack near the construction works in accordance with Subsection 022.	sum	---		10,000,000
1.16	Demobilization and clean-up of the site upon completion of the Works, as per Subsection 580, complete.	sum	---		
<b>Total Bill No. 01 (carried to Summary)</b>					





**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 490 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 (b) 400-t-pontoon (c) 400-t-pontoon (to utilize for 60-t-crawler crane) (d) 60-t-crawler crane	month month month month	6 6 6 6		
P 2.02	Operate the 250-t-pontoon of Item 2.01(a) on the instruction of the Employer.	hr.	200		
P 2.03	Operate the 400-t-pontoon of Item 2.01(b) on the instruction of the Employer.	hr.	200		
P 2.04	Operate the 400-t-pontoon of Item 2.01(c) on the instruction of the Employer.	hr.	200		
P 2.05	Operate the 60-t-crawler crane mounted on the 400-t-pontoon of Item 2.01(c) on the instruction of the Employer.	hr.	100		
P 2.06	Hire and operate a tug-boat of at least 400 HP on the instruction of the Employer.	hr.	800		
<b>Total Bill No. 02 (Provisional Work) (carried to Summary)</b>					

## 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]
	<b>(a) Construction Equipment</b>				
3.01	Crawler crane, 150-t capacity, as per Subsection 320, to be taken-over, loaded to the main barge of Subsection 330, transferred to the Site (on-shore) and assembled, ready for operation, complete.	sum	---		
P 3.02	Mooring winches, 2 Nos., two-drum, about 15 t pulling capacity per drum, as per Subsection 350, to be taken-over at Chittagong Port, transferred to the Site, loaded to Contractor's main winch barge and assembled, ready for operation, complete.	sum	---		
P 3.03	Main winch, two-drum, of at least 20 t pulling capacity per drum, as per Subsection 360, to be taken-over at Chittagong Port, transferred to the Site, loaded to Contractor's main winch barge and assembled, ready for operation, complete.	sum	---		
P 3.04	Colloidal cement grout plant as per Subsections 370, to be taken-over at Chittagong Port, transferred to the Site and assembled, ready for operation, complete.	sum	---		
P 3.05	Mobile concrete pump as per Subsection 380, to be taken-over at Dhaka, transferred to the Site and assembled, ready for operation, complete.	sum	---		
	<b>Sub-total (a)</b>				
	<b>(b) Geotextiles, Gabions, etc.</b>				
3.20	Geotextile filter mats, Types GF-1 to GF-4, in rolls of about 5 m in width, single weight of one roll up to approx. 400 kg, taken over and loaded at Chittagong Port, transported to the Site, unloaded, stored and protected, complete (approx. 85,000 m <sup>2</sup> ).	t	40		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
3.21	Composite geotextile filter mats, Type GF-5, GF-6, in rolls of about 5 m in width, single weight of one roll 500 kg, taken over and loaded at Chittagong Port, transported to the Site, unloaded, stored and protected, complete (approx. 6,000 m <sup>2</sup> ).	t	12		
3.22	Geotextile sand containers of various sizes, to be taken over and loaded at Dhaka transported to the Site, unloaded, stored and protected, complete. (approx. 28,000 Nos.).	t	32		
3.23	Textile pre-tailored mattresses, Type PROFIX, to be taken over and loaded at Chittagong Port, transported to the Site, unloaded, stored and protected, complete. (approx. 7,000 m <sup>2</sup> )	t	7		
3.24	Textile, pre-tailored collapsable block mattresses, Type INCOMAT-Sand Flex, including filter mat type GF-4, to be taken over and loaded at Chittagong Port, transported to the Site, unloaded, stored and protected, complete. (approx. 5,000 m <sup>2</sup> ).	t	7		
3.25	Textile, pre-tailored collapsable block mattresses, Type FORESHORE, to be taken over and loaded at Chittagong Port, transported to the Site, unloaded, stored and protected, complete (approx. 12,000 m <sup>2</sup> ).	t	12		
3.26	Reno-Mattresses of double twisted wire mesh, PVC-coated, different sizes (d=23cm and 36cm), bundled on pallets, to be loaded at Chittagong Port, transported to the Site, unloaded and stockpiled, complete.	t	22		
3.27	Gabion sacks of double twisted wire mesh, PVC-coated, bundled on pallets, to be loaded at Chittagong Port, transported to the Site, unloaded and stockpiled, complete.	t	35		
Sub-total (b)					





Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(c) Stones and Rubble for Rip-rap, Interlocking CC-Slabs, Bricks</b>				
3.40	Graded stones, Range B, size $D_{50} = 15\text{cm}$ , stockpiled at Chilhari, to be loaded to barges, towed to the Site and stockpiled, ready for use.	$\text{m}^3$	3,800		
3.41	Graded stones, Range C, size $D_{50} = 20\text{cm}$ , otherwise as in Item 3.40.	$\text{m}^3$	2,100		
3.42	Graded stones, Range D, size $D_{50} = 25\text{cm}$ , otherwise as in Item 3.40.	$\text{m}^3$	2,500		
3.43	Graded stones, Range E, size $D_{50} = 30\text{cm}$ , otherwise as in Item 3.40.	$\text{m}^3$	8,200		
3.44	Graded stones, Range F, size $D_{50} = 35\text{cm}$ , otherwise as in Item 3.40.	$\text{m}^3$	4,500		
A 3.45	Graded stones, Ranges B to F, as in Items 3.40 to 3.44, however stockpiled at Burimari (near the Indian border), to be loaded and transported to the Site <b>Bahadurabad Ghat</b> and stockpiled, ready for use. (total quantity up to 21,100 $\text{m}^3$ )	$\text{m}^3$	1		----
A 3.46	Graded stones, Ranges B to F, as in Items 3.40 to 3.44, however stockpiled at Burimari (near the Indian border), to be loaded and transported to the Site <b>Rasulpur Ghat</b> and stockpiled, ready for use. (total quantity up to 21,100 $\text{m}^3$ )	$\text{m}^3$	1		----
P 3.47	Factory made CC-slabs, interlocking-type, stockpiled at Dhaka, to be loaded, transported to the Site, unloaded and stockpiled, ready for use, complete. (20,600 Nos. groove-tongue-type, 17,000 Nos. ship-lap-type)	t	2,000		



Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 3.48	Employer's cost for procurement and transport to the Site of ~4 million Nos. of first class bricks, to be reimbursed by the Contractor to the Employer prior to taking-over the material.	sum	---	(minus)	-10,000,000
	Sub-total (c)				
Total Bill No. 03 (carried to Summary)					

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## Bill No.: 04

## Employer's Facilities

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
4.01	Camp development by compacted earth filling to the level shown on the Drawing, approx. area 3,000m <sup>2</sup> , including proper slope as surface drain, complete.	m <sup>3</sup>	12,000		
4.02	Foundation to be provided for Employer's container offices and accommodation, floor level 0.50m above camp level, including all concrete and/or brick works, complete (for 9 Nos. 40 ft and 10 Nos. 20 ft containers).	sum	---		
4.03	Access road to Employer's container camp, made of Khoa (broken bricks), and brick-paved walkways within the camp area, to be provided, including sub-base, complete.	m <sup>2</sup>	4,000		
4.04	Transportation of 7-40ft-container and 8-20ft container from Kamarjani site to the new Site location at <b>Bahadurabad Ghat</b> , including removing from the foundations, transporting to the river bank, loading to barges, towing to the Site, unloading, transporting and placing on the prepared foundations, complete.	sum	---		
A 4.05	Transportation of 7-40ft-container and 8-20ft container from Kamarjani site to the new Site location at <b>Rasulpur Ghat</b> , otherwise as in Item 4.04.	sum	---		----
P 4.06	Employer's camp accommodation to be expanded by providing 2 Nos. 20ft- and 2 Nos. 40ft-containers, including electrical and sanitary outfit, furniture, etc., complete.	sum	---		
P 4.07	Transportation of 2-20ft-container and 2-40ft containers of Item 4.06 from Dhaka to the new Site location, including placing on the prepared foundations, complete.	sum	---		
4.08	Roof construction for covering Employer's walkways within the camp, including foundations, bamboo posts, trusses, straw thatching including Jafry at ridge and lips, complete.	m <sup>2</sup>	700		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
4.09	Fencing around the camp, made of bamboo posts and bamboo batten panels, 1.5m height, including main gate and pedestrian gate, as well as area illumination in and out the camp, complete.	sum	---		
4.10	Septic tank, capacity suitable for at least 25 persons, to be provided, complete with all earth works, coatings and all sewer lines to Employer's container-WC's.	sum	---		
4.11	Construction of soak well, 6 m deep, 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 all earth work, filling, compaction, etc., complete.	sum	---		
4.12	Ground water deep well, at least 40 m deep, to be provided, including strainers, pump and pipelines to the fresh water tanks of Employer's container offices/WC's, complete.	sum	---		
4.13	Operate and maintain Employer's container camp as per Subsection 720, including power generator station and 24-hrs. watch and ward, complete.	month	8		
<b>Total Bill No. 04 (carried to Summary)</b>					

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

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	Note: Earth works for preparing the ground for the M.F.S., such as excavation, filling, compaction and slope protection are covered by the other bills of the Bill of Quantities.				
	<b>(a) Erection of M.F.S.</b>				
P 5.01	Foundation to be provided for Employer's container offices and accommodation, floor level 0.50m above design ground level, including all concrete and/or brick works, complete (for 3 Nos. 20 ft and 1 No. 40ft-containers).	sum	---		
P 5.02	Access road to Monitoring Field Station, made of Khoa (broken bricks), to be provided, including sub-base, complete.	m <sup>2</sup>	4,000		
P 5.03	Transportation of 20ft and 40ft-containers from Employer's camp to the M.F.S. location, including removing from the foundations, transporting, unloading, and placing on the prepared foundations,	No.	4		
P 5.04	Fencing around the M.F.S, made of bamboo posts and bamboo batten panels, 1.5m height, including gate, as well as area illumination, complete.	sum	---		
	<b>Sub-total (a)</b>				
	<b>(b) Sewage System</b>				
P 5.10	Septic tank with soak pit, capacity suitable for at least 10 persons, to be provided, complete with all earth works, coatings and sewer lines to Employer's container-WC's.	sum	---		



Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 5.11	Construction of soak well, 6 m deep, 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 all earth work, filling, compaction, etc., complete.	sum	---		
P 5.12	Supplying and placing 150 mm dia. R.C.C. pipes including cutting trenches and sand filling for pipe bedding and covering etc.,	m	100		
P 5.13	Providing sewer connection between bathrooms of monitoring field station and septic tank, including all pipes, fasteners, supports, vents, complete.	sum	---		
<b>Sub-total (b)</b>					
<b>(c) Water Supply</b>					
P 5.20	Ground water deep well, at least 40 m deep, to be provided, including strainers, pump and pipelines to the fresh water tanks of M.F.S. and WC's, as well as concrete platform around the tubewell point, complete.	sum	---		
P 5.21	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 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 M.F.S.	sum	---		
<b>Sub-total (c)</b>					
<b>Total Title 05 (carried to Summary)</b>					

**Bill No.: 06 (Provisional Work)**  
**Monitoring - Piezometer Stations**

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
P 6.01	Mobilization of equipment for boring and installation of piezometer wells, and demobilization after completion, complete.	sum	---		
P 6.02	Boring with temporary casing (diameter $\geq 150\text{mm}$ ) and installation of Piezometer No. 1 (diameter $\geq 50\text{mm}$ ), boring depth from flood plain level to -5.20m SLW, inclusive supply of all piezometer pipes, brass strainer, sump pipe and accessories; filling the well with selected filter sand up to 1m above the strainer, refilling the remaining bore with soil and providing a clay or Bentonite-cement seal plug, as well as providing a concrete protective pipe around the piezometer head; all in accordance with Specifications, Section 1100, complete.	No.	5		
P 6.03	Boring and installation of Piezometer No. 2, as in Item 6.02, however installation depth from +9.20m to -5.2m SLW, complete.	No.	5		
P 6.04	Boring and installation of Piezometer No. 3, as in Item 6.02, however installation depth from +3.20m to -5.2m SLW, and inclusive providing a permanent steel pipe as protection to the piezometer head, complete.	No.	5		
P 6.05	Boring and installation of Piezometer No. 4, as in Item 6.04, however installation depth from +2.50m to -5.2m SLW, complete.	No.	5		
<b>Total Title 06 (carried to Summary)</b>					

## Bill No.: 10

## General Earth Works

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>(a) Main Embankment</b>					
P 10.01	Stripping of top soil to the levels indicated by the Employer, material to stockpile for reuse, complete.	m <sup>2</sup>	40,000		
10.02	Excavation with bank-sided equipment of any soil above water level, near bankline, for construction of revetments, true to slope and level, suitable material to stock pile for reuse, otherwise to dispose off, complete.	m <sup>3</sup>	380,000		
10.03	Dredging of any soil off the bank line for constructing the revetments, true to slope and levels, using floating and bank-sided equipment, material to be interim stored on the flood plain for reuse or to be disposed off, complete.	m <sup>3</sup>	280,000		
10.04	Excavation of any soil above water level, direct placing for build-up of embankment, leveling true to slope and compaction to a density of D=0.6 to 0.75 in layers of maximal 30 cm, complete.	m <sup>3</sup>	50,000		
10.05	Suitable soil of Items 10.02 and 10.03, to be loaded, transported and placed for build-up of the embankment and filling of anchor trenches, leveled true to slope and compacted to a density of D=0.6 to 0.75 in layers of maximal 30 cm, complete.	m <sup>3</sup>	50,000		
A 10.06	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 <sup>3</sup>	1		-----
10.07	Embankment surfaces between water level and original ground level, prepared as per Items 10.02 and 10.03, to be finally trimmed to true slope and compacted to a density of D=0.6 to 0.75, complete.	m <sup>2</sup>	35,000		
<b>Sub-total (a)</b>					



Q2

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Connecting Embankment</b>				
10.10	Suitable soil of Items 10.02 and 10.03, to be loaded, transported and placed for build-up of the embankment, leveled true to slope and compacted to a density of D=0.6 to 0.75 in layers of maximal 30 cm, complete.	m <sup>3</sup>	30,000		
A 10.11	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 <sup>3</sup>	1		-----
	<b>Sub-total (b)</b>				
	<b>(c) Land-sided Slope Protection</b>				
10.20	Top soil of Item 10.01 to be placed in layers of 10 cm on the prepared land-sided slopes of the test structures, leveled and lightly compacted, to receive the cover layer, complete.	m <sup>2</sup>	20,000		
10.21	Geo-Jute soil saver, type 1.22lbs/XD (porter 6.5/10cm, shot 4.5/10cm), to be provided, placed on the prepared slopes including proper overlapping and pegging for fixation, complete.	m <sup>2</sup>	20,000		
10.22	Turfing of embankment slopes by Durba, Charkata or other good quality grass seeds, to be provided at a rate of at least 10gr/m <sup>2</sup> before and after laying the Geo-Jute soil saver, including irrigation and first cut, complete.	m <sup>2</sup>	20,000		
	<b>Sub-total (c)</b>				
<b>Total Bill No. 10 (carried to Summary)</b>					



**Bill No.: 11****Design Section A - Upstream Termination**

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
11.01	Geotextile filter mat Types GF-1, GF-2, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	7,000		
11.02	Geotextile filter of Item 11.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	7,000		
11.03	Brick mattresses of first class bricks, 15 cm thick, in double layer, cover layer of herring bone bond, 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 center to center, complete.	m <sup>2</sup>	1,600		
11.04	Brick mattresses as in Item 11.03, but 20 cm thick, cover layer of herring bone bond with bricks in upright position, complete.	m <sup>2</sup>	1,100		
11.05	Rubble, grading range 12mm to 75mm, to be supplied and placed as intermediate layer on the geotextile filter GF-2 for Item 11.06, complete.	m <sup>3</sup>	750		
11.06	Reno-mattresses of Item 3.26, height 36cm, to be assembled as per manufacturer's instructions, positioned and secured in place, cutting of special sizes for suiting site conditions, and final closing and securing the box covers, complete.	m <sup>2</sup>	2,800		
11.07	Bricks, first class quality, to be supplied, stockpiled and subsequently to be filled densely into the prepared Reno mattresses of Item 11.06, complete.	m <sup>3</sup>	850		



Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
11.08	Stones, Grading Range B, $D_{50} = 15\text{cm}$ , transported to the Site under Item 3.40, to be filled densely into the prepared Reno-mattresses, complete.	$\text{m}^3$	190		
11.09	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	$\text{m}^3$	220		
11.10	Falling apron of concrete blocks, size 25x25x25 cm, using material provided as per Item 11.09, to be placed within well defined area limits to the designed layer thickness, including haulage of the blocks to the place of dumping, complete.	$\text{m}^3$	220		
<b>Sub-total (a)</b>					
<b>(b) Below Berm Level</b>					
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section A, ranging from $\pm 0.0\text{m}$ SLW to $-8.0\text{m}$ SLW.				
11.20	Geotextile filter mat Type GF-2, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	$\text{m}^2$	11,000		
11.21	Geotextile filter of Item 11.20, to be placed on the completed slopes and areas, above and below water level, including workmanlike overlapping, ballasting for temporary securing, complete.	$\text{m}^2$	11,000		
P 11.22	Reinforcing steel bars for ballasting geotextile filter materials for installation under water, to be provided, complete.	t	13		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
11.23	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	2,100		
11.24	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 11.23, complete.	m <sup>3</sup>	1,150		
11.25	Falling apron of concrete blocks, size 30/30/30 cm, using material provided as per Item 11.23, to be placed within well defined area limits to the designed layer thickness, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	450		
A 11.26	Falling apron of concrete blocks, size 35/35/35cm, using material as per Item 11.24, otherwise as in Item 11.25, complete.	m <sup>3</sup>	1		----
A 11.27	Falling apron of concrete blocks, size 40/40/40cm, using material as per Item 11.24, otherwise as in Item 11.25, complete.	m <sup>3</sup>	1		----
11.28	Falling apron by rip-rap, Grading Range D, D <sub>50</sub> =25cm, material provided as per Item 3.42, to be placed below water level within defined areas to designed layer thickness, including haulage of the stones to the place of dumping, complete.	m <sup>3</sup>	850		
11.29	Falling apron by rip-rap, Grading Range E, D <sub>50</sub> =30cm, material provided as per Item 3.43, otherwise as in Item 11.28, complete.	m <sup>3</sup>	3,600		
11.30	Falling apron by rip-rap, Grading Range F, D <sub>50</sub> =35cm, material provided as per Item 3.44, otherwise as in Item 11.28, complete.	m <sup>3</sup>	750		
11.31	Rubble, grading range 12mm to 75mm, to be supplied and placed below and above water level on the geotextile as intermediate layer, complete.	m <sup>3</sup>	550		



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**Design Section A**  
**Upstream Termination**

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
11.32	Reno-mattresses of Item 3.26, height 23cm and 36cm, to be assembled as per manufacturer's instructions to complete mattresses, including final closing and securing the box covers, complete.	m <sup>2</sup>	2,150		
11.33	Stones, Grading Range B, D <sub>50</sub> =15cm, transported to the Site under Item 3.40, to be filled densely into the prepared Reno-mattresses, complete.	m <sup>3</sup>	550		
11.34	Stone-filled Reno-mattresses of Items 11.32 and 11.33 to be lifted with special lifting beams and placed on the prepared slopes, above and below water level, complete.	m <sup>2</sup>	2,150		
11.35	Revetment by dumped CC-blocks, size 30-35-40cm, material provided as per Items 11.23, 11.24 to be placed below /above water level within defined areas to designed slope and layer thickness, including haulage of blocks to the place of dumping, complete.	m <sup>3</sup>	2,800		
<b>Sub-total (b)</b>					
<b>Total Bill No. 11 (carried to Summary)</b>					



Bill No.: 12

**Design Section B - Upstream Termination**

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
12.01	Geotextile filter mat Type GF-2, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	4,200		
12.02	Geotextile filter of Item 12.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	4,200		
12.03	Rubble, grading range 12mm to 75mm, to be supplied and placed as intermediate layer on the geotextile filter GF-2 for Item 12.04,	m <sup>3</sup>	700		
12.04	Wire-mesh mattresses, height 23cm and 36cm, to be supplied, assembled, positioned and secured in place, incl. cutting of special sizes for suiting site conditions, and final closing and securing the box covers, complete.	m <sup>2</sup>	3,150		
12.05	Stones, Grading Range B, D <sub>50</sub> =15cm, transported to the Site under Item 3.40, to be filled densely into the prepared wire mesh mattresses, complete.	m <sup>3</sup>	800		
	<b>Sub-total (a)</b>				

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**Design Section B  
Upstream Termination**

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section B, ranging from -8.00m SLW to -9.50m SLW.				
12.10	Geotextile filter mat Type GF-4, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	9,600		
12.11	Geotextile filter of Item 12.10, to be placed on the completed slopes and areas, above and below water level, including workmanlike overlapping, ballasting for temporary securing, complete.	m <sup>2</sup>	9,600		
P 12.12	Reinforcing steel bars for ballasting geotextile filter materials for installation under water, to be provided, complete.	t	11		
A 12.13	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	1		-----
12.14	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 12.13, complete.	m <sup>3</sup>	4,500		
12.15	Geotextile containers Type C , of Item 3.22, to be filled with Jamuna-sand (180 kg each), sealed by workmanlike stitching and stockpiled for use, complete.	Nos.	16,500		
12.16	Geotextile containers Type D , of Item 3.22, to be filled with Jamuna-sand (250 kg each), sealed by workmanlike stitching and stockpiled for use, complete.	Nos.	4,000		

**Design Section B**  
**Upstream Termination**

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
12.17	Falling apron of sand containers Type C, using material of Item 12.15, to be placed under water within well defined limits to the designed quantity, including haulage of the containers to the place of dumping, complete.	Nos.	16,500		
12.18	Falling apron of sand containers Type D, using material of Item 12.16, otherwise as in Item 12.17, complete.	Nos.	4,000		
12.19	Revetment by dumped concrete blocks, graded from size 35/35/35cm, 40/40/40cm and 45/45/45cm, material provided as per Item 12.14, to be placed below and above water level within defined areas to the designed slope and layer thickness, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	4,500		
	<b>Sub-total (b)</b>				
<b>Total Bill No. 12 (carried to Summary)</b>					

## Bill No.: 13

## Design Section C

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
13.01	Composite geotextile filter mat Type GF-6, of Item 3.21, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	4,000		
13.02	Geotextile filter of Item 13.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	4,000		
13.03	Revetment by rip-rap, Grading Range D, D <sub>50</sub> = 25 cm, transported to the Site under Item 3.42, to be placed above water level to the designed slope and layer thickness, complete.	m <sup>3</sup>	1,500		
13.04	Surface grouting by colloidal cement mortar for Item 13.03, grouting rate 100 ltr./m <sup>2</sup> surface area, to be provided, complete.	m <sup>2</sup>	2,600		
	<b>Sub-total (a)</b>				



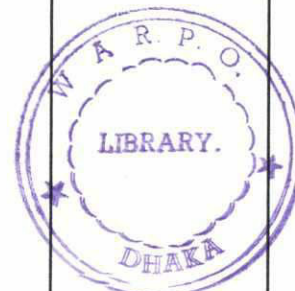
Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section C, of -9.50m SLW.				
13.10	Geotextile filter mat Type GF-4, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	8,750		
13.11	Geotextile filter of Item 13.10, to be placed on the completed slopes and areas, above and below water level, including workmanlike overlapping, ballasting for temporary securing, complete.	m <sup>2</sup>	8,750		
P 13.12	Reinforcing steel bars for ballasting geotextile filter materials for installation under water, to be provided, complete.	t	11		
13.13	Geotextile containers Type E, of Item 3.22, to be filled with Jamuna-sand (900 kg each), sealed by workmanlike stitching and stockpiled for use, complete.	Nos.	7,200		
13.14	Falling apron of sand containers Type E, using material of Item 13.13, to be placed under water within well defined limits to the designed quantity, including haulage the containers to the place of dumping, complete.	Nos.	7,200		
13.15	Revetment by rip-rap, Grading Range E, D <sub>50</sub> =30cm, material provided as per Item 3.43, to be placed below and above water level within defined areas to designed slope and layer thickness, including haulage of the stones to the place of dumping, complete.	m <sup>3</sup>	4,600		
	<b>Sub-total (b)</b>				
<b>Total Bill No. 13 (carried to Summary)</b>					

## Bill No.: 14

## Design Section D

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
14.01	Geotextile filter mat Type GF-2, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	3,500		
14.02	Geotextile filter of Item 14.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	3,500		
14.03	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	750		
14.04	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 14.03, complete.	m <sup>3</sup>	65		
14.05	Rubble, grading range 12mm to 75mm, to be supplied and placed as intermediate layer at the revetment toe, complete.	m <sup>3</sup>	150		
14.06	Concrete blocks, size 30/30/30cm, to be laid on the geotextile filter in parallel rows with staggered joints between the layers, using material of Item 14.03, complete.	m <sup>3</sup>	750		
14.07	Concrete blocks, size 30/30/50cm, to be laid on the geotextile filter in parallel rows with staggered joints between the rows, using material of Item 14.04, complete.	m <sup>3</sup>	65		
	<b>Sub-total (a)</b>				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section D, of -9.50m SLW.				
14.10	Geotextile filter mat Type GF-2, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	8,000		
14.11	Geotextile filter of Item 14.10, to be placed on the completed slopes and areas, above and below water level, including workmanlike overlapping, ballasting for temporary securing, complete.	m <sup>2</sup>	8,000		
P 14.12	Reinforcing steel bars for ballasting geotextile filter materials for installation under water, to be provided, complete.	t	10		
14.13	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	3,400		
14.14	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 14.13, complete.	m <sup>3</sup>	2,250		
14.15	Falling apron of concrete blocks, size 35/35/35cm, using material of Item 14.14, to be placed under water within well defined limits to the designed quantity, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	2,250		
A 14.16	Falling apron of concrete blocks, size 40/40/40cm, using material of Item 14.14, otherwise as in Item 14.15, complete.	m <sup>3</sup>	1		----
A 14.17	Falling apron of concrete blocks, size 45/45/45cm, using material of Item 14.14, otherwise as in Item 14.15, complete.	m <sup>3</sup>	1		----



Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
14.18	Revetment by dumped concrete blocks, size 25/25/25cm, material provided as per Item 14.13, to be placed below and above water level within defined areas to the designed slope and layer thickness, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	1,550		
14.19	Revetment by dumped concrete blocks, size 30/30/30cm, material provided as per Item 14.13, otherwise as in Item 14.18, complete.	m <sup>3</sup>	1,850		
Sub-total (b)					
Total Bill No. 14 (carried to Summary)					



## Bill No.: 15

## Design Section E

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
15.01	Geotextile filter mat Type GF-1, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	1,950		
15.02	Geotextile filter of Item 15.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	1,950		
15.03	Composite geotextile filter mat Type GF-5, of Item 3.21 to be prepared as in Item 15.01, complete.	m <sup>2</sup>	1,950		
15.04	Composite geotextile filter of Item 15.03 to be installed as in Item 15.02, complete.	m <sup>2</sup>	1,950		
15.05	Sub-layer by rip-rap, Grading Range D, D <sub>50</sub> = 25 cm, transported to the Site under Item 3.42, to be placed above water level to the designed slope and layer thickness, complete.	m <sup>3</sup>	70		
15.06	Rubble, grading range 12mm to 75mm, to be supplied and placed as intermediate layer at the revetment toe, complete.	m <sup>3</sup>	150		
15.07	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	45		
15.08	Concrete blocks, size 30/30/30cm, to be laid as sub-layer in parallel rows with staggered joints between the layers, using material of Item 15.07, complete.	m <sup>3</sup>	45		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
15.09	Interlocking concrete blocks, groove-tongue-type, 17cm thick, to be laid on the geotextile filter in parallel rows with staggered joints between the rows, true to level and designed slope, using material provided as per Item 3.47, complete.	m <sup>2</sup>	2,700		
	<b>Sub-total (a)</b>				
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section E, ranging from -9.50m SLW to - 5.0m SLW.				
15.10	Geotextile filter mat Type GF-2, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	7,200		
15.11	Geotextile filter of Item 15.10, to be placed on the completed slopes and areas, above and below water level, including workmanlike overlapping, ballasting for temporary securing, complete.	m <sup>2</sup>	7,200		
P 15.12	Reinforcing steel bars for ballasting geotextile filter materials for installation under water, to be provided, complete.	t	9		
A 15.13	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	1		-----
15.14	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 15.13, complete.	m <sup>3</sup>	3,950		

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
15.15	Gabion-sacks of Item 3.27, to be filled with rip-rap, Grading Range B, $D_{50} = 15$ cm, as transported to the Site under Item 3.40, closed by lacing wire in workmanlike manner and stockpiled for use, complete.	Nos.	3,100		
15.16	Falling apron of Gabion-sacks, single weight 1t to 1.3t, using material of Item 15.15, to be placed under water within well defined limits to the designed quantity, including haulage of the sacks to the place of dumping, complete.	Nos.	3,100		
15.17	Revetment by dumped concrete blocks, size 35/35/35cm, material provided as per Item 15.14, to be placed below and above water level within defined areas to the designed slope and layer thickness, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	3,600		
15.18	Revetment by dumped concrete blocks, size 45/45/45cm, otherwise as in Item 15.17, complete.	m <sup>3</sup>	350		
<b>Sub-total (b)</b>					
<b>Total Bill No. 15 (carried to Summary)</b>					



## Bill No.: 16

## Design Section F

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
16.01	Granular filter, grading range Type II, to be provided above water level, true to slope and levels, at a minimum layer thickness of 30cm, complete.	m <sup>3</sup>	900		
16.02	Granular gravel/stone filter, grading range Type III, to be provided above water level, true to slope and levels, at a minimum layer thickness of 30cm, complete.	m <sup>3</sup>	450		
16.03	Granular Khoa filter of first class bricks, suiting grading range Type III, to be provided above water level, true to slope and levels, at a minimum layer thickness of 30cm, complete.	m <sup>3</sup>	450		
16.04	Sub-layer of rip-rap, Grading Range D, D <sub>50</sub> = 25 cm, transported to the Site under Item 3.42, to be placed above water level to the designed slope and layer thickness, complete.	m <sup>3</sup>	70		
16.05	Cement concrete blocks with special spacer tongue, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	800		
16.06	Concrete blocks, size 30/30/30cm, to be laid on the geotextile filter in diagonal rows with staggered joints between the rows, using material of Item 16.05, complete.	m <sup>3</sup>	800		
16.07	Prohibitory Mark "NO ANCHORING" to be provided and installed, including derusting, durable epoxy-based preservation coatings in the colours designated on the Drawing, complete.	No.	1		
	<b>Sub-total (a)</b>				



Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section F, of - 5.0m SLW.				
16.10	PROFIX - tubular fabric mattress, textile material provided as per Item 3.23, to be laid, filled section-wise with selected Jamuna-sand and to be installed on the completed slopes and areas, above and below water level, including workmanlike tailoring to units, attachment of underlapping sheets and transitions and supply of selected sand, complete. Supply of special pulling beam for mattress installation is covered by Item P 1.07. Measurement and payment as per installed mattress in filled condition, excluding area of under-lapping sheets.	m <sup>2</sup>	4,000		
P 16.11	Mattress toe end of Item 16.10 to be filled with sand-cement mix. Rate as additional price to Item 16.10, to cover cost of cement, mixing and extra labour.	m <sup>2</sup>	200		
A 16.12	PROFIX-mattress as in Item 16.10, however to be filled with sand-bitumen mix (3-5% bitumen Grade 80/100), complete.	m <sup>2</sup>	1		----
16.13	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	250		
16.14	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 16.13, complete.	m <sup>3</sup>	1,600		
16.15	Concrete blocks, size 30/30/30cm, using material of Item 16.13, to be placed at berm level within well defined limits to the designed level, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	250		



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Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
A 16.16	Falling apron of concrete blocks, size 35/35/35cm, using material of Item 16.14, to be placed under water within well defined limits to the designed quantities, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	1		----
16.17	Falling apron of concrete blocks, size 40/40/40cm, using material of Item 16.14, otherwise as in Item 16.16, complete.	m <sup>3</sup>	1,600		
A 16.18	Falling apron of concrete blocks, size 45/45/45cm, using material of Item 16.14, otherwise as in Item 16.16, complete.	m <sup>3</sup>	1		----
<b>Sub-total (b)</b>					
<b>Total Bill No. 16 (carried to Summary)</b>					

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## Bill No.: 17

## Design Section G

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
17.01	Geotextile filter mat Type GF-1, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	3,550		
17.02	Geotextile filter of Item 17.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	3,550		
A 17.03	Rubble, grading range 12mm to 75mm, to be supplied and placed on the geotextile as intermediate layer, complete.	m <sup>3</sup>	1		-----
17.04	Wire-mesh mattresses, height 36cm, to be supplied, assembled, positioned and secured in place, incl. cutting of special sizes for suiting site conditions, and final closing and securing the box covers, complete.	m <sup>2</sup>	2,600		
17.05	Bricks, first class quality, to be supplied, stockpiled and subsequently to be filled densely into the prepared wire mesh-mattresses, complete.	m <sup>3</sup>	900		
17.06	Stones, Grading Range B, D <sub>50</sub> =15cm, transported to the Site under Item 3.40, to be filled densely into the prepared wire-mesh mattresses, complete.	m <sup>3</sup>	75		
17.07	Prohibitory Mark "NO ANCHORING" to be provided and installed, including derusting, durable epoxy-based preservation coatings in the colours designated on the Drawing, complete.	No.	1		
	<b>Sub-total (a)</b>				

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section G, of - 5.0m SLW.				
P 17.10	Geotextile filter mat Type GF-4, provided under Item 3.24, to unroll, cut to length, placed on clean ground and joined with the mattress of Item 17.11 by site stitching, complete.	m <sup>2</sup>	2,500		
17.11	INCOMAT Sand-Flex, collapsable block mattress, textile provided as per Item 3.24, to be installed on completed slopes, above and below water level, with workmanlike tailoring to installation units, attachment of underlapping sheets and transitions, including temporary ballasting and all diver work, complete. Measurement and payment as per installed mattress in filled condition, excluding area of under-lapping sheets.	m <sup>2</sup>	3,800		
17.12	Hydraulic sand fill of selected Jamuna sand, to be produced in mixers and pumped in to the installed mattress of Item 17.11, including supply of selected sand and all diver work, complete.	m <sup>3</sup>	1,500		
A 17.13	Sand-cement grout, cement content >450kg/m <sup>3</sup> mix, to be produced in special mixers and pumped in to the installed mattress of Item 17.11, including all diver work, complete.	m <sup>3</sup>	1		-----
17.14	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	250		
17.15	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 17.14, complete.	m <sup>3</sup>	1,400		



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Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
17.16	Concrete blocks, size 30/30/30cm, using material of Item 17.14, to be placed at berm level within well defined limits to the designed level, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	250		
17.17	Falling apron of concrete blocks, size 35/35/35cm, using material of Item 17.15, to be placed under water within well defined limits to the designed quantity, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	1,400		
A 17.18	Falling apron of concrete blocks, size 40/40/40cm, using material of Item 17.15, otherwise as in Item 17.17, complete.	m <sup>3</sup>	1		----
A 17.19	Falling apron of concrete blocks, size 45/45/45cm, using material of Item 17.15, otherwise as in Item 17.17, complete.	m <sup>3</sup>	1		----
<b>Sub-total (b)</b>					
<b>Total Bill No. 17 (carried to Summary)</b>					

## Bill No.: 18

## Design Section H

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
18.01	Geotextile filter mat Type GF-1, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	3,550		
18.02	Geotextile filter of Item 18.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	3,550		
18.03	Rubble, grading range 12mm to 75mm, to be supplied and placed as intermediate layer on the geotextile filter GF-1, complete.	m <sup>3</sup>	700		
18.04	Wire-mesh mattresses, height 23cm, to be supplied, assembled, positioned and secured in place, incl. cutting of special sizes for suiting site conditions, and final closing and securing the box covers, complete.	m <sup>2</sup>	64		
18.05	Stones, Grading Range B, D <sub>50</sub> =15cm, transported to the Site under Item 3.40, to be filled densely into the prepared wire mesh mattresses and as sub-layer at berm level, complete.	m <sup>3</sup>	150		
18.06	Interlocking concrete blocks, ship-lap-type, 15cm thick, to be laid on the geotextile filter in parallel rows with staggered joints between the rows, true to level and designed slope, using material provided as per Item 3.47, complete.	m <sup>2</sup>	2,700		
	<b>Sub-total (a)</b>				

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Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section H, of - 5.0m SLW.				
18.10	FORESHORE collapsable block mattress, textile provided as per Item 3.25, to be installed on completed slopes, above and below water level, with workmanlike tailoring to installation units, including overlapping and transitions and all diver work, complete. Measurement and payment as per installed mattress in filled condition, including area of filled overlaps.	m <sup>2</sup>	7,200		
18.11	Portland cement, fresh, best local produced quality, to be supplied and stored.	t	420		
18.12	Selected Jamuna sand to be supplied, screened and stockpiled.	m <sup>3</sup>	1,650		
18.13	Sand-cement grout mix, water-cement ratio 0.9, using material of Items 18.11 and 18.12, to be produced in transit mixers and pumped in to the mattresses during the installation process of Item 18.10, including all diver work, complete. Measurement of theoretical mattress volume in hardened stage.	m <sup>3</sup>	1,800		
18.14	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	250		
18.15	Concrete blocks, size 30/30/30cm, using material of Item 18.14, to be placed at berm level within well defined limits to the designed level, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	250		
	<b>Sub-total (b)</b>				
<b>Total Bill No. 18 (carried to Summary)</b>					

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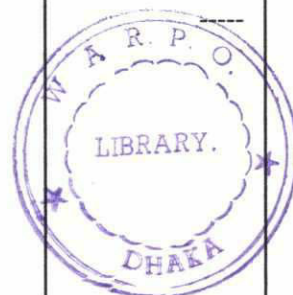
**Bill No.: 19****Design Section I - Downstream Termination**

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
<b>Note:</b>	All earth works are covered by Bill No. 10				
	<b>(a) Above Berm Level</b>				
19.01	Geotextile filter mat Types GF-2, GF-4, of Item 3.20, to unroll, cut to length, placed on clean ground and joined by Prayer Seam with double-thread chain stitch; the sewed layers to be unfolded and coiled on a steel tube, complete.	m <sup>2</sup>	6,100		
19.02	Geotextile filter of Item 19.01 to be placed on the completed slopes and areas above water level, including workmanlike overlapping, ballasting for temporary securing in place, complete.	m <sup>2</sup>	6,100		
19.03	Sub-layer of rip-rap, Grading Range C, D <sub>50</sub> = 20 cm, transported to the Site under Item 3.41, to be placed above water level to the designed slope and layer thickness, complete.	m <sup>3</sup>	130		
19.04	Revetment by rip-rap, Grading Range C, D <sub>50</sub> = 20 cm, transported to the Site under Item 3.41, to be placed above water level to the designed slope and layer thickness of 40cm and 50cm, complete.	m <sup>3</sup>	1,900		
19.05	Pattern grouting for rip-rap of Item 19.04, at a rate of 90 to 140 ltr. per 1m <sup>2</sup> surface area of the specified hot bitumen mastics, complete.	m <sup>2</sup>	4,100		
	<b>Sub-total (a)</b>				



# Design Section I Downstream Termination

Item No.	Description	Unit	Quantity	Rate [Taka]	Amount [Taka]
	<b>(b) Below Berm Level</b>				
<b>Note:</b>	All under water works refer to the design depth (= toe level of design slope) of this Section I, of - 5.0m SLW.				
19.10	Cement concrete blocks, sizes up to 30/30/30cm, mix proportion 1:3:6, by machine mixing, vibrator compaction, steel formwork boxes, first class aggregates, including downgraded Khoa of first class bricks, to be provided, stored, ready for use, complete.	m <sup>3</sup>	2,200		
A 19.11	Cement concrete blocks of sizes 35/35/35cm to 50/50/50cm, to be provided as in Item 19.10, complete.	m <sup>3</sup>	1		-----
19.12	Falling apron of concrete blocks, size 30/30/30cm, using material of Item 19.10, to be placed under water within well defined limits to the designed quantity, including haulage of the blocks to the place of dumping, complete.	m <sup>3</sup>	1,200		
19.13	Falling apron of concrete blocks, size 30/30/30cm, using material of Item 19.10, to be placed above water level, otherwise as in Item 19.12, complete.	m <sup>3</sup>	1,000		
A 19.14	Falling apron of concrete blocks, size 35/35/35cm, using material of Item 19.11, otherwise as in Item 19.12, complete.	m <sup>3</sup>	1		
19.15	Falling apron by rip-rap, Grading Range F, D <sub>50</sub> = 35cm, material provided as per Item 3.44, to be placed above and below water level within defined areas to designed layer thickness, including haulage of the stones to the place of dumping, complete.	m <sup>3</sup>	3,700		
	<b>Sub-total (b)</b>				
<b>Total Bill No. 19 (carried to Summary)</b>					



**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 Employer 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 Employer. 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 Employer 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 workman	400		
D 102	Skilled concrete workmen	100		
D 103	Skilled geotextile tailors	100		
D 104	Skilled revetment workman	100		
D 105	Skilled masons	100		
D 106	Skilled plasterer	100		
D 107	Skilled carpenters	200		
D 108	Skilled welders	100		
D 109	Skilled machine operators	300		
D 110	Driver for vehicle up to 10 t	300		
D 111	Operator for excavator, dragline, shovel, crane etc.	300		
D 112	Skilled mechanics	300		
D 113	Skilled electricians	100		
D 114	Skilled diver crew	200		
D 115	Unskilled workmen	3,000		
<b>Sub-total:</b>				
D 118	Allow    *) percent of Subtotal for Contractor's overhead, profit, etc., in accordance with para 1.2 above			
<b>TOTAL FOR DAYWORK: LABOUR</b> (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 <sup>3</sup>	20		
D 203	Concrete Class B 25	m <sup>3</sup>	20		
D 204	Concrete Class B 35	m <sup>3</sup>	20		
D 205	Formwork, incl. supports, bracings etc.	m <sup>2</sup>	50		
D 206	Reinforcing steel grade 60, ASTM-A 615	t	10		
D 207	Structural steel	t	5		
D 208	Sand for backfilling	m <sup>3</sup>	100		
D 209	Graded gravel filter	m <sup>3</sup>	50		
D 210	Graded Khoa filter	m <sup>3</sup>	50		
D 211	Rock for cushion layer	m <sup>3</sup>	20		
D 212	Rock for cover layer, W <sub>50</sub> = 2-30 kg	m <sup>3</sup>	500		
D 213	Rock for cover layer, W <sub>50</sub> = 35-100 kg	m <sup>3</sup>	500		
D 214	Brickwork d = 120 mm	m <sup>2</sup>	50		
D 215	Brickwork d = 240 mm	m <sup>2</sup>	50		
D 216	Cement plaster d = 20 mm	m <sup>2</sup>	100		
D 217	Ceramic glazed wall tiles	m <sup>2</sup>	10		
D 218	Terrazzo floor tiles	m <sup>2</sup>	10		
D 219	Zink steel sheets	m <sup>2</sup>	20		
D 220	Clear glass 3 mm	m <sup>2</sup>	5		
D 221	Water closet (monoblock)	No.	1		
D 222	Wash basin complete	No.	1		
D 223	Squatting closet	No.	1		
D 224	Urinal	No.	1		
D 225	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 include 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 Employer, the travelling time from the part of the Site where the Constructional Plant was located when ordered by the Employer 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 Employer'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 400 HP	500		
D 305	Tug boat over 400 HP	500		
D 306	Crawler crane, 150 t, 200 ft boom	200		
D 307	Crawler crane, 100 t	200		
D 308	Crawler crane, 60 t	200		
D 309	Crawler crane, 30 t	200		
D 310	Air compressor, up to 10 m <sup>3</sup> /min.	100		
D 311	Air compressor, over 10 to 20 m <sup>3</sup> /min.	100		
D 312	Welding generator up to 50 KVA	50		
D 313	Welding transformer up to 200 A	50		
D 314	Generator set up to 25 KVA	200		
D 315	Generator set over 25 to 75 KVA	200		
D 316	Generator set over 75 KVA	50		
D 317	Excavator, up to 1 m <sup>3</sup>	100		
D 318	Excavator over 1 m <sup>3</sup> to 3 m <sup>3</sup>	50		
D 319	Dump truck, up to 3 m <sup>3</sup>	50		
D 320	Dump truck, over 3 m <sup>3</sup> to 10 m <sup>3</sup>	50		
D 321	Front loader, up to 1.5 m <sup>3</sup>	50		
D 322	Front loader, over 1.5 to 3 m <sup>3</sup>	50		
D 323	Dozer, up to 75 KW	20		
D 324	Dozer, over 75 KW to 150 KW	20		
D 325	Grader, up to 50 KW	20		
D 326	Grader, over 50 KW to 100 KW	20		
D 327	Surface plate vibrator	20		
D 328	Vibrating roller, up to 5 t	50		
D 329	Vibrating roller, over 5 t to 7.5 t	50		
D 330	Concrete mixer, mixing drum volume over 250 l to 750 l	20		
<b>TOTAL FOR DAYWORK: CONSTRUCTIONAL PLANT</b> (Carried to Daywork Summary Sheet)				

\*) to be entered by the Tenderer

**DAYWORK SUMMARY**

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



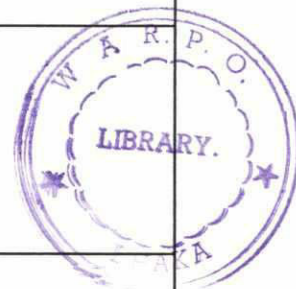
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**Section 5**  
**Miscellaneous Schedules**

## SCHEDULE I

MAJOR ITEMS OF CONSTRUCTIONAL PLANT <sup>1)</sup>

Description (Type, model, Make)	No. of Each	Year of Manufacture	New or Used	Owned (O) or Leased (L)	Power Rating	Capacity t, m <sup>3</sup> , KW HP, KVA, etc.
1. River Transportation 1.1 1.2 etc.						
2. Dredging and Excavation 2.1 2.2 etc.						
3. Earth Works, Fill and Compaction 3.1 3.2 etc.						
4. CC-Block Production 4.1 4.2 etc.						
5. Embankment Revetments etc. (above water) 5.1 5.2 etc.						
6. Embankment Revetments and Fabric Mattresses (below water) 6.1 6.2 etc.						
7. Scour Protections, Falling Aprons (below water) 7.1 7.2 etc.						
8. Site Haulage, Lifting, Transport 8.1 8.2 etc.						
9. General Site Activities 9.1 9.2 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 choice alternate) he will employ at headquarters and at Site Office to plan, 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
<b>Headquarters</b> Partner/Director	(i) (ii)	
Other Key Staff (given designation)	(i) (ii) ..... (i) (ii)	.....
<b>Site Office</b> Site Superintendent	(i) (ii)	
Deputy Superintendent and Quality Assurance	(i) (ii)	
Material Logistics and Work Programmes	(i) (ii)	
Mechanical Engineer-in-charge	(i) (ii)	
Engineers-in-charge (a) Dredging, excavation, ..... (b) Revetment construction (above/below water)	(i) (ii) ..... (i) (ii)	.....
Construction Supervisors (a) CC-block production ..... (b) Dredging, excavation, earth works ..... (c) Revetments (above water) ..... (d) Revetments, scour protections (below water)	(i) (ii) ..... (i) (ii) ..... (i) (ii) ..... (i) (ii)	..... ..... ..... .....
Other Key Staff	(i) (ii) ..... (i) (ii)	.....

**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 duties and responsibilities both on Site and in the Tenderers head office.



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**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 STATEMENTS

The Tenderer shall submit with his Tender the following items:

1. Detailed Material Procurement, Construction and Equipment Employment Schedules taking into consideration the quantities to be supplied respectively to be carried out, his proposed method of working and the particular local conditions, e.g. river water levels during the construction period, high river flow velocity, interference with railway ferry (in case of Bahadurabad Ghat), etc.
2. Detailed Work Method Statements for all the major portions of the Works:

Specifications Subsection	Subject
810	Dredging Works
922	Common Excavation
932	Filling and Compaction
1002	Installation of filters (granular and geotextile materials), revetments, fabric mattress systems, scour protections, etc.

The Tenderer's attention is drawn to the condition that a tender without detailed construction schedules and work method statements may be considered non-responsive and be excluded from further examination in accordance with Clause 28 of the Instructions to Tenderers.

