

Specific Procurement Notice
Request for Bids
Works
(Two-envelope Bidding Process Without Prequalification)

Employer: Bangladesh Economic Zones Authority

Project: Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project
Bangladesh-PRIDE (P170688)

Contract title: Security and support amenities (Sea side)

Country: Bangladesh

Loan No. /Credit No. / Grant No.: IDA-6676 BD

RFB No: WD 10A-BSMSN- BEZA

Issued on: 13 February 2024

1. The Bangladesh Economic Zones Authority has received financing from the World Bank toward the cost of the Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project, Bangladesh-PRIDE (P170688) and intends to apply part of the proceeds toward payments under the contract for Security and support amenities (sea side).
2. The Bangladesh Economic Zones Authority (BEZA) now invites sealed Bids from eligible Bidders for :

Package No.	Brief description	Quantity	Completion Period
WD 10A- BSMSN- BEZA	Security and support amenities (construction of boundary wall along seaside)	About 23 km	30 months

3. Bidding will be conducted through international competitive procurement using Request for Bids (RFB) as specified in the World Bank's "Procurement Regulations for IPF Borrowers- Procurement in Investment Projects Financing" - September 2023 ("Procurement Regulations"), and is open to all eligible Bidders as defined in the Procurement Regulations.
4. Interested eligible Bidders may obtain further information from Project Director, Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project, Bangladesh-PRIDE (P170688) and inspect the Bidding document during office hours [i.e., 0900 to 1600 hours] at the address given below.
5. The Bidding document in English may be purchased by interested eligible Bidders upon the submission of a written application to the address below and upon payment of a nonrefundable fee of BDT 15000.00 (Fifteen thousand taka only) or in USD 150.00 (US Dollar One hundred fifty). The method of payment will be Cash or Electronic Wire Transfer to BEZA's bank account specified below. The document will be sent by reply e-mail as PDF



attachment (the bidder can also receive in hand delivery) upon receipt of the application and document payment fee.

Bank Account for Electronic Wire Transfer

Account Name: Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project

Account Number: 0117203000257

Bank Name: Sonali Bank Limited

Branch Name: Kawran Bazar, Dhaka

SWIFT Code: BSONBDDH

Routing Number: 200262530

6. Bids must be delivered to the address below on or before 14:00 Hours of 16 April 2024. Electronic bidding will not be permitted. Late Bids will be rejected. The outer Bid envelopes marked "ORIGINAL BID", and the inner envelopes marked "TECHNICAL PART" will be publicly opened in the presence of the Bidders' designated representatives and anyone who chooses to attend, at the address below on 14:30 Hours of 16 April 2024. All envelopes marked "FINANCIAL PART" shall remain unopened and will be held in safe custody of the Employer until the second public Bid opening.
7. All Bids must be accompanied by a "Bid Security", of USD 0.12 (Zero point One Two) Million or BDT 12.00 (Twelve) Million.
8. Attention is drawn to the Procurement Regulations requiring the Borrower to disclose information on the successful bidder's beneficial ownership, as part of the Contract Award Notice, using the Beneficial Ownership Disclosure Form as included in the bidding document.
9. The address (es) referred to above is:


Abdulah Al Mahmud Faruk

Project Director

Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project

Bangladesh-PRIDE (P170688)

Bangladesh Economic Zones Authority (BEZA)

Biniyog Bhaban (9th floor), E-6/B, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh

Tel: +880 2-44826009

E-mail: pd.pride.beza@bsmsn.gov.bd

Website : www.beza.gov.bd

Request for Bids Works

Procurement of Security and support amenities (seaside)

Employer: Bangladesh Economic Zones Authority (BEZA)

Project: Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project,
Bangladesh-PRIDE (P170688)

Contract title: Security and support amenities (seaside)

Country: Bangladesh

Loan No. /Credit No. / Grant No.: IDA-6676 BD

RFB No: WD 10A-BSMSN- BEZA

Issued on:

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Standard Procurement Document

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PART 1 – Bidding Procedures

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Section I - Instructions to Bidders

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Section I - Instructions to Bidders

A. General

1. Scope of Bid

1.1 In connection with the Specific Procurement Notice – Request for Bids (RFB), specified in the **Bid Data Sheet (BDS)**, the Employer, as specified **in the BDS**, issues this Bidding document for the provision of Works as specified in Section VII, Works' Requirements. The name, identification, and number of lots (contracts) of this RFB are specified **in the BDS**.

1.2 Throughout this bidding document:

the term **"in writing"** means communicated in written form (e.g., by mail, e-mail, fax, including, if specified **in the BDS**, distributed, or received through electronic-procurement system used by the Employer) with proof of receipt;

if the context so requires, **"singular"** means **"plural"** and vice versa;

"Day" means calendar day, unless otherwise specified as a **"Business Day."** A **"Business Day"** is any day that is a working day of the Borrower. It excludes the Borrower's official public holidays;

"ES" means environmental and social (including Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH));

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“Sexual Exploitation and Abuse” “(SEA)” means the following:

Sexual Exploitation is defined as any actual or attempted abuse of position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially, or politically from the sexual exploitation of another.

Sexual Abuse is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;

“Sexual Harassment” “(SH)” is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature by the Contractor’s Personnel with other Contractor’s or Employer’s Personnel;

“Contractor’s Personnel” is as defined in Sub-Clause 1.1.17 of the General Conditions; and

“Employer’s Personnel” is as defined in Sub-Clause 1.1.33 of the General Conditions.

A non-exhaustive list of (i) behaviors which constitute SEA and (ii) behaviors which constitute SH is attached to the Code of Conduct form in Section IV.

2. Source of Funds

- 2.1 The Borrower or Recipient (hereinafter called “Borrower”) specified **in the BDS** has received or has applied for financing (hereinafter called “funds”) from the International Bank for Reconstruction and Development or the International Development Association



(hereinafter called “the Bank”) in an amount specified **in the BDS**, toward the project named **in the BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding document is issued.

- 2.2 Payment by the Bank will be made only at the request of the Borrower and upon approval by the Bank, and will be subject, in all respects, to the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, equipment, plant, or materials, if such payment or import is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing).

3. Fraud and Corruption

- 3.1 The Bank requires compliance with the Bank’s Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework, as set forth in Section VI.
- 3.2 In further pursuance of this policy, Bidders shall permit and shall cause their agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and personnel, to permit the Bank to inspect all accounts, records and other documents relating to any initial selection process, prequalification process, bid



submission, proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

4. Eligible Bidders


- 4.1 A Bidder may be a firm that is a private entity, a state-owned enterprise or institution subject to ITB 4.6 or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the Bidding process and, in the event the JV is awarded the Contract, during contract execution. Unless specified **in the BDS**, there is no limit on the number of members in a JV.
- 4.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this Bidding process, if the Bidder:
- (a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or

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- (b) receives or has received any direct or indirect subsidy from another Bidder; or
- (c) has the same legal representative as another Bidder; or
- (d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the Bid of another Bidder, or influence the decisions of the Employer regarding this Bidding process; or
- (e) or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or
- (f) or any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the Contract implementation; or
- (g) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or
- (h) has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the Bidding document or



specifications of the Contract, and/or the Bid evaluation process of such Contract; or (ii) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the Bidding process and execution of the Contract.

- 4.3 A firm that is a Bidder (either individually or as a JV member) shall not participate in more than one Bid, except for permitted alternative Bids. This includes participation as a subcontractor in other Bids. Such participation shall result in the disqualification of all Bids in which the firm is involved. A firm that is not a Bidder or a JV member may participate as a subcontractor in more than one Bid.
- 4.4 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.8. A Bidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated, or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed subcontractors or subconsultants for any part of the Contract including related Services.
- 4.5 A Bidder that has been sanctioned by the Bank, pursuant to the Bank's Anti-Corruption Guidelines, and in accordance with its prevailing sanctions policies and
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procedures as set forth in the World Bank Group's Sanctions Framework, as described in Section VI paragraph 2.2 d. shall be ineligible to be prequalified for, initially selected for, bid for, propose for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address specified **in the BDS**.

- 4.6 Bidders that are state-owned enterprises or institutions in the Employer's Country may be eligible to compete and be awarded a Contract(s) only if they can establish, in a manner acceptable to the Bank, that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not under supervision of the Employer.
- 4.7 A Bidder shall not be under suspension from bidding by the Employer as the result of the operation of a Bid-Securing or Proposal-Securing Declaration.
- 4.8 Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods or

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contracting of works or services from that country, or any payments to any country, person, or entity in that country. When the Works are implemented across jurisdictional boundaries (and more than one country is a Borrower, and is involved in the procurement), then exclusion of a firm or individual on the basis of ITB 4.8 (a) above by any country may be applied to that procurement across other countries involved, if the Bank and the Borrowers involved in the procurement agree.

- 4.9 A Bidder shall provide such documentary evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.
- 4.10 A firm that is under a sanction of debarment by the Borrower from being awarded a contract is eligible to participate in this procurement, unless the Bank, at the Borrower's request, is satisfied that the debarment; (a) relates to fraud or corruption, and (b) followed a judicial or administrative proceeding that afforded the firm adequate due process.
- 4.11 This bidding is open only to prequalified Bidders unless specified **in the BDS**.

**5. Eligible Materials,
Equipment, and
Services**

- 5.1 The materials, equipment, and services to be supplied under the Contract and financed by the Bank may have their origin in any country subject to the restrictions specified in Section V, Eligible Countries, and all expenditures under the Contract will not contravene such restrictions. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment, and services.



B. Contents of Bidding Document

- 6. Sections of Bidding Document** 6.1 The Bidding document consists of Parts 1, 2, and 3, which includes all the sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITB 8.

PART 1 Bidding Procedures

- Section I - Instructions to Bidders (ITB)
- Section II - Bid Data Sheet (BDS)
- Section III - Evaluation and Qualification Criteria
- Section IV - Bidding Forms
- Section V - Eligible Countries
- Section VI - Fraud and Corruption

PART 2 Works Requirements

- Section VII - Works' Requirements

PART 3 Conditions of Contract and Contract Forms

- Section VIII - General Conditions (GC)
- Section IX - Particular Conditions (PC)
- Section X - Contract Forms

- 6.2 The Specific Procurement Notice - Request for Bids (RFB) issued by the Employer or the Notice of Request for Bids (RFB) issued by the Employer to the prequalified Bidders are not part of the Bidding document.



- 6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Bidding document, responses to requests for clarification, the minutes of the pre-Bid meeting (if any), or Addenda to the Bidding document in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer shall prevail.
- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding document and to furnish with its Bid all information and documentation as is required by the Bidding document.

7. **Clarification of
Bidding Document,
Site Visit, Pre-Bid
Meeting**

- 7.1 A Bidder requiring any clarification of the Bidding document shall contact the Employer in writing at the Employer's address specified **in the BDS** or raise its enquiries during the pre-Bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than fourteen (14) days prior to the deadline for submission of Bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so specified **in the BDS**, the Employer shall also promptly publish its response at the web page identified **in the BDS**. Should the clarification result in changes to the essential elements of the Bidding document, the Employer shall amend the Bidding document following the procedure under ITB 8 and ITB 22.2.



- 7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
- 7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
- 7.4 If so, specified **in the BDS**, the Bidder's designated representative is invited to attend a pre-Bid meeting and/or a Site of Works visit. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 7.5 The Bidder is requested to submit any questions in writing, to reach the Employer not later than one week before the meeting.




7.6 Minutes of the pre-Bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding document in accordance with ITB 6.3. If so, specified **in the BDS**, the Employer shall also promptly publish the Minutes of the pre-Bid meeting at the web page identified **in the BDS**. Any modification to the Bidding document that 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 ITB 8 and not through the minutes of the pre-Bid meeting. Nonattendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder.

**8. Amendment of
Bidding Document**

- 8.1 At any time prior to the deadline for submission of Bids, the Employer may amend the Bidding document by issuing addenda.
- 8.2 Any addendum issued shall be part of the Bidding document and shall be communicated in writing to all who have obtained the Bidding document from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the addendum on the Employer's web page in accordance with ITB 7.1.
- 8.3 To give Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer should extend the deadline for the submission of Bids, pursuant to ITB 22.2.



C.Preparation of Bids

- 9. Cost of Bidding** 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.
- 10. Language of Bid** 10.1 The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Employer, shall be written in the language specified **in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified **in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.
- 11. Documents
Comprising the Bid** 11.1 The Bid shall comprise two Parts, namely the Technical Part and the Financial Part. These two Parts shall be submitted simultaneously in two separate sealed envelopes (two-envelope Bidding process). One envelope shall contain only information relating to the Technical Part and the other, only information relating to the Financial Part. These two envelopes shall be enclosed in a separate sealed outer envelope marked "ORIGINAL BID".
- 11.2 The Technical Part shall contain the following:
- (a) Letter of Bid – Technical Part, prepared in accordance with ITB 12;
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- (b) Bid Security or Bid-Securing Declaration, in accordance with ITB 19.1;
- (c) Alternative Bid - Technical Part: if permissible in accordance with ITB 13, the Technical Part of any Alternative Bid;
- (d) Authorization: written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.3;
- (e) Qualifications: documentary evidence in accordance with ITB 17 establishing the Bidder's eligibility and qualifications;
- (f) Conformity: a technical proposal in accordance with ITB 16;
- and
- (g) any other document required **in the BDS**.

11.3 The Financial Part shall contain the following:

- (a) Letter of Bid – Financial Part: prepared in accordance with ITB 12 and ITB 14;
- (b) Schedules including priced Bill of Quantities, completed in accordance with ITB 12 and ITB 14;
- (c) Alternative Bid - Financial Part: if permissible in accordance with ITB 13, the Financial Part of any Alternative Bid; and
- (d) any other document required **in the BDS**.

11.4 The Technical Part shall not include any information related to the Bid price. Where material financial

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information related to the Bid price is contained in the Technical Part the Bid shall be declared non-responsive.

- 11.5 The Bidder shall furnish in the Letter of Bid-Technical Part the names of three potential DAAB members and attach their curriculum vitae. The list of potential DAAB members proposed by the Employer (Contract Data 21.1) and by the Bidder (Letter of Bid) shall be subject to Bank's No-objection.
- 11.6 In addition to the requirements under ITB 11.2, Bids submitted by a JV shall include in the Technical Part a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed Agreement.
- 11.7 The Bidder shall furnish in the Letter of Bid- Financial Part information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

12. Letters of Bid and Schedules

- 12.1 The Letter of Bid- Technical Part, Letter of Bid- Financial Part and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.3. All blank spaces shall be filled in with the information requested.

13. Alternative Bids

- 13.1 Unless otherwise specified **in the BDS**, alternative Bids shall not be considered.



- 13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included **in the BDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.
- 13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding document must first price the Employer's design as described in the Bidding document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the Bidder with the Most Advantageous Bid conforming to the basic technical requirements shall be considered by the Employer.
- 13.4 When specified **in the BDS**, Bidders are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified **in the BDS**, as will the method for their evaluating, and described in Section VII, Works' Requirements.

**14. Bid Prices and
Discounts**

- 14.1 The prices and discounts (including any price reduction) quoted by the Bidder in the Letter of Bid - Financial Part and in the Bill of Quantities shall conform to the requirements specified below.

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- 14.2 The Bidder shall fill in 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 Bidder shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Bid, and provided that the Bid is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Bidders will be added to the Bid price and the equivalent total cost of the Bid so determined will be used for price comparison.
- 14.3 The price to be quoted in the Letter of Bid- Financial Part, in accordance with ITB 12.1, shall be the total price of the Bid, excluding any discounts offered.
- 14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid- Financial Part, in accordance with ITB 12.1.
- 14.5 Unless otherwise specified **in the BDS** and the Conditions of Contract, the rates and prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Table of Adjustment Data and the Employer may require the Bidder to justify its proposed indices and weightings.



14.6 If so specified in ITB 1.1, Bids are being invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their Bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all lots (contracts) are opened at the same time. **However, discounts on condition of award of more than one contract will not be used for Bid evaluation purpose.**

14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of Bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

**15. Currencies of Bid
and Payment**

15.1 The currency (ies) of the Bid and the currency (ies) of payments shall be the same and shall be as specified **in the BDS.**

15.2 Bidders may be required by the Employer to justify, to the Employer's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Table of Adjustment Data in the Appendix to Bid are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.



**16. Documents
Comprising the
Technical Proposal**

16.1 The Bidder shall furnish a technical proposal in the Technical Part of the Bid including a statement of work methods, equipment, personnel, schedule, and any other information as stipulated in Section IV, Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidder's proposal to meet the work's requirements and the completion time.

**17. Documents
Establishing the
Eligibility and
Qualifications of
the Bidder**

17.1 To establish Bidder's eligibility in accordance with ITB 4, Bidders shall complete the Letter of Bid-Technical Part, included in Section IV, Bidding Forms.

17.2 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms.

17.3 If a margin of preference applies as specified in accordance with ITB 36.2, domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITB 36.2.

17.4 Any change in the structure or formation of a Bidder after being prequalified and invited to Bid, if applicable, (including, in the case of a JV, any change in the structure or formation of any member and also including any change in any specialized subcontractor whose qualifications were considered to prequalify the Applicant) shall be subject to the written approval of the Employer prior to

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Bidder has signed the Contract and furnished the required Performance Security, and if required **in the BDS**, the Environmental and Social (ES) Performance Security.

19.7 The Bid Security may be forfeited:

- (a) if a Bidder withdraws its Bid prior to the expiry date of the Bid validity specified by the Bidder on the Letter of Bid, or any extended date provided by the Bidder; or
- (b) if the successful Bidder fails to:
 - (i) sign the Contract in accordance with ITB 48; or
 - (ii) furnish a Performance Security and if required **in the BDS**, the Environmental and Social (ES) Performance Security in accordance with ITB 49.

19.8 The Bid Security or the Bid-Securing Declaration of a JV shall be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of Bidding, the Bid Security or the Bid-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.6.

19.9 If a Bid Security is not required **in the BDS**, pursuant to ITB 19.1, and:

- (a) if a Bidder withdraws its Bid prior to the expiry date of the Bid validity specified by the Bidder on the Letter of Bid or any extended date provided by the Bidder; or

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(b) if the successful Bidder fails to:

(i) sign the Contract in accordance with ITB 48; or

(ii) furnish a Performance Security and, if required **in the BDS**, the Environmental and Social (ES) Performance Security in accordance with ITB 49,

the Borrower may, if provided for **in the BDS**, declare the Bidder ineligible to be awarded a contract by the Employer for a period of time stated **in the BDS**.

**20. Format and
Signing of Bid**

20.1 The Bidder shall prepare the Bid, in accordance with this Instruction, ITB 11 and ITB 21.

20.2 Bidders shall mark as "CONFIDENTIAL" all information in their Bids which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.

20.3 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified **in the BDS** and shall be attached to the Bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Bid where entries or amendments have been made shall be signed or initialed by the person signing the Bid.

20.4 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as



evidenced by a power of attorney signed by their legally authorized representatives.

- 20.5 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

D. Submission of Bids

21. Sealing and Marking of Bids

- 21.1 The Bidder shall deliver the Bid in two separate, sealed envelopes (the Technical Part and the Financial Part.) These two envelopes shall be enclosed in a separate sealed outer envelope marked "Original BID". In addition, the Bidder shall submit copies of the Bid in the number specified **in the BDS**. Copies of the Technical Part shall be placed in a separate sealed envelope marked "COPIES: TECHNICAL PART". Copies of the Financial Part shall be placed in a separate sealed envelope marked "COPIES: FINANCIAL PART". The Bidder shall place both of these envelopes in a separate, sealed outer envelope marked "BID COPIES". In the event of any discrepancy between the original and the copies, the original shall prevail.
- 21.2 If alternative Bids are permitted in accordance with ITB 13, the alternative Bids shall be submitted as follows: the original of the alternative Bid Technical Part shall be placed in a sealed envelope marked "ALTERNATIVE BID – TECHNICAL PART" and the Financial Part shall be placed in a sealed envelope marked "ALTERNATIVE BID – FINANCIAL PART" and these two separate sealed envelopes then enclosed within a sealed outer envelope marked "ALTERNATIVE BID – ORIGINAL", the copies of the alternative



Bid will be placed in separate sealed envelopes marked "ALTERNATIVE BID – COPIES OF TECHNICAL PART", and "ALTERNATIVE BID – COPIES OF FINANCIAL PART" and enclosed in a separate sealed outer envelope marked "ALTERNATIVE BID - COPIES".

21.3 The envelopes marked "ORIGINAL BID" and "BID COPIES" (and, if appropriate, a third envelope marked "ALTERNATIVE BID") shall be enclosed in a separate sealed outer envelope for submission to the Employer.

21.4 All inner and outer envelopes shall:

- (a) bear the name and address of the Bidder;
- (b) be addressed to the Employer in accordance with ITB 22.1;
- (c) bear the specific identification of this Bidding process specified in accordance with BDS 1.1; and
- (d) bear a warning not to open before the time and date for Bid opening.

21.5 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

**22. Deadline for
Submission of Bids**

22.1 Bids must be received by the Employer at the address and no later than the date and time specified **in the BDS**. When so specified **in the BDS**, Bidders shall have the option of submitting their Bids electronically. Bidders submitting Bids electronically shall follow the electronic Bid submission procedures specified **in the BDS**.

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22.2 The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

23. Late Bids

23.1 The Employer shall not consider any Bid that arrives after the deadline for submission of Bids, in accordance with ITB 22. Any Bid received by the Employer after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.

24. Withdrawal, Substitution, and Modification of Bids

24.1 A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.3, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be:

- (a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and
- (b) received by the Employer prior to the deadline prescribed for submission of Bids, in accordance with ITB 22.

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24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the date of expiry of Bid validity specified by the Bidder on the Letter of Bid or any extended date thereof.

E. Public Opening of Technical Parts of Bids

25. Public Bid Opening of Technical Parts of Bids

25.1 Except in the cases specified in ITB 23 and ITB 24.2, the Employer shall publicly open and read out in accordance with this ITB all Bids received by the deadline, at the date, time and place specified **in the BDS**, in the presence of Bidders' designated representatives and anyone who chooses to attend. Any specific electronic Bid opening procedures required if electronic Bidding is permitted in accordance with ITB 22.1, shall be as specified **in the BDS**.

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding Bid shall not be opened but returned to the Bidder. No Bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Bid opening.

25.3 Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution

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shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Bid opening.

25.4 Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening.

25.5 Next, all other envelopes marked "TECHNICAL PART" shall be opened one at a time. All envelopes marked "SECOND ENVELOPE: Financial PART" shall remain sealed and kept by the Employer in safe custody until they are opened at a later public opening, following the evaluation of the Technical Part parts of the Bids. On opening the envelopes marked "TECHNICAL PART" the Employer shall read out: the name of the Bidder, the presence or the absence of a Bid Security, or Bid-Securing Declaration, if required, and whether there is a modification; and Alternative Bid - Technical Part; and any other details as the Employer may consider appropriate.

25.6 Only Technical Parts of Bids and Alternative Bid - Technical Parts that are read out at Bid opening shall be considered further for evaluation. The Letter of Bid-Technical Part and the separate sealed envelope marked "SECOND ENVELOPE: FINANCIAL PART" are to be initialed by representatives of the Employer attending Bid opening in the manner specified **in the BDS**.



25.7 The Employer shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with ITB 23.1).

25.8 The Employer shall prepare a record of the Technical Parts of Bid opening that shall include, as a minimum:

- (a) the name of the Bidder and whether there is a withdrawal, substitution, or modification;
- (b) the receipt of envelopes marked "SECOND ENVELOPE: FINANCIAL PART";
- (c) if applicable, any alternative Bid- Technical Part;
- (d) the presence or absence of a Bid Security if one was required.

25.9 The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

F. Evaluation of Bids- General Provisions

26. Confidentiality

26.1 Information relating to the evaluation of the Technical Part shall not be disclosed to Bidders or any other persons not officially concerned with the Bidding process until the notification of evaluation of the Technical Part in accordance with ITB 33. Information relating to the evaluation of Financial Part, the evaluation of combined Technical Part and Financial Part, and recommendation of contract award shall not be disclosed to Bidders, or any other persons not officially concerned with the RFB



process until the Notification of Intention to Award the Contract is transmitted to Bidders in accordance with ITB 44.

26.2 Any effort by a Bidder to influence the Employer in the evaluation of the Bids or Contract award decisions may result in the rejection of its Bid.

26.3 Notwithstanding ITB 26.2, from the time of Bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the Bidding process, it shall do so in writing.

**27. Clarification of
Bids**

27.1 To assist in the examination, evaluation, and comparison of the Bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid, given a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids, in accordance with ITB 35.

27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification, its Bid may be rejected.



**28. Deviations,
Reservations, and
Omissions**

28.1 During the evaluation of Bids, the following definitions apply:

- (a) "Deviation" is a departure from the requirements specified in the Bidding document;
- (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding document; and
- (c) "Omission" is the failure to submit part, or all of the information or documentation required in the Bidding document.

**29. Nonmaterial
Nonconformities**

29.1 Provided that a Bid is substantially responsive, the Employer may waive any nonmaterial nonconformities in the Bid.

29.2 Provided that a Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

G. Evaluation of Technical Part of Bids

**30. Determination of
Responsiveness of
Technical Part**

30.1 The Employer's determination of the Technical Part's responsiveness shall be based on the contents of the Bid, as specified in ITB 11.

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30.2 Preliminary examination of the Technical Part shall be carried out to identify proposals that are incomplete, invalid, or substantially nonresponsive to the requirements of the Bidding documents. A substantially responsive Bid is one that materially confirms to the of the Bidding document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) if accepted, would:

(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or


(ii) limit in any substantial way, inconsistent with the Bidding document, the Employer's rights, or the Bidder's obligations under the proposed Contract; or

(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.

30.3 If the Technical Part is not substantially responsive to the requirements of the Bidding document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.



**31. Eligibility and
Qualifications of
the Bidder**

- 31.1 The Employer shall determine to its satisfaction whether the Bidders that have been assessed to have submitted substantially responsive Bids are eligible, and either continue to meet (if prequalification applies) or meet (if prequalification has not been carried out), the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.
- 31.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's eligibility and qualifications submitted by the Bidder, pursuant to ITB 17. The determination shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Subcontractors if permitted in the bidding document), or any other firm.
- 31.3 Prior to Contract award, the Employer will verify that the successful Bidder (including each member of a JV) is not disqualified by the Bank due to noncompliance with contractual SEA/SH prevention and response obligations. The Employer will conduct the same verification for each subcontractor proposed by the successful Bidder. If any proposed subcontractor does not meet the requirement, the Employer will require the Bidder to propose a replacement subcontractor
- 31.4 Only substantially responsive bids submitted by eligible and qualified bidders shall proceed to the detailed technical evaluation specified in ITB 32.
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**32. Detailed
Evaluation of
Technical Part**

- 32.1 The Employer's evaluation of Technical Part will be carried out as specified in Section III, Evaluation and Qualification Criteria.
- 32.2 The scores to be given to technical factors and sub factors are specified **in the BDS**.

**H. Notification of Evaluation of Technical Parts
and Public Opening of Financial Parts**

**33. Notification of
Evaluation of
Technical Parts
and Public
Opening of
Financial Parts**

- 33.1 Following the completion of the evaluation of the Technical Parts of the Bids, the Employer shall notify in writing those Bidders whose Bids were considered substantially non-responsive to the bidding document or failed to meet the eligibility and qualification requirements, advising them of the following information:
- (a) the grounds on which their Technical Part of Bid failed to meet the requirements of the bidding document;
 - (b) their envelopes marked "SECOND ENVELOPE: FINANCIAL PART" will be returned to them unopened after the completion of the selection process and the signing of the Contract; and
 - (c) notify them of the date, time, and location of the public opening of the envelopes marked "SECOND ENVELOPE: FINANCIAL PART".
- 33.2 The Employer shall, simultaneously, notify in writing those Bidders whose Technical Part have been evaluated


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as substantially responsive to the bidding document and met the eligibility and qualification requirements, advising them of the following information:

- (a) their Bid has been evaluated as substantially responsive to the bidding document and met the eligibility and qualification requirements;
- (b) their envelope marked "SECOND ENVELOPE: FINANCIAL PART" will be opened at the public opening of the Financial Parts; and
- (c) notify them of the date, time, and location of the second public opening of the envelopes marked "SECOND ENVELOPE: FINANCIAL PART" as specified **in the BDS.**

33.3 The opening date shall be not less than ten (10) Business Days from the date of notification of the results of the technical evaluation, specified in ITB 33.1 and 33.2. However, if the Employer receives a complaint on the results of the technical evaluation within the ten (10) Business Days, the opening date shall be subject to ITB 50.1. The Financial Part of the Bid shall be opened publicly in the presence of Bidders' designated representatives and anyone who chooses to attend.

33.4 At this public opening, the Financial Parts will be opened by the Employer in the presence of Bidders, or their designated representatives and anyone else who chooses to attend. Bidders who met the eligibility and qualification requirements and whose bids were evaluated as substantially responsive will have their envelopes marked "SECOND ENVELOPE: FINANCIAL PART"



opened at the second public opening. Each of these envelopes marked "SECOND ENVELOPE: FINANCIAL PART" shall be inspected to confirm that they have remained sealed and unopened. These envelopes shall then be opened by the Employer. The Employer shall read out the names of each Bidder, the technical score, and the total Bid prices, per lot (contract) if applicable, including any discounts and Alternative Bid - Financial Part, and any other details as the Employer may consider appropriate.

- 33.5 Only envelopes of Financial Part of Bids, Financial Parts of Alternative Bids and discounts that are opened and read out at Bid opening shall be considered further for evaluation. The Letter of Bid – Financial Part and the Priced Activity Schedules are to be initialed by a representative of the Employer attending the Bid opening in the manner specified **in the BDS**.
- 33.6 The Employer shall neither discuss the merits of any Bid nor reject any envelopes marked "SECOND ENVELOPE: FINANCIAL PART" at this public opening.
- 33.7 The Employer shall prepare a record of the Financial Part of the Bid opening that shall include, as a minimum:
- (a) the name of the Bidder whose Financial Part was opened;
 - (b) the Bid price, per lot (contract) if applicable, including any discounts; and
 - (c) if applicable, any Alternative Bid – Financial Part.
- 33.8 The Bidders whose envelopes marked "SECOND ENVELOPE: FINANCIAL PART" have been opened or their



representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

I. Evaluation of Financial Part of Bids

34. Adjustments for Nonmaterial Nonconformities

34.1 Provided that a Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only to reflect the price of a missing or non-conforming item or component, by adding the average price of the item or component quoted by substantially responsive Bidders. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Employer shall use its best estimate.

35. Correction of Arithmetic Errors

35.1 In evaluating the Financial Part of each Bid, the Employer shall correct arithmetical errors on the following basis:

- (a) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

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- (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected; and
- (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

35.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 35.1, shall result in the rejection of the Bid.

**36. Conversion to
Single Currency
and Margin of
Preference**

36.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency as specified **in the BDS**.

36.2 Unless otherwise specified **in the BDS**, a margin of preference for domestic Bidders¹ shall not apply.

**37. Evaluation
Process, Financial
Parts**

37.1 To evaluate the Financial Part, the Employer shall consider the following:

- (a) the Bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary

¹ An individual firm is considered a domestic Bidder for purposes of the margin of preference if it is registered in the country of the Employer, has more than 50 percent ownership by nationals of the country of the Employer, and if it does not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign contractors. JVs are considered as domestic Bidders and eligible for domestic preference only if the individual member firms are registered in the country of the Employer or have more than 50 percent ownership by nationals of the country of the Employer, and the JV shall be registered in the country of the Borrower. The JV shall not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign firms. JVs between foreign and national firms will not be eligible for domestic preference.

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Bill of Quantities, but including Daywork² items, where priced competitively;


- (b) price adjustment for correction of arithmetic errors in accordance with ITB 35;
- (c) price adjustment due to discounts offered in accordance with ITB 14.4;
- (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 36.1;
- (e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 34;
- (f) and the additional evaluation factors are specified in Section III, Evaluation and Qualification Criteria.

37.2 If price adjustment is allowed in accordance with ITB 14.5, the estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.

37.3 If this bidding document allows Bidders to quote separate prices for different lots (contracts), each lot will be evaluated separately to determine the Most Advantageous Bid using the methodology specified in Section III, Evaluation and Qualification Criteria.

Discounts that are conditional on the award of more

² Daywork is work carried out following instructions of the Engineer and paid for on the basis of time spent by workers, and the use of materials and the Contractor's equipment, at the rates quoted in the Bid. For Daywork to be priced competitively for Bid evaluation purposes, the Employer must list tentative quantities for individual items to be costed against Daywork (e.g., a specific number of tractor driver staff-days, or a specific tonnage of Portland cement), to be multiplied by the Bidders' quoted rates and included in the total Bid price.



than one lot or slice shall not be considered for Bid evaluation.

38. Abnormally Low Bids

- 38.1 An Abnormally Low Bid is one where the Bid price, in combination with other elements of the Bid, appears so low that it raises material concerns as to the capability of the Bidder in regard to the Bidder's ability to perform the Contract for the offered Bid Price.
- 38.2 In the event of identification of a potentially Abnormally Low Bid, the Employer shall seek written clarifications from the Bidder, including detailed price analyses of its Bid price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Bidding document.
- 38.3 After evaluation of the price analyses, in the event that the Employer determines that the Bidder has failed to demonstrate its capability to perform the Contract for the offered Bid Price, the Employer shall reject the Bid.

39. Unbalanced or Front Loaded Bids

- 39.1 If the Bid that is evaluated as the lowest evaluated cost is, in the Employer's opinion, seriously unbalanced or front loaded, the Employer may require the Bidder to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the Bid prices with the scope of works, proposed methodology, schedule, and any other requirements of the Bidding document.

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39.2 After the evaluation of the information and detailed price analyses presented by the Bidder, the Employer may as appropriate:

- (a) accept the Bid; or
- (b) require that the total amount of the Performance Security be increased at the expense of the Bidder to a level not exceeding 20% of the Contract Price; or
- (c) reject the Bid.

J. Evaluation of Combined Technical and Financial Parts, Most Advantageous Bid and Notification of Intention to Award

40. Evaluation of combined Technical and Financial Parts

40.1 The Employer's evaluation of responsive Bids will take into account technical factors, in addition to cost factors in accordance with Section III Evaluation and Qualification Criteria. The weight to be assigned for the Technical factors and cost is specified in the BDS. The Employer will rank the Bids based on the evaluated Bid score (B).

41. Most Advantageous Bid

41.1 The Employer shall determine the Most Advantageous Bid. The Most Advantageous Bid is the Bid of the Bidder that meets the Qualification Criteria and whose Bid has been determined to be substantially responsive to the Bidding document and is the Bid with the highest combined technical and financial score.

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- 42. Employer's Right to Accept Any Bid, and to Reject Any or All Bids**
- 42.1 The Employer reserves the right to accept or reject any Bid and to annul the Bidding process and reject all Bids at any time prior to Contract Award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, Bid securities, shall be promptly returned to the Bidders.
- 43. Standstill Period**
- 43.1 The Contract shall not be awarded earlier than the expiry of the Standstill Period. The Standstill Period shall be ten (10) Business Days unless extended in accordance with ITB 47. The Standstill Period commences the day after the date the Employer has transmitted to each Bidder the Notification of Intention to Award the Contract. Where only one Bid is submitted, or if this contract is in response to an emergency situation recognized by the Bank, the Standstill Period shall not apply.
- 44. Notification of Intention to Award**
- 44.1 The Employer shall send to each Bidder the Notification of Intention to Award the Contract to the successful Bidder. The Notification of Intention to Award shall contain, at a minimum, the following information:
- (a) the name and address of the Bidder submitting the successful Bid;
 - (b) the Contract price of the successful Bid;
 - (c) the total combined score of the successful Bid;
 - (d) the names of all Bidders who submitted Bids, and their Bid prices as readout, and as evaluated and technical scores;



- (e) a statement of the reason(s) the Bid (of the unsuccessful Bidder to whom the notification is addressed) was unsuccessful;
- (f) the expiry date of the Standstill Period; and
- (g) instructions on how to request a debriefing and/or submit a complaint during the standstill period.

K. Award of Contract

45. Award Criteria

45.1 Subject to ITB 42.1, the Employer shall award the Contract to the successful Bidder. This is the Bidder whose Bid has been determined to be the Most Advantageous Bid.

46. Notification of Award

- 46.1 Prior to the date of expiry of the bid validity, and upon expiry of the Standstill Period specified in ITB 43.1 or any extension thereof, and, upon satisfactorily addressing any complaint that has been filed within the Standstill Period, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification of award (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Employer will pay the Contractor in consideration of the execution of the Contract (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price").
- 46.2 Within ten (10) Business Days after the date of transmission of the Letter of Acceptance, the Employer shall publish the Contract Award Notice which shall contain, at a minimum, the following information:

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- (a) name and address of the Employer;
- (b) name and reference number of the contract being awarded, and the selection method used;
- (c) names of all Bidders that submitted Bids, and their Bid prices as read out at Bid opening, and as evaluated;
- (d) names of all Bidders whose Bids were rejected, with the reasons therefor;
- (e) the name of the successful Bidder, the final total contract price, the contract duration, and a summary of its scope; and
- (f) successful Bidder's Beneficial Ownership Disclosure Form.

46.3 The Contract Award Notice shall be published on the Employer's website with free access if available, or in at least one newspaper of national circulation in the Employer's Country, or in the official gazette. The Employer shall also publish the contract award notice in UNDB online.

46.4 Until a formal Contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

47. Debriefing by the Employer

47.1 On receipt of the Employer's Notification of Intention to Award referred to in ITB 44.1, an unsuccessful Bidder has three (3) Business Days to make a written request to the Employer for a debriefing. The Employer shall provide a debriefing to all unsuccessful Bidders whose request is received within this deadline.

- 47.2 Where a request for debriefing is received within the deadline, the Employer shall provide a debriefing within five (5) Business Days, unless the Employer decides, for justifiable reasons, to provide the debriefing outside this timeframe. In that case, the standstill period shall automatically be extended until five (5) Business Days after such debriefing is provided. If more than one debriefing is so delayed, the standstill period shall not end earlier than five (5) Business Days after the last debriefing takes place. The Employer shall promptly inform, by the quickest means available, all Bidders of the extended standstill period.
- 47.3 Where a request for debriefing is received by the Employer later than the three (3) Business Day deadline, the Employer should provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of Public Notice of Award of contract. Requests for debriefing received outside the three (3)-day deadline shall not lead to extension of the standstill period.
- 47.4 Debriefings of unsuccessful Bidders may be done in writing or verbally. The Bidder shall bear its own costs of attending such a debriefing meeting.

- 48. Signing of Contract** 48.1 The Employer shall send to the successful Bidder the Letter of Acceptance including the Contract Agreement, and a request to submit the Beneficial Ownership Disclosure Form providing additional information on its beneficial ownership. The Beneficial Ownership



Disclosure Form shall be submitted within eight (8) Business Days of receiving this request.

- 48.2 The successful Bidder shall sign, date, and return to the Employer, the Contract Agreement within twenty-eight (28) days of its receipt.

**49. Performance
Security**

- 49.1 Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish the Performance Security and, if required **in the BDS**, the Environmental and Social (ES) Performance Security in accordance with the Conditions of Contract, subject to ITB 39.2 (b), using for that purpose the Performance Security and ES Performance Security Forms included in Section X, Contract Forms, or another form acceptable to the Employer. If the Performance Security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer's Country, unless the Employer has agreed in writing that a correspondent financial institution is not required.
- 49.2 Failure of the successful Bidder to submit the above-mentioned Performance Security and, if required **in the BDS**, the Environmental and Social (ES) Performance Security, or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Employer may award

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the Contract to the Bidder offering the next Most Advantageous Bid.

**50. Procurement
Related Complaint**

50.1 The procedures for making a Procurement-related Complaint are as specified **in the BDS.**

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Section II - Bid Data Sheet (BDS)

The following specific data for the Works to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

A. General	
ITB 1.1	<p>The reference number of the Request for Bids (RFB) is: WD10A-BSMSN-BEZA</p> <p>The Employer is: Project Director, Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project, Bangladesh-PRIDE (P170688), Bangladesh Economic Zones Authority (BEZA)</p> <p>The name of the RFB is: Security and support amenities (seaside)</p> <p>The number and identification of lots (contracts) comprising this RFB is: 01</p>
ITB 2.1	<p>The Borrower is: Government of the Peoples Republic of Bangladesh represented by the Project Director, Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project</p> <p>Bangladesh-PRIDE (P170688)</p> <p>Bangladesh Economic Zones Authority (BEZA)</p> <p>Loan or Financing Agreement amount: US\$ 467.50 Million</p> <p>The name of the Project is: Project Director, Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project, Bangladesh-PRIDE (P170688)</p>
ITB 4.1	Maximum number of members in the JV shall be: 03 (Three)
ITB 4.5	A list of debarred firms and individuals is available on the Bank's external website: http://www.worldbank.org/debarr .
ITB 4.11	This Bidding Process " <i>is not</i> " subject to prequalification.

B. Contents of Bidding Document	
ITB 7.1	<p>For Clarification of Bid purposes only, the Employer's address is:</p> <p>Attention: Abdullah Al Mahmud Faruk</p> <p>Address: Biniyog Bhaban (9th floor)</p> <p>E-6/B, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh</p> <p>Floor number: Level-9</p> <p>City: Dhaka</p> <p>ZIP Code:1207</p> <p>Country: Bangladesh</p> <p>Telephone: +880 2-44826009</p> <p>Electronic mail address: pd.pride.beza@bsmsn.gov.bd</p> <p>Web page: www.beza.gov.bd</p>
ITB 7.4	<p>A Pre-Bid meeting "shall" take place at the following date, time, and place:</p> <p>Date:11 March 2024</p> <p>Time: 11:00 am (Local Time)</p> <p>Place: BEZA Conference Room</p> <p>A site visit conducted by the Employer "shall not be" organized</p>
ITB 7.6	Web page: www.beza.gov.bd
C. Preparation of Bids	
ITB 10.1	<p>The language of the Bid is: "English".</p> <p><i>Bidders shall have the option to submit their Bid in English language. Bidders shall not submit Bids in more than one language.</i></p> <p>All correspondence exchange shall be in English language.</p> <p>Language for translation of supporting documents and printed literature is English.</p>

ITB 11.2 (g)	<p>The Bidder shall submit the following additional documents in the Technical Part of its Bid:</p> <p>Code of Conduct for Contractor's Personnel (ES)</p> <p>The Bidder shall submit its Code of Conduct that will apply to Contractor's Personnel (as defined in Sub-Clause 1.1.17 of the General Conditions of Contract), to ensure compliance with the Contractor's Environmental and Social (ES) obligations under the Contract. The Bidder shall use for this purpose the Code of Conduct form provided in Section IV. No substantial modifications shall be made to this form, except that the Bidder may introduce additional requirements, including as necessary to take into account specific Contract issues/risks.</p> <p>Management Strategies and Implementation Plans (MSIP) to manage the (ES) risks</p> <p><i>The Bidder shall submit Management Strategies and Implementation Plans (MSIPs) to manage the following key Environmental and Social (ES) risks:</i></p> <ul style="list-style-type: none">• Sexual Exploitation, and Abuse (SEA) and Sexual Harassment (SH) prevention and response action plan;• Traffic Management Plan to ensure safety of local communities from construction traffic;• Environmental Pollution (Air, Water, Noise, Soil Quality) management and Monitoring Plan during Pre-Construction and Construction Phases;• Occupational Health and Safety Management Plan;• Grievance Redress Management (GRM) Plan;• Emergency Response Management Plan including man-made disaster.
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11.3 (d)	The Bidder shall submit the following additional documents in the Financial Part of its Bid: N/A.
ITB 13.1	Alternative Bids <i>“shall not be”</i> considered.
ITB 13.2	Alternative times for completion <i>“shall not be”</i> permitted.
ITB 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: None .
ITB 14.5	The prices quoted by the Bidder shall be: <i>“subject to adjustment”</i>
ITB 15.1	<p>The currency(ies) of the Bid and the payment currency(ies) shall be in accordance with Alternative B as described below:</p> <p>Alternative B (Bidders allowed to quote in local and foreign currencies):</p> <p>(a) The unit rates and prices shall be quoted by the Bidder in the Bill of Quantities separately in the following currencies:</p> <p>(i) for those inputs to the Works that the Bidder expects to supply from within the Employer’s Country, in Bangladeshi Taka (BDT), and further referred to as “the local currency”; and</p> <p>(ii) for those inputs to the Works that the Bidder expects to supply from outside the Employer’s Country (referred to as “the foreign currency requirements”), in up to any three foreign currencies.</p>
ITB 17.5	At this time the Employer <i>“does not intend”</i> to execute certain specific parts of the Works by subcontractors selected in advance.
ITB 17.6	<p>(a) Contractor’s proposed subcontracting: Maximum percentage of subcontracting permitted is: 15% of the <i>“total contract amount”</i>.</p> <p>(b) Bidders proposing to subcontract shall specify in Section IV-Bidding Forms, the activity (ies) or parts of the Works to be</p>

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	subcontracted along with complete details of the subcontractors and their qualifications.
ITB 17.7	The parts of the Works for which the Employer permits Bidders to propose Specialized Subcontractors are designated as follows: N/A.
ITB 18.1	<i>The Bid shall be valid until:</i> 180 days from the date of opening of bids.
ITB 18.3 (a)	The Bid price shall be adjusted by the following factor(s): Not applicable
ITB 19.1	A Bid Security " <i>shall be</i> " required. the amount and currency of the Bid Security shall be USD 0.120 (Zero point One Two) Million or BDT 12.00 (Twelve) Million.
ITB 19.3 (d)	Other types of acceptable securities: " <i>None</i> "
ITB 19.9	NOT APPLICABLE
ITB 20.3	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: authorization letter to demonstrate the authority of the signatory to sign the Bid.
D. Submission of Bids	
ITB 21.1	In addition to the original of the Bid, the number of copies is: 01 (One) Copy and 01(One) USB
ITB 22.1	For <u>Bid submission purposes</u> only, the Employer's address is: Attention: Abdullah Al Mahmud Faruk Street Address: Biniyog Bhaban (9th floor) E-6/B, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh Floor number: Level-9 City: Dhaka ZIP/Postal Code: 1207

	<p>Country: Bangladesh</p> <p>The deadline for Bid submission is:</p> <p>Date: 16 April 2024 (Local Time).</p> <p>Time: 14:00 Hours (Local Time).</p> <p>Bidders “shall not” have the option of submitting their Bids electronically.</p>
E. Public Opening of Technical Parts of Bids	
ITB 25.1	<p>The Bid opening shall take place at:</p> <p>Street Address: Biniyog Bhaban (9th floor)</p> <p>E-6/B, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh</p> <p>Floor number: Level-9</p> <p>City: Dhaka</p> <p>ZIP/Postal Code: 1207</p> <p>Country: Bangladesh Country</p> <p>Date & Time: 14:30 Hours of 16 April 2024 (Local Time).</p>
ITB 25.1	The electronic Bid opening procedures shall be: Not Applicable.
ITB 25.6	<p>The Letter of Bid – Technical Part and the sealed envelope marked “SECOND ENVELOPE: FINANCIAL PART” “<i>shall</i>” be initialed by 03 (Three) representatives of the Employer conducting Bid opening.</p>
G. Evaluation of Technical Part of Bids	

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ITB 32.2	The technical factors (sub-factors) and the corresponding weight in % are:		
	Technical Factor	weight in percentage (Insert weight in %)	Bidding Form
	1. Understanding of specific project requirements and proposed approach	20%	Section IV – Bidding Forms – Technical Proposal
	2.Construction management strategy and Construction methodology	30%	Section IV – Bidding Forms – Technical Proposal
	3..Method statement	10%	Section IV – Bidding Forms – Technical Proposal
	4. ES management Strategy	10%	Section IV – Bidding Forms – Technical Proposal
	5.Key equipment strategy	20%	Section IV – Bidding Forms – Technical Proposal
	6. Qualification & Experience of Contractor's Personnel	10%	Section IV – Bidding

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			Forms – Technical Proposal
	Total=	100%	
Minimum Qualifying Score for Overall Technical factors is 70%			
H. Notification of Evaluation of Technical Parts and Public Opening of Financial Parts			
ITB 33.5	The Letter of Bid – Financial Part and Schedules shall be initialed by 07 (Seven) representatives of the Employer conducting Bid opening.		
I. Evaluation of Financial Part of Bids			

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ITB 36.1	<p>The currency that shall be used for Bid evaluation and comparison purposes to convert at the selling exchange rate all Bid prices expressed in various currencies into a single currency is:</p> <p>Bangladesh Taka (BDT)</p> <p>The source of exchange rate shall be: Bangladesh Bank webpage at “https://www.bb.org.bd/econdata/exchangerate.php” and the rate shall be the Bangladesh Bank selling exchange rate.</p> <p>The date for the exchange rate shall be: <i>28 days prior to the deadline for submission of the Bids</i></p> <p>The currency(ies) of the Bid shall be converted into a single currency in accordance with the procedure under Alternative B that follows:</p> <p><i>Alternative B: Bidders quote in local and foreign currencies</i></p> <p>The Employer will convert the amounts in various currencies in which the Bid Price, corrected pursuant to ITB 35, is payable (excluding Provisional Sums but including Daywork where priced competitively) to the single currency identified above at the selling rates established for similar transactions by the authority specified and, on the date, stipulated above.</p>
ITB 36.2	A margin of domestic preference “ <i>shall not</i> ” apply.
ITB 37.1(f)	Not Applicable
<p align="center">J. Evaluation of Combined Technical and Financial Parts and Most Advantageous Bid</p>	
ITB 40.1	<p>The weight to be given for cost is: 80%.</p> <p>[Technical weight 20% and Financial weight 80% i.e weight for cost plus weight for total technical score is 1]</p>
<p align="center">K. Award of Contract</p>	
ITB 49.1 and 49.2	The successful Bidder shall be required to submit an Environmental and Social (ES) Performance Security.



ITB 50.1	<p>The procedures for making a Procurement-related Complaint are detailed in the “<u>Procurement Regulations for IPF Borrowers</u> (Annex III).” If a Bidder wishes to make a Procurement-related Complaint, the Bidder shall submit its complaint following these procedures, In Writing (by the quickest means available, such as by email), to:</p> <p>For the attention: Abdullah Al Mahmud Faruk</p> <p>Title/position: Project Director</p> <p>Employer: Bangladesh Economic Zones Authority (BEZA)</p> <p>Email address: pd.pride.beza@bsmsn.gov.bd</p> <p>In summary, a Procurement-related Complaint may challenge any of the following:</p> <ol style="list-style-type: none">1. the terms of the Bidding Documents;2. the Employer’s decision to exclude a Bidder from the procurement process prior to the award of contract; and3. the Employer’s decision to award the contract.

Section III - Evaluation and Qualification Criteria (*Without Prequalification*)

This section contains all the criteria that the Employer shall use to evaluate Bids and qualify Bidders. No other factors, methods or criteria shall be used other than specified in this Bidding document. The Bidder shall provide all the information requested in the forms included in Section IV, Bidding Forms.

Wherever a Bidder is required to state a monetary amount, Bidders should indicate the USD equivalent using the rate of exchange determined as follows:

- For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year are to be converted) was originally established.
- Value of single contract - Exchange rate prevailing on the date of the contract.

Exchange rates shall be taken from the publicly available source identified in the ITB 36.1.

Any error in determining the exchange rates in the Bid may be corrected by the Employer.

[The Employer shall select the criteria deemed appropriate for the Bidding process, insert the appropriate wording using the samples below or other acceptable wording, and delete the text in italics]

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Evaluation of Bids

1. Qualification

1.1 Update of Information

The Bidder's qualification shall be assessed in accordance with the Qualification table included in this section.

1.2 Subcontractors

Only the Specialized Subcontractors as approved by the Employer will be considered. The bidder shall provide in Section IV-Bidding Forms the relevant details of all proposed subcontractors.


1.3 Financial Resources

Using the relevant Form 3.1 in Section IV, Bidding Forms, the Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for this Contract and its current Works commitment.

1.4 Contractor's Representative and Key Personnel

The Bidder must demonstrate that it will have a suitably qualified Contractor's Representative and suitably qualified (and in adequate numbers) Key Personnel, as described in the Specification.

The Bidder shall provide details of the Contractor's Representative and Key Personnel and such other Key Personnel that the Bidder considers appropriate to perform the Contract, together with their academic qualifications and work experience. The Bidder shall complete the relevant Forms in Section IV, Bidding Forms. *[If the contract has been assessed to present potential or actual cyber security risks, the Bidder must be required to include Cyber security expert/s among the Key Personnel.]*



1.5 Equipment

The Bidder must demonstrate that it has access to the key equipment listed hereafter:

No.	Equipment Type and Characteristics	Minimum Number required
1	Concrete Batching Plant	01 No.
2	Total Station Survey equipment (600M-1000M)	1 Set
3	Drum Truck	10 Nos.
4	Truck (10 Ton)	5 Nos.
5	Road roller (Tyred Roller/Steel Double Wheel) (8-10 ton)	2 Nos.
6	Pneumatic Tyred Rolled	2 Nos.
7	Road roller (Vibrating roller With Soil Compactor) (12-18 ton)	4 Nos.
8	Motor Grader	2 Nos
9	Mobile Soil Stabilizer	2 Nos.
10	Wheel Loader and Pay Loader	4 Nos.
11	Backhoe Loader	2 Nos.
12	Sheep Foot Roller (8-10 Ton)	2 Nos.
13	Crawler Excavator	4 Nos
14	Dozer	2 Nos.
15	Excavator (0.5-0.7 cum)	4 Nos.
16	Water Pump with water tanker (12-16 HP)	2 Nos.
17	Cranes (Minimum 5 Tons)	1 No.
18	Plate Compactor/Rammer	5 Nos.
19	Vibrator with nozzle	15 Nos.
20	Concrete Mixer Machine with hopper	5 Nos.

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21	Dewatering Pump	4 Nos.
22	Testing Equipment	1 Set
23	Water Tanker	4 Nos.
24	Generator (50 KVA)	01 No.

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section IV, Bidding Forms.

2. Evaluation of Technical Proposal

Assessment of adequacy of Technical Proposal with Requirements in accordance with ITB 32.1:

.....
[Insert minimum technical requirements, if any, (or refer to appropriate technical requirements parts) that have to be met by the technical proposals prior to being considered for technical evaluation by applying the scored technical factors/subfactors in accordance with BDS ITB 32.2]

The technical factors, and sub factors if any, to be evaluated and the scores to be given to each technical factor and sub factors are specified in the BDS ITB 32.2.

Technical Proposal Scoring Methodology

Score (of the total score for the factor/subfactor as applicable)	Description	Remarks
0 to <70%	Required feature is absent; no relevant information to demonstrate how the requirement is met	
=70%	Required feature present with deficiencies such as insufficient or information that lacks clarity	

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=80%	Sufficient information to demonstrate how the requirement will be met	
=90%	Sufficient information to demonstrate that the requirement will be marginally exceeded	
=100%	Sufficient information that significantly exceed the requirement/proposal contributes to significant value addition	

The score for each sub- factor (i) within a factor (j) will be combined with the scores of sub- factors in the same factor as a weighted sum to form the Factor Technical Score using the following formula:

$$S_j \equiv \sum_{i=1}^k t_{ji} * w_{ji}$$

where:

t_{ji} = the technical score for sub- factor "i" in factor "j",

w_{ji} = the weight of sub- factor "i" in factor "j",

k = the number of scored sub-factors in factor "j", and

$$\sum_{i=1}^k w_{ji} = 1$$

The Factor Technical Scores will be combined in a weighted sum to form the total Technical Proposal Score using the following formula:

$$T \equiv \sum_{j=1}^n S_j * W_j$$

where:

S_j = the Factor Technical Score of factor "j",

W_j = the weight of factor "j" as specified in the BDS,

n = the number of Factors, and

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$$\sum_{j=1}^n W_j = 1$$

Alternative Technical Solutions for specified parts of the Works

If permitted under ITB 13.4, will be evaluated as follows:

.....

.....

3. Financial Evaluation

Margin of Preference

If the BDS so specifies, the Employer will grant a margin of preference of 7.5% (seven and one-half percent) to domestic contractors, in accordance with, and subject to, the following provisions:

- (i) Contractors applying for such preference shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Borrower and accepted by the Bank, a particular contractor or group of contractors qualifies for a domestic preference. The Bidding document shall clearly indicate the preference and the method that will be followed in the evaluation and comparison of Bids to give effect to such preference.
- (ii) After Bids have been received and reviewed by the Employer, responsive Bids shall be classified into the following groups:
 - (a) Group A: Bids offered by domestic contractors eligible for the preference.
 - (b) Group B: Bids offered by other contractors.

All evaluated Bids in each group shall, as a first evaluation step, be compared to determine the Most Advantageous Bid, and the Most Advantageous Bid in each group shall be further compared with each other. If a result of this comparison, a Bid from Group A is the Most Advantageous Bid, it shall be selected for the award, if

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the Bidder is qualified. If a Bid from Group B is the Most Advantageous Bid, as a second evaluation step, all Bids from Group B shall then be further compared with the Most Advantageous Bid from Group A. For the purpose of this further comparison only, an amount equal to 7.5% (seven and one-half percent) of the respective Bid price corrected for arithmetical errors, including unconditional discounts but excluding provisional sums and the cost of day works, if any, shall be added to the evaluated cost offered in each Bid from Group B. If the Bid from Group A is the Most Advantageous Bid, it shall be selected for award. If not, the most advantageous Bid from Group B based on the first evaluation step shall be selected.

Criteria for Financial Evaluation

In addition to the criteria listed in ITB 37.1 (a) – (e) the following criteria shall apply:

Time Schedule

Time for completion of the Works from the Commencement Date shall be as specified in the Particular Conditions Part A-Contract Data Sub-clause 1.1.84. No credit will be given for earlier completion.

Or

Time to complete the Works from the from the Commencement Date shall be between _____ minimum and _____ maximum. The adjustment rate in the event of completion beyond the minimum period shall be _____ (%) for each week of delay from that minimum period. No credit will be given for completion earlier than the minimum designated period. Bids offering a completion date beyond the maximum designated period shall be rejected.

Life Cycle Costs

[Life cycle costing should be used when the costs of operation and/or maintenance over the specified life of the Works are estimated to be considerable in comparison with the initial cost and may vary among different Bids. It shall be

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*evaluated on a net present value basis. If **life** cycle costing is to be applied for Bid evaluation, the Employer shall specify the relevant information on its application here:]*

[State either life cycle costing “shall” or “shall not apply”. If life cycle costing applies for Bid evaluation, the methodology and the information expected from Bidders shall be specified]

The factors for calculation of the life cycle cost are:

- (a) number of years for life cycle: *_[Insert number of years],*
- (b) operating costs *[state how they will be determined],*
- (c) maintenance costs, including the cost of spare parts for the initial period of operation *[state how they will be determined],* and
- (d) Discount rate: *_____ [insert discount rate in percent]* to be used to discount to present value all annual future costs calculated under (ii) and (iii) above for the period specified in (i).

Sustainable Procurement

[Specify any adjustments to be made for financial bid evaluation purposes for any quantifiable sustainable procurement requirements. Ensure that there is no duplication (double counting) with the point system technical factors/subfactors specified in BDS ITB 32.2.]

4. Combined Evaluation

The Employer will evaluate and compare the Bids that have been determined to be substantially responsive.

An Evaluated Bid Score (B) will be calculated for each responsive Bid using the following formula, which permits a comprehensive assessment of the evaluated cost and the technical merits of each Bid:

$$B \equiv \frac{C_{low}}{C} * X * 100 + \frac{T}{T_{high}} * (1 - X) * 100$$

Where:

C = Evaluated Bid Cost

C_{low} = the lowest of all Evaluated Bid Costs among responsive Bids

T = the total Technical Score awarded to the Bid

T_{high} = the Technical Score achieved by the Bid that was scored best among all responsive Bids

X = weight for Cost as specified **in the BDS**

The Bid with the best evaluated Bid Score (B) among responsive Bids shall be the Most Advantageous Bid provided the Bidder is qualified to perform the Contract.

5. Multiple Contracts

If permitted under ITB 37.3, will be evaluated as follows:

(i) Award Criteria for Multiple Contracts [ITB 37.3]:

[“If not applicable state ‘Not Applicable’.”]

If in accordance with ITB 1.1 Bids are invited for more than one lot or package, the contract will be awarded to the Bidder or Bidders with the Most advantageous Bid for the individual lots.

However, if a Bidder, with a Bid that is substantially responsive and with the highest evaluated score for individual lots, is not qualified for the combination of the lots, then the award will be made based on the highest total score for the combination of lots for which the Bidders are qualified.

Cross discounts for award of multiple lots will not be considered.

(ii) Qualification Criteria for Multiple Contracts

The criteria for qualification are the aggregate minimum requirement for respective lots as specified under items 3.1, 3.2, 4.2(a) and 4.2(b). However, with respect to the specific experience under item 4.2 (a) of Section III, the Employer will select any one or more of the options as identified below:

N is the minimum number of contracts

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V is the minimum value of a single contract

(a) For one Contract:

Option 1:

- i. N contracts, each of minimum value V;

Or

Option 2:

- i. N contracts, each of minimum value V; or
- ii. (ii) Less than or equal to N contracts, each of minimum value V, but with total value of all contracts equal or more than $N \times V$.

(b) For multiple Contracts

Option 1:

- i. Minimum requirements for combined contract(s) shall be the aggregate requirements for each contract for which the Bidder has submitted Bids as follows, and N1, N2, N3, etc. shall be different contracts:

Lot 1: N1 contracts, each of minimum value V1;

Lot 2: N2 contracts, each of minimum value V2;

Lot 3: N3 contracts, each of minimum value V3;

----etc.

Or

Option 2:

- i. Minimum requirements for combined contract(s) shall be the aggregate requirements for each contract for which the Bidder has submitted Bids as follows, and N1, N2, N3, etc. shall be different contracts:

Lot 1: N1 contracts, each of minimum value V1;

Lot 2: N2 contracts, each of minimum value V2;

Lot 3: N3 contracts, each of minimum value V3;

----etc., **or**

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- ii. Lot 1: N1 contracts, each of minimum value V1; or number of contracts less than or equal to N1, each of minimum value V1, but with total value of all contracts equal or more than $N1 \times V1$.
 - iii. Lot 2: N2 contracts, each of minimum value V2; or number of contracts less than or equal to N2, each of minimum value V2, but with total value of all contracts equal or more than $N2 \times V2$.
 - iv. Lot 3: N3 contracts, each of minimum value V3; or number of contracts less than or equal to N3, each of minimum value V3, but with total value of all contracts equal or more than $N3 \times V3$.
- etc.

Or

Option 3:

- i. Minimum requirements for combined contract(s) shall be the aggregate requirements for each contract for which the Bidder has bid for as follows, and N1, N2, N3, etc. shall be different contracts:
 - Lot 1: N1 contracts, each of minimum value V1;
 - Lot 2: N2 contracts, each of minimum value V2;
 - Lot 3: N3 contracts, each of minimum value V3;

----etc., or
- ii. Lot 1: N1 contracts, each of minimum value V1; or number of contracts less than or equal to N1, each of minimum value V1, but with total value of all contracts equal or more than $N1 \times V1$.
Lot 2: N2 contracts, each of minimum value V2; or number of contracts less than or equal to N2, each of minimum value V2, but with total value of all contracts equal or more than $N2 \times V2$.
Lot 3: N3 contracts, each of minimum value V3; or number of contracts less than or equal to N3, each of minimum value V3, but with total value of all contracts equal or more than $N3 \times V3$.

----etc., or
- iii. Subject to compliance as per (ii) above with respect to minimum value of single contract for each lot, total number of contracts is



equal or less than $N1 + N2 + N3 + \dots$ but the total value of all such contracts is equal or more than $N1 \times V1 + N2 \times V2 + N3 \times V3 + \dots$.

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A. Qualification

Eligibility and Qualification Criteria			Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)		Submission Requirements
				All Members Combined	Each Member	One Member
1. Eligibility						
1.1	Nationality	Nationality in accordance with ITB 4.4	Must meet requirement	Must meet requirement	Must meet requirement	N/A
1.2	Conflict of Interest	No conflicts of interest in accordance with ITB 4.2	Must meet requirement	Must meet requirement	Must meet requirement	Letter of Bid
1.3	Bank Eligibility	Not having been declared ineligible by the Bank, as described in ITB 4.5.	Must meet requirement	Must meet requirement	Must meet requirement	Letter of Bid
1.4	State- owned Enterprise or Institution of the Borrower country	Meets conditions of ITB 4.6	Must meet requirement	Must meet requirement	Must meet requirement	N/A
1.5	United Nations resolution or Borrower's country law	Not having been excluded as a result of prohibition in the Borrower's country laws or official regulations against commercial relations with the Bidder's country, or by an act of compliance with UN Security Council resolution, both in accordance with ITB 4.8 and Section V.	Must meet requirement	Must meet requirement	Must meet requirement	N/A
						Forms ELI – 1.1 and 1.2, with attachments
						Forms ELI – 1.1 and 1.2, with attachments

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)		Submission Requirements	
				All Members Combined	Each Member	One Member	
2. Historical Contract Non-Performance							
2.1	History of Non-Performing Contracts	Non-performance of a contract ¹ did not occur as a result of contractor default since 1 st January 2014.	Must meet requirement	Must meet requirements	Must meet requirement ²	N/A	
2.2	Suspension Based on Execution of Bid/Proposal Securing Declaration by the Employer	Not under suspension based on-execution of a Bid/Proposal Securing Declaration pursuant to ITB 4.7 and ITB 19.9	Must meet requirement	Must meet requirement	Must meet requirement	N/A	
2.3	Pending Litigation	Bidder's financial position and prospective long-term profitability still sound according to criteria established in 3.1 below and assuming that all pending litigation will be resolved against the Bidder	Must meet requirement	N/A	Must meet requirement	N/A	
2.4	Litigation History	No consistent history of court/arbitral award	Must meet requirement	Must meet requirement	Must meet requirement	N/A	

¹ Nonperformance, as decided by the Employer, shall include all contracts where (a) nonperformance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor.

Nonperformance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Nonperformance must be based on all information on fully settled disputes or litigation, i.e., dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.

² This requirement also applies to contracts executed by the Bidder as JV member.

Eligibility and Qualification Criteria			Compliance Requirements			Documentation	
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)	Each Member	One Member	Submission Requirements
		decisions against the Bidder ³ since 1 st January 2014.					
2.5	Declaration: Environmental and Social (ES) past performance	Declare any civil work contracts that have been suspended or terminated and/or performance security called by an employer for reasons of breach of environmental, or social (including Sexual Exploitation, and Abuse) contractual obligations in the past five years. ⁴	Must make the declaration. Where there are Specialized Subcontract or/s, the Specialized Subcontract or/s must also make the declaration.	N/A	Each must make the declaration. Where there are Specialized Subcontract or/s, the Specialized Subcontract or/s must also make the declaration.	N/A	Form CON-3 ES Performance Declaration
2.6	Bank's SEA and/or SH Disqualification	At the time of Contract Award, not subject to disqualification by the Bank for non-compliance with SEA/SH obligations	Must meet requirement (including each subcontract or proposed by the Bidder)	N/A	Must meet requirement (including each subcontract or proposed by the Bidder)	N/A	Letter of Bid, Form CON-4
		If the Bidder had been subject to disqualification by the	Must meet	N/A	Must meet requirement	N/A	Letter of Bid, Form

³ The Bidder shall provide accurate information on the related Bid Form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the last five years. A consistent history of awards against the Bidder or any member of a joint venture may result in failure of the Bid.

⁴ The Employer may use this information to seek further information or clarifications in carrying out its due diligence.

Eligibility and Qualification Criteria			Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)		Submission Requirements
				All Members Combined	Each Member	One Member
		Bank for non-compliance with SEA/ SH obligations, the Bidder shall either (i) provide evidence of an arbitral award on the disqualification made in its favour; or (ii) demonstrate that it has adequate capacity and commitment to comply with SEA/SH prevention and response obligations; or (iii) provide evidence that it has already demonstrated such capacity and commitment on another Bank financed works contract.	requirement (including each subcontract or proposed by the Bidder)		(including each subcontract or proposed by the Bidder)	CON-4
3. Financial Situation and Performance						
3.1	Financial Capabilities	(i) The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as USD 1.5 (One point Five)	Must meet requirement	Must meet requirement	N/A	N/A
						Form FIN – 3.1, with attachments The documentary evidence shall be in the form of supporting letter(s) issued by the Bidder's bank/financial institution confirming that the above-specified

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	All Members Combined	Each Member	One Member	Submission Requirements
		million or BDT 150 (One hundred fifty) Million for the subject contract(s) net of the Bidder's other commitments (ii) The Bidders shall also demonstrate, to the satisfaction of the Employer, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments. (iii) The audited balance sheets or, if not required by the laws of the Bidder's country, other financial statements acceptable to the Employer, for the last 05(Five) years shall be submitted and must demonstrate the current soundness of the Bidder's financial position and indicate its prospective long-term profitability.	Must meet requirement	Must meet requirement	N/A	N/A	minimum amount is available through lines of credit and/or funds in the Bidder's bank account for use specifically in the execution of the subject contract if awarded to the Bidder.
3.2	Average Annual	Minimum average annual construction turnover of USD 7 (Seven) Million or BDT 700 (Seven hundred)	Must meet requirement	Must meet requirement	Must meet 25% (Twenty Five percent)	Must meet 40% (Forty percent) of	Form FIN - 3.2

Eligibility and Qualification Criteria			Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)		Submission Requirements
				All Members Combined	Each Member	One Member
	Construction Turnover	Million, calculated as total certified payments received for contracts in progress and/or completed within the last 5 (Five) years, divided by 10 (Ten) years (years counting backward from the bid submission deadline date)			of the requirement	the requirement
4. Experience						
4.1 (a)	General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, Subcontractor, or management contractor for at least the last 10 years, starting 1 st January 2014.	Must meet requirement	N/A	Must meet requirement	N/A
4.2 (a)	Specific Construction & Contract Management Experience	(i) A minimum number of a similar contract specified below that have been satisfactorily and substantially ⁵ completed as a prime contractor, joint	Must meet requirement	Must meet requirement ⁷	N/A	"N/A"
						Form EXP 4.2(a)

⁵ Substantial completion shall be based on 80% or more works completed under the contract.

⁷ In the case of JV, the value of contracts completed by its members shall not be aggregated to determine whether the requirement of the minimum value of a single contract has been met. Instead, each contract performed by each member shall satisfy the minimum value of a single contract as required for single entity. In determining whether the JV meets the requirement of total number of contracts, only the number of contracts completed by all members each of value equal or more than the minimum value required shall be aggregated.

Eligibility and Qualification Criteria			Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)		Submission Requirements
		venture member ⁶ , management contractor or Subcontractor between 1st January 2014 and bid submission deadline: (i) 01(One) contract wherein Boundary wall/Retaining Wall work with a minimum value of USD 4.5 (Four point five) Million or BDT 450 (four hundred fifty) Million and Road/Embankment work with a minimum value of USD 2.70 (Two Point Seven Zero) Million or BDT 270 (Two hundred seventy) million. The similarity of the contracts shall be based on the following Based on Section VII, Scope of Works, in terms of physical size, complexity,		All Members Combined	Each Member	One Member

⁶ For contracts under which the Bidder participated as a joint venture member or Subcontractor, only the Bidder's share, by value, shall be considered to meet this requirement

Eligibility and Qualification Criteria			Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)		Submission Requirements
				All Members Combined	Each Member	One Member
		<i>construction method, technology.</i>				
4.2 (b)		For the above and any other contracts [substantially completed and under implementation] as prime contractor, joint venture member, or Subcontractor between 1st January 2014 and Application submission deadline, a minimum construction experience in the following key activities successfully completed ⁸ : (i) 01(One) contract wherein Boundary wall/Retaining Wall RCC work volume is 7500 Cum and Earth filling in Road/Embankment work is 3,00,000 Cum.	Must meet requirements	Must meet requirements	N/A	"N/A"
4.2 (c)	Specific Experience in	For the contracts in 4.2 (a) above and/or any other contracts [substantially completed and under	Must meet requirements	Must meet requirement	"N/A"	Must meet the
						Form EXP – 4.2 (c)

⁸ Volume, number, or rate of production of any key activity can be demonstrated in one or more contracts combined if executed during same time period.

Eligibility and Qualification Criteria			Compliance Requirements			Documentation	
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended) All Members Combined	Each Member	One Member	Submission Requirements
	managing ES aspects	<p>implementation] as prime contractor, joint venture member, or Subcontractor between 1st January 2014 and Application submission deadline, experience in managing the following ES risks and impacts and any additional sustainable procurement aspects:</p> <p>Minimum requirements for managing ES aspects similar to the following activities under a single contract is USD 0.02 (Zero point two) Million or equivalent BDT 2 (Two) Million</p> <p>ES Activities:</p> <p>1. Contractor shall have experience in preparing and implementing of CESMP (Contractors</p>				requirement	

Eligibility and Qualification Criteria			Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)		Submission Requirements
				All Members Combined	Each Member	One Member
		Environmental and Social Management Plan).				
		2. The contractor should have experience in ESMP implementation of any				
		3. Contractor shall have experience in Occupational Health and Personnel Safety Measures in Physical Works.				

Note: [For Multiple lots (contracts) specify financial and experience criteria for each lot under Sub-Factors 3.1, 3.2, 4.2(a) and 4.2(b) and 4.2(c)]

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Letter of Bid- Technical Part

INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT

The Bidder must prepare this Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and business address.

Note: All italicized text is to help Bidders in preparing this form.

Date of this Bid submission: *[insert date (as day, month, and year) of Bid submission]*

Request for Bid No.: *[insert identification]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[insert complete name of Employer]*

We, the undersigned, hereby submit our Bid, in two parts, namely:

- (a) the Technical Part, and
- (b) the Financial Part

In submitting our Bid, we make the following declarations:

- (a) **No reservations:** We have examined and have no reservations to the bidding document, including Addenda issued in accordance with Instructions to Bidders (ITB 8);
- (b) **Eligibility:** We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;

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(c) **Bid-Securing Declaration:** We have not been suspended nor declared ineligible by the Employer based on execution of a Bid-Securing Declaration or Proposal-Securing Declaration in the Employer's country in accordance with ITB 4.7;

(d) **Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment (SH):** *[select the appropriate option from (i) to (v) below and delete the others].*

We *[where JV, insert: "including any of our JV members"]*, and any of our subcontractors:

- (i) *[have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.]*
- (ii) *[are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.]*
- (iii) *[had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations. An arbitral award on the disqualification case has been made in our favor.]*
- (iv) *[had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have subsequently provided and demonstrated that we have adequate capacity and commitment to comply with SEA and SH prevention and response obligations.]*
- (v) *[had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have attached documents demonstrating that we have adequate capacity and commitment to comply with SEA and SH prevention and response obligations.]*

(e) **Conformity:** We offer to execute in conformity with the bidding document the following Works: *[insert a brief description of the Works]* _____
_____;



- (f) **Bid Validity:** Our Bid shall be valid until *[insert day, month, and year in accordance with ITB 18.1]*, and it shall remain binding upon us and may be accepted at any time on or before this date;
- (g) **Performance Security:** If our Bid is accepted, we commit to obtain a Performance Security *[and an Environmental and Social (ES) Performance Security, **Delete if not applicable**]* in accordance with the bidding document;
- (h) **One Bid Per Bidder:** We are not submitting any other Bid(s) as an individual Bidder, and we are not participating in any other Bid(s) as a Joint Venture member or as a subcontractor, and meet the requirements of ITB 4.3, other than alternative Bids submitted in accordance with ITB 13;
- (i) **Suspension and Debarment:** We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the World Bank Group, or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Employer's country laws or official regulations or pursuant to a decision of the United Nations Security Council;
- (j) **State-owned enterprise or institution:** *[select the appropriate option and delete the other] [We are not a state-owned enterprise or institution] / [We are a state-owned enterprise or institution but meet the requirements of ITB 4.6];*
- (k) **Binding Contract:** We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (l) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Bid, the Most Advantageous Bid, or any other Bid that you may receive; and



(m) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption;

(n) **Potential DAAB Members:** We hereby propose the following three persons, whose curriculum vitae are attached, as potential DAAB members:

Name	Address
1.	
2.	
3.	

Name of the Bidder: *[insert complete name of the Bidder]

Name of the person duly authorized to sign the Bid on behalf of the Bidder: ** [insert complete name of person duly authorized to sign the Bid]

Title of the person signing the Bid: [insert complete title of the person signing the Bid]

Signature of the person named above: [insert signature of person whose name and capacity are shown above]

Date signed [insert date of signing] day of [insert month], [insert year]

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

**: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid

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Appendix to Technical Part of Bid

Q

Technical Proposal

- **Site Organization**
- **Understanding of specific project requirements and proposed approach**
- **Construction management strategy and Method Statement**
- **Sustainable Procurement Proposal**
- **Mobilization Schedule**
- **Construction Schedule**
- **ES Management Strategies and Implementation Plans**
- **Code of Conduct for Contractor's Personnel (ES)**
- **Equipment strategy**
- **Qualification & Experience of Contractor's Personnel**

A handwritten mark, possibly a signature or initials, consisting of a loop and a vertical line.

Site Organization

[insert Site Organization information]

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Understanding of specific project requirements and proposed approach

Detail how you (the Bidder) have taken into account the specific project requirements (detailed below), and how they will affect the delivery of the project. If necessary, include risk register for specific project requirements. - *(Please insert site specific requirements)*

Key requirements that are causing a risk to the critical path should be noted, with minimum requirements of;

- Describing the risk
- Stating the effects, the Risk has on the project
- Develop a possible response of the risk

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Construction management strategy

Provide a construction management strategy that addresses at least the following:

- Project Management Plan
- Schedule Management Plan
- Resource Management Plan
- Quality Management Plan
- Communication Management Plan
- Stakeholder Engagement Plan
- Health and safety management Plan

Construction methodology

Provide a construction methodology that addresses at least the following:

- Site Establishment Plan;
- Site Hoarding plans;
- Site access and traffic management plans;
- Drainage plans and laydown areas;
- Temporary works and overall staging plans;
- Noise, dust and vibration controls;
- Bulk excavation and removal of earthworks from site; and
- Testing and disposal of contaminated materials.

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Method Statement

[insert Method Statement]

[Note to the Bidder: In addition to providing method statement for construction activities (and design, if any), If the contract has been assessed to present potential or actual cyber security risks, include method statement, management strategies, implementation plans and innovations to manage cyber security risks. Similarly, if there are assessed supply chain risks, the method statement must include supply chain risk assessment and proposed management plan.]

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Health and Safety Management Plan

[Provide details of how you will manage health and safety risks, your training proposals and provide a copy of the Health and Safety Management Plan and details of the persons who will be responsible for health and safety on site during the project, including details of their experience managing similar risks. As a minimum the Health and Safety Management Plan should include the following details; Site Details - Site Location - Site Induction Details - Location of Health and Safety Kits - Incident Reporting Details - Welfare Provisions Persons Responsible - Nominated Health and Safety Manager (management team) - Construction Management Plan - Site Foreman - Site First Aider(s) A Health and Safety Management Manual.

Provide your proposed strategy for accounting for people that are on site and provide a copy of the site register that will be used, details of where the site register will be kept, and who will be responsible for maintaining it.

Describe how the staff induction for the site will be undertaken and provide a copy of the staff induction program/plan.

Provide details of any health and safety training that staff have to undertake, when this is undertaken and how often it will be undertaken during the lifetime of the project

Please provide a copy of your Incident Response Plan. Where available, please provide details and examples of incident response plans that have been used on similar past projects, provide examples of where they have had to be used and the lessons learnt.

Provide examples of health and safety promotion campaigns that have been used on similar past projects and detail any health and safety campaigns proposed for this project.]

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Sustainable Procurement Proposal

*[Note to Bidder: In addition to submitting the **required** ES Management Strategies and Implementation Plans, the Bidder shall provide its proposal to demonstrate how additional sustainable procurement requirements, if any, specified in Section VII- Works' Requirements would be addressed. The Bidder shall also provide its proposal, if any, for exceeding the sustainable procurement requirements.]*

Mobilization Schedule

[insert Mobilization Schedule]

In accordance with the Particular Conditions, Sub-Clause 4.1, the Contractor shall not carry out mobilization to Site unless the Engineer gives consent that appropriate measures are in place to address environmental and social risks and impacts, which as a minimum shall include applying the Management Strategies and Implementation Plans (MSIPs) and Code of Conduct for Contractor's Personnel, submitted as part of the Bid, and agreed as part of the Contract.

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Construction Schedule

[insert Construction Schedule]

The construction schedule shall include the following key milestones:

- *No-objection to the Contractor's MSIPs, which collectively form the C-ESMP, in accordance with the Particular Conditions – Special provisions Sub-Clause 4.1.*
- *Constitution of the DAAB*
- *SEA and SH orientation conference*

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ES Management Strategies and Implementation Plans (ES-MSIP)

The Bidder shall submit comprehensive and concise Environmental and Social Management Strategies and Implementation Plans (ES-MSIP) as required by ITB 11.2 (g) of the Bid Data Sheet. These strategies and plans shall describe in detail the actions, materials, equipment, management processes etc. that will be implemented by the Contractor, and its subcontractors.

In developing these strategies and plans, the Bidder shall have regard to the ES provisions of the contract including those as may be more fully described in the Works Requirements in Section VII.

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Code of Conduct for Contractor's Personnel (ES) Form

Note to the Employer:

The following minimum requirements shall not be modified. The Employer may add additional requirements to address identified issues, informed by relevant environmental and social assessment.

The types of issues identified could include risks associated with: labour influx, spread of communicable diseases, Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) etc.

Delete this Box prior to issuance of the bidding documents.

Note to the Bidder:

The minimum content of the Code of Conduct form as set out by the Employer shall not be substantially modified. However, the Bidder may add requirements as appropriate, including to take into account Contract-specific issues/risks.

The Bidder shall initial and submit the Code of Conduct form as part of its bid.

CODE OF CONDUCT FOR CONTRACTOR'S PERSONNEL

We are the Contractor, [enter name of Contractor]. We have signed a contract with [enter name of Employer] for [enter description of the Works]. These Works will be carried out at [enter the Site and other locations where the Works will be carried out]. Our contract requires us to implement measures to address environmental and social risks related to the Works, including the risks of sexual exploitation, sexual abuse, and sexual harassment.

This Code of Conduct is part of our measures to deal with environmental and social risks related to the Works. It applies to all our staff, labourers and other employees at the Works Site or other places where the Works are being carried out. It also applies to the personnel of each subcontractor and any other personnel assisting us in the execution of the Works. All such persons are referred to as "**Contractor's Personnel**" and are subject to this Code of Conduct.



This Code of Conduct identifies the behavior that we require from all Contractor's Personnel.

Our workplace is an environment where unsafe, offensive, abusive, or violent behavior will not be tolerated and where all persons should feel comfortable raising issues or concerns without fear of retaliation.

REQUIRED CONDUCT

Contractor's Personnel shall:

1. carry out his/her duties competently and diligently;
2. comply with this Code of Conduct and all applicable laws, regulations, and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person;
3. maintain a safe working environment including by:
 - a. ensuring that workplaces, machinery, equipment, and processes under each person's control are safe and without risk to health;
 - b. wearing required personal protective equipment;
 - c. using appropriate measures relating to chemical, physical and biological substances, and agents; and
 - d. following applicable emergency operating procedures.
4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers, or children;
6. not engage in Sexual Harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel;

7. not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially, or politically from the sexual exploitation of another;
8. not engage in Sexual Abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;
9. not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
10. complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH);
11. report violations of this Code of Conduct; and
12. not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the grievance mechanism for Contractor's Personnel or the project's Grievance Redress Mechanism.

RAISING CONCERNS

If any person observes behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly.

This can be done in either of the following ways:

1. Contact [*enter name of the Contractor's Social Expert with relevant experience in handling sexual exploitation, sexual abuse, and sexual harassment cases, or if such person is not required under the Contract, another individual designated by the Contractor to handle these matters*] in writing at this address [] or by telephone at [] or in person at []; or
2. Call [] to reach the Contractor's hotline (*if any*) and leave a message.

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The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.

CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT

Any violation of this Code of Conduct by Contractor's Personnel may result in serious consequences, up to and including termination and possible referral to legal authorities.

FOR CONTRACTOR'S PERSONNEL:

I have received a copy of this Code of Conduct written in a language that I comprehend. I understand that if I have any questions about this Code of Conduct, I can contact [*enter name of Contractor's contact person(s) with relevant experience*] requesting an explanation.

Name of Contractor's Personnel: [insert name]

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Contractor:

Signature: _____

Date: (day month year): _____



ATTACHMENT 1: Behaviors constituting Sexual Exploitation and Abuse (SEA) and behaviors and behaviors constituting Sexual Harassment (SH)

9

ATTACHMENT 1 TO THE CODE OF CONDUCT FORM**BEHAVIORS CONSTITUTING SEXUAL EXPLOITATION AND ABUSE (SEA) AND
BEHAVIORS CONSTITUTING SEXUAL HARASSMENT (SH)**

The following non-exhaustive list is intended to illustrate types of prohibited behaviors.

(1) Examples of sexual exploitation and abuse include, but are not limited to:

- A Contractor's Personnel tells a member of the community that he/she can get them jobs related to the work site (e.g., cooking and cleaning) in exchange for sex.
- A Contractor's Personnel that is connecting electricity input to households says that he can connect women headed households to the grid in exchange for sex.
- A Contractor's Personnel rapes, or otherwise sexually assaults a member of the community.
- A Contractor's Personnel denies a person access to the Site unless he/she performs a sexual favor.
- A Contractor's Personnel tells a person applying for employment under the Contract that he/she will only hire him/her if he/she has sex with him/her.

(2) Examples of sexual harassment in a work context

- Contractor's Personnel comment on the appearance of another Contractor's Personnel (either positive or negative) and sexual desirability.
- When a Contractor's Personnel complains about comments made by another Contractor's Personnel on his/her appearance, the other Contractor's Personnel comment that he/she is "asking for it" because of how he/she dresses.
- Unwelcome touching of a Contractor's or Employer's Personnel by another Contractor's Personnel.
- A Contractor's Personnel tells another Contractor's Personnel that he/she will get him/her a salary raise, or promotion if he/she sends him/her naked photographs of himself/herself.



9

Contractor's Key Equipment Strategy

The Bidder shall provide key equipment strategies including the Efficiency and effectiveness and Contingency Plan

9

Form EQU: Contractor's Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III, Evaluation and Qualification Criteria. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

Item of equipment		
Equipment information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Omit the following information for equipment owned by the Bidder.

Owner	Name of owner
	Address of owner

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	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

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Subcontractors

[Note to Bidder: As applicable, select either Option 1 if prequalification process has not been carried out or Option 2: if prequalification process has been carried out, and delete the option that is not applicable]

Option 1- Without Prequalification

(a) Specialized Subcontractors

The following Specialized Subcontractors are proposed for parts of the Works permitted by the Employer in accordance with BDS ITB 17.7 [state "Not Applicable", if not permitted]

<i>No.</i>	<i>Part of the Works to be subcontracted</i>	<i>Specialized Subcontractor's name and address</i>	<i>Nationality</i>	<i>Specific Experience</i>

The following [add: "other" if Specialized Subcontractors are included above. Bidders are free to propose more than one subcontractor for each part of the Works.] Subcontractors are proposed.

<i>No.</i>	<i>Part of the Works to be subcontracted</i>	<i>Subcontractor's name and address</i>	<i>Nationality</i>	<i>Specific Experience</i>

Option 2- After Prequalification

9

(a) Specialized Subcontractors

[Insert the following if Specialized Subcontractors were accepted by the Employer as part of the prequalification process and/or through any change approved by the Employer prior to the deadline for Bid submission; otherwise, state: N/A.]

"The same specialized subcontractor/s accepted by the Employer as part of the prequalification process and/or through any change approved by the Employer prior to the deadline for Bid submission are proposed."

(b) The following [add: "other" if Specialized Subcontractors are included above] Subcontractors are proposed. Bidders are free to propose more than one subcontractor for the same part of the Works.]

<i>No.</i>	<i>Part of the Works to be subcontracted</i>	<i>Subcontractor's name and address</i>	<i>Nationality</i>	<i>Specific Experience</i>

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Form PER -1: Contractor's Representative and Key Personnel Schedule

Bidders should provide the names and details of the suitably qualified Contractor's Representative and Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

Contractor' Representative and Key Personnel

1.	Title of position: Contractor's Representative	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g., attach high level Gantt chart)]
2.	Title of position: [Environmental Specialist]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g., attach high level Gantt chart)]
3.	Title of position: [Health and Safety Specialist]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]



	Time commitment for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g., attach high level Gantt chart)]
4.	Title of position: [Social Specialist]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g., attach high level Gantt chart)]
5.	Title of position: Sexual Exploitation, Abuse and Harassment Expert	
	<i>[Where a Project SEA risks are assessed to be substantial or high, Key Personnel shall include an expert with relevant experience in addressing sexual exploitation, sexual abuse, and sexual harassment cases]</i>	
	Name of candidate	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g., attach high level Gantt chart)]
6.	Title of position: [Cyber security Expert/s]	
	<i>[Include as required]</i>	
	Name of candidate	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]

Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g., attach high level Gantt chart)]</i>

9

Form PER-2: Resume and Declaration Contractor's Representative and Key Personnel

Name of Bidder

Position [#1]: <i>[title of position from Form PER-1]</i>		
Personnel information	Name:	Date of birth:
	Address:	E-mail:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: <i>[language and levels of speaking, reading, and writing skills]</i>	
Details	Address of employer:	
	Telephone:	Contact (manager / personnel officer):
	Fax:	

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	Job title:	Years with present employer:
--	-------------------	-------------------------------------

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Project	Role	Duration of involvement	Relevant experience
<i>[main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

Declaration

I, the undersigned *[insert either "Contractor's Representative" or "Key Personnel" as applicable]*, certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications, and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Bid:

Commitment	Details
Commitment to duration of contract:	<i>[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]</i>
Time commitment:	<i>[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]</i>

9

I understand that any misrepresentation or omission in this Form may:

1. be taken into consideration during Bid evaluation;
2. result in my disqualification from participating in the Bid
3. result in my dismissal from the contract.

Name of Contractor's Representative or Key Personnel: *[insert name]*

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Bidder:

Signature: _____

Date: (day month year): _____

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Form TP (Technical Proposal): Criteria and key features to be evaluated

Sl. No.	Rated criteria	Key Feature that will be evaluated and scored
1	Understanding of specific project requirements and proposed approach	<ul style="list-style-type: none"> • Identify specific project requirements; • Identification of risk to the requirements; • Probability and impact analysis of the risks; • Risk Response Plan; • Risk Register;
2	Construction management strategy	<ul style="list-style-type: none"> • Project Management Plan • Schedule Management Plan • Resource Management Plan • Quality Management Plan • Communication Management Plan • Stakeholder Engagement Plan • Health and safety management Plan
3	Construction methodology	<ul style="list-style-type: none"> • Site Establishment Plan; • Site Hoarding plans; • Site access and traffic management plans; • Drainage plans and laydown areas; • Temporary works and overall staging plans; • Noise, dust and vibration controls;

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Sl. No.	Rated criteria	Key Feature that will be evaluated and scored
		<ul style="list-style-type: none"> • Bulk excavation and removal of earthworks from site; and • Testing and disposal of contaminated materials.
	Method statement	<ul style="list-style-type: none"> • Method Statement for the key construction activities that will follow the critical path. • Method statement of supply chain risks.
5	ES Management Strategy	<ul style="list-style-type: none"> • Environmental Management Plan • ISO 14001 certification • Labor Management Plan
6	Key equipment strategy	<ul style="list-style-type: none"> • Efficiency and effectiveness of the proposed Dredger • Operation and maintenance plan of the Dredger • Contingency Plan
7	Qualification & Experience of Contractor's Personnel	<ul style="list-style-type: none"> • Propose personnel Education & Experience that are specific and best suit to the assignment

9

Bidder's Qualification without prequalification

To establish its qualifications to perform the contract in accordance with Section III, Evaluation and Qualification Criteria the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

9

Form ELI -1.1: Bidder Information Form

Date: _____

RFB No. and title: _____

Page _____ of _____ pages

Bidder's name
In case of Joint Venture (JV), name of each member:
Bidder's actual or intended country of registration: <i>[indicate country of Constitution]</i>
Bidder's actual or intended year of incorporation:
Bidder's legal address [in country of registration]:
Bidder's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.4 <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1 <input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITB 4.6, documents establishing: <ul style="list-style-type: none">• Legal and financial autonomy• Operation under commercial law

9

- Establishing that the Bidder is not under the supervision of the Employer

2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. The successful Bidder shall provide additional information on beneficial ownership, using the Beneficial Ownership Disclosure Form.

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Form ELI -1.2: Bidder's JV Information Form
(to be completed for each member of Bidder's JV)

Date: _____

RFB No. and title: _____

Page _____ of _____ pages

Bidder's JV name: _____

JV member's name: _____

JV member's country of registration: _____

JV member's year of constitution: _____

JV member's legal address in country of constitution: _____

JV member's authorized representative information

Name: _____

Address: _____

Telephone/Fax numbers: _____

E-mail address: _____

1. Attached are copies of original documents of

- ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.
- ☐ In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Employer, in accordance with ITB 4.6.



2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. The successful Bidder shall provide additional information on beneficial ownership for each JV member using the Beneficial Ownership Disclosure Form.

9

Form CON – 2: Historical Contract Non-Performance, Pending Litigation and Litigation History

Bidder's Name: _____

Date: _____

JV Member's Name _____

RFB No. and title: _____

Page _____ of _____ pages

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
<input checked="" type="checkbox"/> Contract non-performance did not occur since 1 st January [insert year] <input type="checkbox"/> Contract(s) not performed since 1 st January [insert year]			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for nonperformance: [indicate main reason(s)]	[insert amount]
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
<input checked="" type="checkbox"/> No pending litigation <input type="checkbox"/> Pending litigation			



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Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), USD Equivalent (exchange rate)
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: ____ Status of dispute: _____	
		Contract Identification: Name of Employer: Address of Employer: Matter in dispute: Party who initiated the dispute: Status of dispute:	
Litigation History in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> No Litigation History <input type="checkbox"/> Litigation History			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), USD Equivalent (exchange rate)

9

<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Employer" or "Contractor"]</i> Reason(s) for Litigation and award decision <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
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Form CON – 3: Environmental and Social Performance Declaration

[The following table shall be filled in for the Bidder, each member of a Joint Venture and each Specialized Subcontractor]

Bidder's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*

RFB No. and title: *[insert RFB number and title]*

Page *[insert page number]* of *[insert total number]* pages

Environmental and Social Performance Declaration

in accordance with Section III, Qualification Criteria, and Requirements

☒ **No suspension or termination of contract:** An employer has not suspended or terminated a contract and/or called the performance security for a contract for reasons related to Environmental or Social (ES) performance since the date specified in Section III, Qualification Criteria, and Requirements, Sub-Factor 2.5.

☒ **Declaration of suspension or termination of contract:** The following contract(s) has/have been suspended or terminated and/or Performance Security called by an employer(s) for reasons related to Environmental or Social (ES) performance since the date specified in Section III, Qualification Criteria, and Requirements, Sub-Factor 2.5. Details are described below:

Year	Suspended or terminated portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)

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[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for suspension or termination: [indicate main reason(s) e.g., gender-based violence; sexual exploitation or sexual abuse breaches]	[insert amount]
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for suspension or termination: [indicate main reason(s)]	[insert amount]
...	...	[list all applicable contracts]	...
Performance Security called by an employer(s) for reasons related to ES performance			
Year	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)	
[insert year]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country]	[insert amount]	

	Reason(s) for calling of performance security: <i>[indicate main reason(s) e.g., for gender-based violence; sexual exploitation or sexual abuse breaches]</i>	

Form CON – 4: Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration

[The following table shall be filled in by the Bidder, each member of a Joint Venture and each subcontractor proposed by the Bidder]

Bidder's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member's or Subcontractor's Name: *[insert full name]*

RFB No. and title: *[insert RFB number and title]*

Page *[insert page number]* of *[insert total number]* pages

SEA and/or SH Declaration

in accordance with Section III, Qualification Criteria, and Requirements

We:

- " (a) have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations
- " (b) are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations
- " (c) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.
An arbitral award on the disqualification case has been made in our favor.
- " (d) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have subsequently demonstrated that we have adequate capacity and commitment to comply with SEA/ SH obligations.
- " (e) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have attached evidence demonstrating that we have adequate capacity and commitment to comply with SEA/ SH obligations.

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[If (c) above is applicable, attach evidence of an arbitral award reversing the findings on the issues underlying the disqualification.]

[If (d) or (e) above are applicable, provide the following information:]

Period of disqualification: From: _____ To: _____

If previously provided on another Bank financed works contract, details of evidence that demonstrated adequate capacity and commitment to comply with SEA/ SH obligations **(as per (d) above)**

Name of Employer: _____

Name of Project: _____

Contract description: _____

Brief summary of evidence provided: _____

Contact Information: (Tel, email, name of contact person): _____

As an alternative to the evidence under (d), other evidence demonstrating adequate capacity and commitment to comply with SEA/ SH obligations **(as per (e) above)** *[attach details as appropriate]*.

9

Form FIN – 3.1: Financial Situation and Performance

Bidder's Name: _____

Date: _____

JV Member's Name _____

RFB No. and title: _____

Page _____ of _____ pages

1. Financial data

Type of Financial information in (currency)	Historic information for previous _____ years, _____				
	(amount in currency, currency, exchange rate*, USD)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					

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Cash Flow from Operating Activities					
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*Refer to ITB 36.1 for the exchange rate

2. Sources of Finance

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

No.	Source of finance	Amount (US\$ equivalent)
1		
2		
3		

2. Financial documents

The Bidder and its parties shall provide copies of financial statements for _____ years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.1. The financial statements shall:

- (a) reflect the financial situation of the Bidder or in case of JV member, and not an affiliated entity (such as parent company or group member).
- (b) be independently audited or certified in accordance with local legislation.
- (c) be complete, including all notes to the financial statements.
- (d) correspond to accounting periods already completed and audited.

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- ② Attached are copies of financial statements¹ for the _____ years required above; and complying with the requirements

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Bid, the reason for this should be justified.

A handwritten signature in blue ink, consisting of a stylized '9' or 'g' shape with a vertical line extending downwards.

Form FIN - 3.2: Average Annual Construction Turnover

Bidder's Name: _____

Date: _____

JV Member's Name _____

RFB No. and title: _____

Page _____ of _____ pages

		Annual turnover data (construction only)	
Year	Amount Currency	Exchange rate	USD equivalent
<i>[indicate year]</i>	<i>[insert amount and indicate currency]</i>		
Average Annual Construction Turnover *			

* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.

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Form FIN – 3.3: Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Section III, Evaluation and Qualification Criteria

Financial Resources		
No.	Source of financing	Amount (US\$ equivalent)
1		
2		
3		

9

Form FIN - 3.4: Current Contract Commitments / Works in Progress

Bidders and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work [Current US\$ Equivalent]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [US\$/month]
1					
2					
3					
4					
5					

9

Form EXP - 4.1: General Construction Experience

Bidder's Name: _____

Date: _____

JV Member's Name _____

RFB No. and title: _____

Page _____ of _____ pages

Starting	Ending Year	Contract Identification	Role of Bidder
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	

9

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Form EXP - 4.2(a): Specific Construction and Contract Management Experience

Bidder's Name: _____

Date: _____

JV Member's Name _____

RFB No. and title: _____

Page _____ of _____ pages

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Subcontractor <input type="checkbox"/>
Total Contract Amount				US\$
If member in a JV or Subcontractor, specify participation in total Contract amount				
Employer's Name:				
Address:				
Telephone/fax number				
E-mail:				

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**Form EXP - 4.2(a) (cont.): Specific Construction and Contract
Management Experience (cont.)**

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:	
1. Amount	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities	
6. Other Characteristics	

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Form EXP - 4.2(b): Construction Experience in Key Activities

Bidder's Name: _____

Date: _____

Bidder's JV Member Name: _____

Subcontractor's Name² (as per ITB 17): _____

RFB No. and title: _____

Page _____ of _____ pages

All Subcontractors for key activities must complete the information in this form as per ITB 17 and Section III, Evaluation and Qualification Criteria, Sub-Factor 4.2.

1. Key Activity No One: _____

Information				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor	Member in JV	Management Contractor	Subcontractor
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Contract Amount			US\$	
Quantity (Volume, number, or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)	Actual Quantity Performed (i) x (ii)	
Year 1				
Year 2				

² If applicable



	Information		
Year 3			
Year 4			
Employer's Name:			
Address:			
Telephone/fax number			
E-mail:			

	Information
Description of the key activities in accordance with Sub-Factor 4.2(b) of	

2. Activity No. Two

3.

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Form EXP - 4.2(c): Specific Experience in Managing ES aspects

[The following table shall be filled in for contracts performed by the Bidder, and each member of a Joint Venture]

Bidder's Name: _____

Date: _____

Bidder's JV Member Name: _____

RFB No. and title: _____

Page _____ of _____ pages

1. Key Requirement no 1 in accordance with 4.2 (c): _____

Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Subcontractor <input type="checkbox"/>
Total Contract Amount			US\$	
Details of relevant experience				

2. Key Requirement no 2 in accordance with 4.2 (c): _____

3. Key Requirement no 3 in accordance with 4.2 (c): _____

4. ...

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Form of Bid Security - Demand Guarantee

Beneficiary: _____

Request for Bids No: _____

Date: _____

BID GUARANTEE No.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Bid (hereinafter called "the Bid") for the execution of _____ under Request for Bids No. _____ ("the RFB").

Furthermore, we understand that, according to the Beneficiary's conditions, Bids must be supported by a Bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

- (a) has withdrawn its Bid prior to the Bid validity expiry date set forth in the Applicant's Letter of Bid, or any extended date provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary prior to the expiry date of the Bid validity or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance Security and, if required, the Environmental and Social (ES) Performance Security, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's Bidding document.

This guarantee will expire: (a) if the Applicant is the successful Bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and,

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if required, the Environmental and Social (ES) Performance Security, issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Bidding process; or (ii) twenty-eight days after the expiry date of the Bid validity.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

[signature(s)]

4

Form of Bid-Securing Declaration

Date: _____

RFB No.: _____

Alternative No.: _____

To:

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for Bidding, or submitting Proposals in any contract with the Employer for the period of time specified in Section II – Bid Data Sheet, if we are in breach of our obligation(s) under the Bid conditions, because we:

- (a) have withdrawn our Bid prior to the expiry date of the Bid validity specified in the Letter of Bid or any extended date provided by us; or
- (b) having been notified of the acceptance of our Bid by the Employer prior to the expiry date of the Bid validity in the Letter of Bid or any extended date provided by us, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security and, if required, the Environmental and Social (ES) Performance Security, in accordance with the ITB 49.

We understand this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiry date of the Bid validity.

Name of the Bidder* _____

Name of the person duly authorized to sign the Bid on behalf of the Bidder** _____



Title of the person signing the Bid _____

Signature of the person named above _____

Date signed _____ day of _____, _____

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

**: Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]



Letter of Bid - Financial Part

INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT

The Bidder must prepare this Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and business address.

Note: All italicized text is to help Bidders in preparing this form.

Date of this Bid submission: *[insert date (as day, month, and year) of Bid submission]*

Request for Bid No.: *[insert identification]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[insert complete name of Employer]*

We, the undersigned, hereby submit the second part of our Bid, the Bid Price, and Bill of Quantities. This accompanies the Letter of Bid- Technical Part.

In submitting our Bid, we make the following additional declarations:

- (a) **Bid Validity:** Our Bid shall be valid until *[insert day, month, and year in accordance with ITB 18.1]*, and it shall remain binding upon us and may be accepted at any time on or before this date;
- (b) **Total Price:** The total price of our Bid, excluding any discounts offered in item (f) below is: *[Insert one of the options below as appropriate]*

9

[Option 1, in case of one lot:] Total price is: [insert the total price of the Bid in words and figures, indicating the various amounts and the respective currencies];

Or

[Option 2, in case of multiple lots:] (a) Total price of each lot [insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]; and (b) Total price of all lots (sum of all lots) [insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies];

(c) **Discounts:** The discounts offered and the methodology for their application are:

(i) The discounts offered are: *[Specify in detail each discount offered]*

(ii) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;

(d) **Commissions, gratuities, and fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the Bidding process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*.

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate "none.")

9

Name of the Bidder: **[insert complete name of the Bidder]*

Name of the person duly authorized to sign the Bid on behalf of the Bidder: ** *[insert complete name of person duly authorized to sign the Bid]*

Title of the person signing the Bid: *[insert complete title of the person signing the Bid]*

Signature of the person named above: *[insert signature of person whose name and capacity are shown above]*

Date signed *[insert date of signing]* **day of** *[insert month]*, *[insert year]*

*: In the case of the Bid submitted by a Joint Venture specify the name of the Joint Venture as Bidder.

**: Person signing the Bid shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Bid Schedules

9

Appendix to Financial Part

9

Schedule of Cost Indexation

[Note to Employer: Schedule for Cost Indexation shall normally be applied for contracts where the specified Time for Completion exceeds 18 months. Contracts for shorter specified Time for Completion, where local or foreign inflation is expected to be high, shall also include Schedule for Cost Indexation as appropriate.]

*It is recommended that the Employer is advised by a professional with experience in construction costs and the inflationary effect on construction costs when preparing the contents of the Schedule of Cost Indexation. In the case of very large and/or complex works contracts, it may be necessary to specify several families of price adjustment formulae corresponding to the different works involved. **When finalizing the contract document, ensure that the finalized Schedule of Cost Indexation is attached to the Contract Agreement.***

[The formulae for price adjustment shall be of the following general type:]

$$P_n = a + b \frac{L_n}{L_o} + c \frac{E_n}{E_o} + d \frac{M_n}{M_o} + \dots$$

where:

“ P_n ” is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period “ n ”, this period being a month unless otherwise stated in the Contract Data;

“ a ” is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

“ b ”, “ c ”, “ d ”, ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment, and materials;

"Ln", "En", "Mn", ... are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"Lo", "Eo", "Mo", ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the Table of Adjustment Data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table).

If the currency in which the Contract price is expressed is different from the currency of the country of origin of the indices, a correction factor will be applied to avoid incorrect adjustments of the Contract price. The correction factor shall be: Z_0 / Z_1 , where,

Z_0 = the number of units of currency of the origin of the indices which equal to one unit of the currency of the Contract Price on the Base date, and

Z_1 = the number of units of currency of the origin of the indices which equal to one unit of the currency of the Contract Price on the Date of Adjustment.



Table of Adjustment Data

[In Tables A, B, and C, below, the Bidder shall (a) indicate its amount of local currency payment, (b) indicate its proposed source and base values of indices for the different foreign currency elements of cost, (c) derive its proposed weightings for local and foreign currency payment, and (d) list the exchange rates used in the currency conversion. In the case of very large and/or complex works contracts, it may be necessary to specify several families of price adjustment formulae corresponding to the different works involved.]

Table A. Local Currency

Index code*	Index description*	Source of index*	Base value and date*	Bidder's related currency amount	Bidder's proposed weighting
	Nonadjustable	—	—	—	A: 0.22 B: 0.05 to 0.15 C: 0.20 to 0.30 D: 0.15 to 0.25 E: 0.05 to 0.15 F: 0.02 to 0.012 G: 0.01 to 0.11
Total					1.00

B. Labor

C. Stone Chips

D. M S Box Tube

E. Bricks

F. MS Rod

9

G. Cement

[* To be entered by the Employer. Whereas "A" should a fixed percentage, B, C, D, E, F and G should specify a range of values and the Bidder will be required to specify a value within the range such that the total weighting = 1.00]

9

Table B. Foreign Currency (FC)

State type: [If the Bidder is allowed to receive payment in foreign currencies this table shall be used. If Bidder wishes to quote in more than one foreign currency (up to three currencies permitted) then this table should be repeated for each foreign currency.]

Index code	Index description	Source of index	Base value and date	Bidder's related source currency in type/amount	Equivalent in FC1	Bidder's proposed weighting
	Nonadjustable	—	—	—		A: 0.22 B: 0.05 to 0.15 C: 0.20 to 0.30 D: 0.15 to 0.25 E: 0.05 to 0.15 F: 0.02 to 0.012 G: 0.01 to 0.11
Total						1.00

B. Labor

C. Stone Chips

D. M S Box Tube

E. Bricks

F. MS Rod

G. Cement

[* To be entered by the Employer. Whereas "A" should a fixed percentage, B, C, D, E, F, and G should specify a range of values and the Bidder will be required to specify a value within the range such that the total weighting = 1.00]



9

Table: Alternative B

To be used only with Alternative B Prices directly quoted in the currencies of payment.

(ITB 15.1)

Summary of currencies of the Bid for _____ *[insert name of Section of the Works]*

<i>Name of currency</i>	<i>Amounts payable</i>
Local currency: _____	
Foreign currency #1: _____	
Foreign currency #2: _____	
Foreign currency #3: _____	
Provisional sums expressed in local currency _____	25,000,000.00


9

Bill of Quantities

9

Sample Bill of Quantities

A. Preamble

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Particular Conditions, Technical Specifications, and Drawings.
 2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
 3. The rates and prices bid in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
 4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
 5. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
 6. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
- 

7. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clauses 13.4 and 13.5 of the General Conditions except with respect to DAAB Fees and Expenses for which no instruction will be required from the Engineer.
8. The method of measurement of completed work for payment shall be in accordance with BOQ.
9. Bills will not be processed without satisfying completion of item as described in Bill no.-3 : Environmental Compliance.
10. All test (specified in item description) will be done from BUET/CUET/RUET/KUET/Equivalent, unless otherwise directed by the Engineer-in-Charge. No separate payment will be given to contractor for test. It deems that the bidder will incorporate the cost of test within the quote of related item.

B. Work Items

1. The Bill of Quantities usually contains the following part Bills, which have been grouped according to the nature or timing of the work:

Bill No. 1— Construction of Boundary Wall ;

Bill No. 2— Construction of HBB Road;

Bill No. 3— Environmental Compliance ;

Bill No. 4— Provisional Sums;

2. If BDS-ITB 15.1 (a) applies, Bidders shall price the Bill of Quantities in local currency only and shall indicate in the Appendix to Bid the percentage expected for payment in foreign currency or currencies. If BDS-ITB 15.1 (b) applies Bidders shall price the Bill of Quantities in the applicable currency or currencies.



Bill No. 1: Construction of Boundary Wall

[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	works or as instructed by the Engineer-in-charge.														
2	Bench Mark Pillar: Manufacturing, supplying & fixing in position RCC (1:2:4) Bench Mark Pillars of size 150mm x 150mm x 750mm, with 400mm x 400mm x 100mm base having 3 nos. 10mm dia MS bar each way at base, 4 nos. 10mm dia vertical bar and 8 nos. 6mm dia tie, including cost of form works, concreting, reinforcement, plastering at top, inscribing on exposed surface, finishing surface, curing, earth cutting, embedding 450mm below GL., backfilling, ramming etc.	Each	5.000												

[illegible]

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth																
4	Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each	Cum	2,609.7 81														

[illegible]

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	mixture machine and fed by standard measuring boxes, including all related works like screening through proper sieves, cleaning and washing, centering and placing reinforcement cages in position, casting, compacting by vibrators and tapered rods as where necessary, curing for 28 days etc. cost of water, electricity and other charges, providing fitting and fixing pile shoe in position, tools, plants & equipments, mobilization, demobilization, labour, test of materials and concrete etc. all complete as per design, drawing and accepted by the E-I-C. charge. (Rate is excluding the cost of											



[illegible]

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	cement finishing with cement (1:4) including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect and accepted by the Engineer-in-charge (Cement: CEM-II/B-M) and polythene as separator between pile layers during casting concrete.											
7	Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of	Sqm	40538.7 00									



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
9	<p>Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M)</p> <p>Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2</p>	Cum	196.155									

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
10	Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum f'_{cr} = 33.5 MPa, satisfying a specified compressive strength f'_c = 25 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type- I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position;	Cum	3,164.929												

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)																
11	FORM WORK (Steel): Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of	Sqm	24,974. 576														

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for: Pedestal, column, column capital, lift wall and wall														
12	Mobilization and demobilization of drop hammer type pre-cast pile driving rig.	Per set per site	5,000												
13	Driving 300 mm x 300 mm to 350 mm x 350 mm size pre-cast pile with drop hammer type rig, and maintaining driving log in prescribed format Before commencing driving operation, contractor shall submit method statement for carrying out the driving operation including sequence of driving to the Engineer-in-charge for	Meter	65,385.000												



Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
	approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under contract.																		
14	Labour for breaking head of hardened cast in situ bored pile/pre-cast pile up to a required length by any means but without damaging the rest and removing the dismantled materials such as concrete to a safe distance including scraps and cleaning concrete from steel/M.S. rods, straightening and bending of pile bars, preparation and making platform where necessary, carrying, all sorts of handling, stacking the same properly after clearing,	Cum	196.155																

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency# 1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	leveling and dressing the situ and clearing the bed etc. complete in all respect and accepted by the Engineer-in-charge. (Measurement will be given for the actual pile head volume to be broken)																
15	Brick works with 10 holes machine made bricks of approved size (241 mm x 114 mm x 70 mm) having uniform colour carefully laid in cement sand (F.M. 1.2) mortar (1:4) in superstructure with uniform width and depth of joints, true to vertical and horizontal lines including raking out joints, filling the interstices with mortar, cleaning and	Cum	2,451.5 44														

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	soaking bricks at least for 24 hours before use and washing and screening of sand, necessary scaffolding, curing at least for 7 days and pointing with cement sand (F.M. 1:2) mortar (1:2) including cost of water, electricity and other charges etc. complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)											



Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency# 1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
16	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires,conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall	Kg	8,37,06 5,148															

Item No	Description of Item	Unit	Quantity	Rate												
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3			
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	
	be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per ENBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total															



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	elongation at maximum force is 17% and 8% respectively														

[illegible]

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively.as per ASTM A775/ BDS ISO 14654: 2013 specification for a coating thickness (after curing) of 175 to 300 microns for 10mm to 16mm and 175 to 400 microns for 20mm to 50mm re-bars.Supplying, fabrication and fixing to detail as per drawing: Ribbed or deformed fusion bonded epoxy coated bar (including laboratory test) for reinforcement concrete, produced and marked with accordance ASTM A615 and																	

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	ASTM A775 (for epoxy coating) including straightening and cleaning rust, if any, being and binding in position with using of PVC coated binding wire instead of GI wires, including extra cost on account of touch-up material (all cut edges/weld areas and bend locations where coating has been damaged touch up shall be done with same paint, the upper thickness limit shall not apply to repaired areas of damaged coating) and repair work and flexibility & holiday testing, including all taxes, etc. complete to ensure proper resistance of FBE against corrosive environment																	

Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
	counting necessary laboratory test etc, (excluding splice or laps) complete in all respect and accepted by the Engineer- in -charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard).																		

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
18	Manufacturing, supplying, fitting and fixing M.S. box tube (made with 2 nos angle) post (bottom end bifurcated) made by thorough welding of two Nos. 75 x 75 x 5 mm M.S. angle and vertically placing the post into C.C. or R.C.C. foundation including cutting angle to required shape and size including covering the top of the post with 6 mm thick M.S. plate etc. all complete as per drawing and accepted by the Engineer-in-charge. (Rate is excluding the cost of C.C./R.C.C. foundation and paint)	Meter	43,058.750															

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
19	Manufacturing, supplying, fitting and fixing M.S. grill fencing as per design with outer frames having 38 mm x 38 mm x 6 mm M.S. angle and inner members having 6 mm dia M.S. rod placed @ 110 mm c/c Vertical direction and @ 38 mm c/c in horizontal direction, welding each cross end of rod with corners of outer frame including cutting rods and size angles to required shapes and size and setting the entire fence with the previously installed box tube (box tube made with 2 nos. angle) post including thorough and full welding the frame with the angle box posts, painting 2 coats of	Sqm	42,052. 581									



Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	synthetic enamel paint over a coat of anti-corrosive priming etc. all complete as per drawing and accepted by the Engineer-in-charge. Rate is excluding the cost of angle box tube post. excluding the cost of paint																
20	Supply and application of Epoxy based corrosion protection paint to the surface of the structural steel members conforming to SA 2.5; the corrosion class shall be C3 in accordance with BS EN ISO 12944-2 and durability class in accordance with BS EN ISO 12944-5; the Steel members to be shot blasted inside the enclosed shot blasting chamber, final	Kg	10,04,1 19,364														



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	coat paint must be applied on site after installation, including the cost of primer, testing and necessary accessories, all complete as per drawing, specification and direction of Engineer-in-charge.											
21	Mobilization and demobilization of boring equipment and man-power: at site (drilling rig comprising drilling pipe, drop hammer, tripod, pulley, chain, wrangle, sample collection devices etc tools and plants; tripod for temporary camp, necessary work-force etc) (Once for one site)	Per site	1.000									

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
22	Sub- Soil investigation by 100 mm dia percussion wash boring including collecting disturbed and undisturbed soil samples in numbers as required for classification of soil, conducting SPT using auto trip hammer, stratification of layers, analysing physical parameters of soils like Atterberg limits, specific gravity, grain size distribution (by wet seive, hydrometer if required), ground water table location, direct shear test, unconfined compression test, unit weight (dry/weight), natural moisture content ; C - ϕ values and other strength parameters to ascertain	Per bore hole	11.000									

[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	600mm dia Bore hole depth from 0 to 20 m														
23	Additional charge for bore hole depth above 20.0 m and upto 30.0 m	Mete r	110.000												

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
24	Providing and maintaining semi pucca site office as per drawing with necessary furniture, sanitary & electrical/ power facilities with full time Air-Conditioned, water supply arrangement, office and survey equipment for the use of the Engineer and his staff, all complete including removal of structures and restoration of the site on completion of the work. The contractor shall submit the detailed plan and drawing of the site office for approval of the engineer. The site office should be provided with sufficient natural light, heat protecting ceiling, dam	Job	1.000															

[illegible]

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
1	Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for	Cum	25.474															

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth																
2	Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	Cum	11.070														

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
3	Supplying and laying of single layer polythene sheet weighing one kilogram per 6.5 square metewr in floorf or any where below cement concrete complete in all respect and accepted by Engineer in charge.	Sqm	48.773															
4	Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-	Cum	2.899															



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	in-charge.(Cement: CEM-II/B-M) Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2														
5	Pre-cast pile with reinforced cement concrete having minimum cement content relates to mix ratio 1:1.25:2.5, minimum $f'_{cr} = 35$ Mpa, and satisfying specified compressive strength $f'_{c} = 30$ Mpa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM & cement conforming to BDS EN-197-1-CEM-I (52.5N) / ASTM-C 150 Type - I, best quality coarse sand (F.M.2.2), 20 mm down	Cum	63.180												

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	well graded crushed stone chips conforming to ASTM C-33, mixing in standard mixture machine and fed by standard measuring boxes, including all related works like screening through proper sieves, cleaning and washing, centering and shuttering with M.S sheet, M.S angle, F.I bar, nuts and bolts, champering edges if so, preparation of casting beds, laying polythene there in, placing reinforcement cages in position, casting, compacting by vibrators and tapered rods as where necessary, curing for 28 days etc., cost of water, electricity, all materials and other charges, providing																	

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	fitting and fixing pile shoe in position, tools, plants & equipments, mobilization, demobilization, labour, conducting laboratory test of materials and concrete etc. all complete as per design, drawing and accepted by the Engineer-in-charge.														

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
6	Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 18 BWG, angles of minimum size 1.5 x 1.5 x 3/16" for sides, angles of minimum size 1 x 1 x 3/16" for frames, 1.5" x 3/16" flat bars etc.) and removal of form for precast pile (The formwork is considered for two sides and front shuttering of the pile)	Sqm	435.240									



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
7	Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum f_{cr} = 33.5 MPa, satisfying a specified compressive strength f_c = 25 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type-I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown	Cum	22.575									

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is														

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering) Individual & combined footing, pile cap, raft/mat, floor slab and foundation beam up to plinth level														
8	FORM WORK (Steel): Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of	Sqm	123.412												

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:											
9	Cast-in-place fair-faced concrete works with f _{cr} =33.5 Mpa and f _c =25 Mpa at 28 days on standard cylinders by using 75% of OPC and 25% of white cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type - I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2, 20 mm down and well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification) at mix ratio of 1:1.5:3, adding	Cum	38.583									

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	coloring pigment admixture (satisfying ASTM C979) as per architectural design, conforming to the standard practice of code ACI/BNBC/ASTM including conducting necessary tests, screening sand and chips through proper sieves, washing, making and placing shutter in position maintaining true to plumb, making shutter water tight properly, placing reinforcement in position, including pouring of concrete in form, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after											

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. For column, wall, beam, slab, drop wall, cornice etc. up to ground floor																
10a	Formwork for making 'fair-faced' surface of the concrete as per design, drawing and direction of Engineer-in-charge. (The formwork must be rigid enough both in and out of	Sqm	386.250														



Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 10 BWG, angles of minimum size 50 mm x 50 mm x 6 mm, flat bars, formwork releasing agent etc.)																
10b	Added rate for additional height in centering, shuttering where ever required with adequate bracing, propping etc. over a height of 4.0 m, for every additional height of 1 meter or part thereof.	Sqm	20.700														
11	Driving 300 mm x 300 mm to 350 mm x 350 mm size pre-cast pile with drop hammer type rig, and	Meter	702.000														

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	maintaining driving log in prescribed format Before commencing driving operation, contractor shall submit method statement for carrying out the driving operation including sequence of driving to the Engineer-in-charge for approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under contract.											
12	Labour for breaking head of hardened cast in situ bored pile/pre-cast pile up to a required length by any means but without damaging the rest and removing the dismantled materials such as concrete to	Cum	2.106									

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	a safe distance including scraps and cleaning concrete from steel/M.S. rods, straightening and bending of pile bars, preparation and making platform where necessary, carrying, all sorts of handling, stacking the same properly after clearing, leveling and dressing the situ and clearing the bed etc. complete in all respect and accepted by the Engineer-in-charge. (Measurement will be given for the actual pile head volume to be broken)											

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
13	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires,conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall	Kg	11,798. 106														

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total														



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	elongation at maximum force is 17% and 8% respectively														

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
14	Epoxy Coated Steel Reinforcing Bars : Grade 420 MPa (B420 DWR: Complying BDS ISO 6935-2:2016/ASTM A615 for reinforcement bar with ASTM A775/BDS ISO 14654:2013 Specification for fusion Bonded Epoxy Coating)) ribbed or deformed bar with fusion bonded epoxy coated. Ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 420 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively.as per ASTM	Kg	2,555.7 19															

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	A775/ BDS ISO 14654: 2013 specification for a coating thickness (after curing) of 175 to 300 microns for 10mm to 16mm and 175 to 400 microns for 20mm to 50mm re-bars.Supplying, fabrication and fixing to detail as per drawing: Ribbed or deformed fusion bonded epoxy coated bar (including laboratory test) for reinforcement concrete, produced and marked with accordance ASTM A615 and ASTM A775 (for epoxy coating) including straightening and cleaning rust, if any, being and binding in position with using of PVC coated binding wire instead of GI wires, including extra cost on account of touch-up material (all cut edges/weld areas and bend locations where coating has been damaged touch up shall be done with same paint, the upper thickness limit shall not																



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	apply to repaired areas of damaged coating) and repair work and flexibility & holiday testing, including all taxes, etc. complete to ensure proper resistance of FBE against corrosive environment counting necessary laboratory test etc, (excluding splice or laps) complete in all respect and accepted by the Engineer- in -charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard).														
15	Digital name of project by LED Sing including wiring, cable, pipeing etc. all completed as per approval and accepted by Engineer in charge.	Each	3.000												

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency# 1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
16	Supplying, fitting, fixing and installation of ordinary type M.S. gate (double leaf) of any design and shape with 38 mm x 38 mm x 6 mm M.S. angle box (made by welding 2 nos. 38 mm x 38 mm x 6 mm angle) outer frame having 25 mm x 50 mm x 25 mm x 5 mm M.S. channel (made by welding 2 nos. of channel) placed part diagonally after cutting and shaping as per requirement, part horizontally @ 75 mm c/c, the two part of each leaf being separated by a vertical member of 38 mm x 38 mm x 6 mm M.S. box and welded the each ends of diagonal and horizontal members	Sqm	67.666															

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	properly with the box frame as per architectural drawing providing full locking arrangement on 3 mm thick M.S. plates providing 38 mm x 38 mm x 6 mm M.S. angle clamps, fitting fixing with the outer frame of the gate, the clamp being embedded in R.C.C. pillars with cement concrete (1:2:4) including cutting holes and mending good the damages, finishing, curing and where necessary painting two coats with approved quality of synthetic enamel paint over a coat of priming cost of polish/ paint etc. of any type). item is for acoustic work in auditorium, Hall Room,														



Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
	Seminar Room etc.) (Rate is Including cost of polish/ paint etc. of any type).																		
17	Supply and application of Epoxy based corrosion protection paint to the surface of the structural steel members conforming to SA 2.5; the corrosion class shall be C3 in accordance with BS EN ISO 12944-2 and durability class in accordance with BS EN ISO 12944-5; the	Kg	1,265.6 91																

[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth														



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
2	Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	Cum	7.413									
3	Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to	Cum	1.068									

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)														
	Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2														
4	Supplying and laying of single layer polythene sheet weighing one kilogram per 6.5 square metewr in floorf or any where below cement concrete complete in all respect and accepted by Engineer in charge.	Sqm	314.217												



Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
5	Sand filling in foundation trenches and plinth with sand having minimum F.M. 0.5 in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.	Cum	21.703															
6	Brick works with first class bricks with cement sand (F.M. 1:2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints,	Cum	3.416															



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)														
7	125 mm brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, raking out joints, cleaning and	Sqm	28.800												

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)																
8	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:6) having with fresh cement to both inner and outer surface of wall, finishing the edges and corners including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges	Sqm	57.600														

9

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)																
9	Premium synthetic enamel paint of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, having high water resistance, high bondability, flexibility property; using specified brand thinner applying to metallic or wooden surface by brass/roller/spray in two coats over single coat anti-corrosive coating including cleaning, drying, making free from dirt, grease, wax, removing all chalked and	Sqm	57.600														

[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering- shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)														

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency# 1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
11	FORM WORK (Steel): Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:	Sqm	76.517															



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
12	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall	Kg	1,424.7 55												

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total											

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	elongation at maximum force is 17% and 8% respectively																	
13	Supplying fitting and fixing railing & rail post made of various dia MS pipes of standard thickness for normal, ornamental Bridge or any other structure including required ms plate, nutbolt, cutting, welding, painting with anticorrosive paint, laying in position etc. all complete as	M	1,161.00															



[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	section, including fabrication, welding, cost of electricity workshop charges, carriage, cutting grooves, mending good the damages, tools and plants, finished with anti-corrosive painting (Red-Oxide) etc. complete for all floors accepted by the Engineer-in-charge. (Total weight per sqm should be approx. 19 kg and add or deduct @ Tk. 100.00 for each kg/sqm excess or less respectively)														



[illegible]

Item No	Description of Item	Unit	Quantity	Rate												
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3			
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	
	minimum 1.2 mm thick shutter lock (size 49.20 mm 25.80 mm,0.543 kg/m) and minimum 1.2 mm thick inter lock (size 34.40 mm, 32.13 mm,0.562 kg/m) sections all aluminium members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 micrones in thickness or powder coated to any colour with a coat not less than 25 micrones in thickness and density of 4 mg per square cm etc. including all accessories like sliding door key lock, sliding door wheel, sliding door mohiar, sliding door neoprene, bolts and nuts including sealants, keeping															



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	provision for fitting 5 mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the E-I-C. Anodized to any colour, [Size : 900mmx1400mm]														
17	Supplying, fitting and fixing of 12 mm thick clear tempered glass wall upto 3.0 m height with vertical fin glass support of same thickness and support shall be at least 1.2 m c/c fixed properly with glass by silicon glue with supply and	Sqm	71.460												



Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	fittings of all required accessories such as SS u channel, nut bolts, aluminium angle, steel rowel bolt, screws , rivets norton tape masking tape, structural sealant, gum bracket rod etc. all complete in all respect as per drawing and direction of the Engineer-in-charge.																



[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	82.6 mm, 43.99 mm, 0.60 kg/m), 1.8 mm thick shutter top (size 51 mm, 43.99 mm, 1.88 kg/m) and 2.3 mm to 4.01 mm thick handle (size 101.60 mm, 38.10 mm, 25.40 mm short, 1.35 kg/m) section of all aluminum members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 micrones in thickness or powder coated to any colour with a coat not less than 25 micrones in thickness and density of 4 mg per square cm etc. including all accessories like swing door closure, swing door lock, swing door mohiar, labour charge, fabrication, fitting														

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	fixing in position, carriage and electricity charge keeping provision for fitting 5 mm thick glass including neoprene sealant etc. complete in all respect as per drawing and accepted by the Engineer-in-charge. Anodized to any colour											

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
19	Supplying, fitting and fixing of the best quality any sizes uPVC plastic door shutter with frame having specific gravity of 1.35 - 1.45, panel wall thickness 1.7 mm-2.2 mm, shutter/panel thickness 37.5 mm & weighing 17.25 kg/m2 and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards and ASTM, BS/ISO/IS standards of different sizes uPVC plastic door shutter with uPVC plastic frame (frame size:150mm x 62.50mm) fitting - fixing in brick wall/ R.C.C wall with at least 3 Nos. SS hinges by min 64 Nos. Ø	Sqm	7.668															

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	3.17 mm and 3.97 mm 12.7 mm long rivets, 12 nos. 25.4 mm SS screws, Ø 9.38 mm, 150 mm long SS tower bolts 2 nos., 146 mm SS handle by rivet 6 Nos., G.I inner joint, 234.95 mm x 127 mm clamp, 76.2 mm x 57.15 mm, 6 Nos. GI clamp, 2 nos. outer GI joint clamp making necessary grooves and mending good the damages, finishing, curing, carrying the same to the site and local carriage etc. complete in all respect and accepted by the Engineer-in-charge											

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
20	Supplying, fitting and fixing country made homogeneous matt finished/ rustic floor tiles complying BDS ISO 13006: 2015, water absorption ≤ 0.5%, modulus of rupture (MOR) ≥ 27 N/mm2, irrespective of color &/or design, with 20 mm thick cement sand (F.M. 1.2) mortar (1:4) base and raking out the joints with white cement including cutting and laying the tiles in proper way and finishing with care etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)	Sqm	22.320															
	Matt or rustic floor tiles of																	

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	size 600 mm x 600 mm and below											
21	Supplying, fitting and fixing country made rustic or matt finished wall tiles complying BDS ISO 13006: 2015, irrespective of color &/or design, with 20 mm thick cement sand (F.M. 1.2) mortar (1:3) base and raking out the joints with white cement including cutting, laying and hire charge of machine and finishing with care etc. including water, electricity and other charges complete in all respect and accepted by the Engineer-in-	Sqm	39.150									

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	charge. (Cement: CEM-II/B-M) Matt or rustic wall tiles less than or equal to 300 mm x 600 mm size														
22	Uni-Block Paver: Supplying and laying factory made cement concrete interlocking high strength as specified paver universal uni-block made by block making machine with mechanically compressed with high load-bearing capacity, enriched weather resistance, the low water absorption capacity of standard thick and approved design/shape, size in required long lasting colour, texture and pattern conforming BS-6717 or as specified approved	Sqm	150.000												

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	by the E-I-C, laid over the prepared sand bedding layer maintaining grade, camber and super-elevation, including cleaning etc. all complete in all respect as per drawing, specification, direction and accepted by the Engineer-in-charge. Cost included all materials, their carriages, hire charges of machineries, equipment for construction and quality control as per specification, wages of labour and operational staff etc. 60mm Thick (Size: 222mmx110mm), Colour: Red/Black/any other Suitable Colour, Minimum Compressive Strength: 25MPa																	

Item No	Description of Item	Unit	Quantity	Rate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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23	Supplying, fitting and fixing of Bangladesh pattern, long pan with foot-rest . The sanitary ware shall conform BDS1162:2014. The glaze shall be thoroughly fused to body. The minimum thickness of body at any section shall be 5 mm. When assembled together and when examined from a distance of 60 cm, the outer surface shall not show to the unaided eye, blemishes or defects in excess of those listed in BDS standard. The mean value of water absorption shall not be greater than 0.5% of the ware when dry. When tested with chemical solutions (Acetic	Each	3.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	acid, Citric acid, Detergent, Hydrochloric acid, Sodium hydroxide, Sodium stearate and Sulfuric acid of various strength) as per BDS1162:2014 procedure, none of the test pieces should suffer any loss of reflectivity on the glaze. There shall be no crazing and no stain on the ware. The materials used for making glaze shall not contain lead compound. In case of certain coloring oxides used for making colored glaze, the lead content, if any, shall not exceed 5 percent of the weight of the glaze materials. Appliances shall be clearly and indelibly														

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	marked at a prominent place, visible even after the appliances are installed with the following: a) manufacturer's name and/or registered trademark, b) the number of Bangladesh standard and c) country of origin. Each product shall also be marked with the BSTI Certification Mark. The fixture should be placed in position preparing the base of pan with cement mortar (1:4) and with wire mesh or rods, if necessary in all floors including making holes wherever required and mending good the damages and fitting, fixing, finishing etc. complete with all																	



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	necessary fittings and connections approved and accepted by the Engineer- in-charge. Approx. 530 X 400 X 230 mm size, minimum 11.0 kg of weight														
24	Supplying, fitting and fixing of plastic low-down of any color , on walls or directly over water closet with necessary accessories, making	Each	3.000												

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	holes wherever required and mending good the damages and fitting, fixing & finishing etc. complete with all necessary fittings and connections approved and accepted by the Engineer- in-charge.														
25	Supplying, fitting and fixing of best quality toilet paper holder of standard size including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer- in- charge. PVC toilet paper holder	Each	3.000												

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
26	Supply and installation of food-graded plastic internal mini water tank for the use in kitchen, bathroom and toilet for emergency storage and supply of water manufactured from liner low density polyethylene (LLDPE) roto-grade (ultra violet) stabilized which complies FDA (Federal Department of Agriculture, USA) regulations 21 CFR 1277.152, having food grade quality where no recycled material is used carrying, lifting, fitting, fixing in position including supply of necessary hardware, consumables, fittings etc. all complete approved and	Each	3.000												

9

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	including supplying, fitting and fixing of two R.C.C. Tees and providing 450 mm dia water sealed heavy type C.I. manhole cover with locking/unlocking arrangement and 100 mm thick R.C.C (1:2:4) top slab, including centering, shuttering, fabricating, casting and curing etc. complete up to required depth including necessary earth work in excavation and shoring, bailing out water and side filling including the cost of all materials, operations and incidental charges. etc. all complete as per type plan approved and accepted by the Engineer-in-charge (Rate														

Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
	is including cost of reinforcement and its fabrication, binding and placing) For 30 users																		
28	CENTRIFUGAL PUMP MOTOR SET SINGLE STAGE (capacity/smaller household requirement) Providing of single stage 2800-2900 RPM monoblock type Centrifugal water pump motor set (reservoir to overhead tank) manufactured according to relevant BDS standard and	Set	3.000																

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	ISO 9906:2012, GRADE 3B/ DIN/ NEMA/ IEC/ BS/ VDE/ JIS/CEI 2-3/ CSA/ GS/ SONCAP/ ROHS & ISO 9001 (Quality) ISO 14001 (Environment and Safety) standard of following capacity suitable for operation at single phase, 230 V \pm 5 %, 50 Hz AC having insulation: B & protection: IPX4 (minimum) & CE certified . Country of Manufacture: Bangladesh/ China/ Vietnam/ Malaysia as per sample accepted / approved by the Engineer-in- charge. HP-1.5 Discharge (liter/min)- 10-120 Head (meter)- 39-20 Suction dia (mm)-32 Delivery dia (mm)- 25											

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
29	Water Supply Fitting, Fixing 100 mm inside diameter best quality uPVC soil, waste and ventilation pipe, CP bib Cock, CP pillar cock, Groove cutting in brick work, R.C.C floor, including cost for concealing of G.I. pipe work (Groove Cutting 40*40 mm), CPVC pressure pipe for water supply, etc. all complete as per instruction of E.I.C.	LS	1.000												
30	Electrification works including conceal pipe wiring, Cable, Energy Meter, Circuit breaker & 56" size ceiling fan etc. all complete as per instruction of E.I.C.	LS	1.000												



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
31	Supply & fixing of LED flood light fitting of the following features and model with all necessary elements such as driver, chips etc. complete. Model & sample shall be approved by the Engineer (i) ENERGY + model No - EPFDL - 17001 / 150 W or equivalent product of ENERGY +, GLORIA etc. (ii) Rated life : 50,000 hr (minimum) (iii) Luminux flux : 100 + 1m/w (iv) LED chips : EDISON / EPISTOR / OSRAM / PHILIPS / CREE / BRIDGELUX. (v) Driver : MEANWELL / OSRAM / PHILIPS / IEC	Each	18,000												

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	standard. (vi) body: Aluminium body.														
32	Chair Size 550mm (L)x 515mm(W)x 850m (H) Chair seat Raw materials :- Polypropylene Impact copolymer Chair top Specific on 465mm (L)x480mm (W) x425m (H) Plastic weight 174 Chair colour Deep blue, Brick red, black, Or Steel tu, Specification Round tube - 25mm x 1.2mm, Steel frame Dimension 550mm(L) x 515mm(W) x 47 Manufacturing & Supplying	Each	6.000												



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	teacher chair made of Polypropylene Impact Copolymer Plastic and Legs are structure made of MS Round tube -25mm x 1.2mm (22x1.2 mm), welded (0.5" weld length@2 C/C continuously through the MS tube), cold bended & formed strictly as per drawing. The frame of chair must be cleaned in 07 (seven) stage tank with phosphate chemical method pure along with polyester powder coating for pre-head at 230 ^o c for 22 minutes in heat oven for curing the paint to make the permanent of color of steel frame. Finishing including assembling of all											



Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	components and best quality PVC stoppers necessary number and type of nuts and bolts and packing shall be used as shown in the same must be supplied and get approval from Upazila Engineer/Executive Engineer before manufacturing of the lot. Bottom of legs will be provided with PVC cap/shoe as per drawing BUET test: Physical strength, Breaking strength of Polypropylene impact co Polymer Plastic frame: i) Hardness, Rock well, ii) Tensile strength All complete as per direction of the E-I-C.																

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
33	Supplying best quality Tea Table of standard size made of best quality well matured, fully seasoned jack wood (timber should be sapless) in/c superior quality varnishing/French polishing and finishing, etc. all complete as per design (if provided) and direction of the E-I-C. (This item includes all fittings, fixings and delivering the furniture at the instructed place).	Each	3.000									
	Construction of Watch Tower											

6

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
1	Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for	Cum	36.765															



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Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	well graded crushed stone chips conforming to ASTM C-33, mixing in standard mixture machine and fed by standard measuring boxes, including all related works like screening through proper sieves, cleaning and washing, centering and placing reinforcement cages in position, casting, compacting by vibrators and tapered rods as where necessary, curing for 28 days etc. cost of water, electricity and other charges, providing fitting and fixing pile shoe in position, tools, plants & equipments, mobilization, demobilization, labour, test of materials and concrete etc. all complete as																



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Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	formwork is considered for two sides and front shuttering of the pile)																
4	Driving 300 mm x 300 mm to 350 mm x 350 mm size pre-cast pile with drop hammer type rig, and maintaining driving log in prescribed format Before commencing driving operation, contractor shall submit method statement for carrying out the driving operation including sequence of driving to the Engineer-in-charge for approval. However, Engineer's approval shall not relieve the contractor of	Meter	1,125.00														

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Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	situ and clearing the bed etc. complete in all respect and accepted by the Engineer-in-charge. (Measurement will be given for the actual pile head volume to be broken)														
6	Lean/blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-	Cum	4.596												



Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	M) Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2														
7	Supplying and laying of single layer polythene sheet weighing one kilogram per 6.5 square metewr in floorf or any where below cement concrete complete in all respect and accepted by Engineer in charge.	Sqm	507.61												

Item No	Description of Item	Unit	Quantity	Rate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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8	Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum f _{cr} = 33.5 MPa, satisfying a specified compressive strength f _c = 25 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type- I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown	Cum	388.456																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	</



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Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)														
9	FORM WORK (Steel): Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of	Sqm	3,172.3 44												

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Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH) = 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength														



[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	fusion bonded epoxy coated. Ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (ReH)= 420 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively.as per ASTM A775/ BDS ISO 14654: 2013 specification for a coating thickness (after curing) of 175														



[illegible]

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	where coating has been damaged touch up shall be done with same paint, the upper thickness limit shall not apply to repaired areas of damaged coating) and repair work and flexibility & holiday testing, including all taxes, etc. complete to ensure proper resistance of FBE against corrosive environment counting necessary laboratory test etc, (excluding splice or laps) complete in all respect and accepted by the Engineer- in -charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard).																	

[illegible]

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	and outer surface of wall, finishing the edges and corners including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)																	
14	Premium synthetic enamel paint of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, having high water resistance, high bondability, flexibility property; using specified brand thinner applying to metallic or	Sqm	1,037.2 00															

[illegible]

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	with anti-corrosive painting (Red-Oxide) etc. complete for all floors accepted by the Engineer-in-charge. (Total weight per sqm should be approx. 19 kg and add or deduct @ Tk. 100.00 for each kg/sqm excess or less respectively)																
16	Supplying fitting and fixing of aluminium swing door as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification and BDS 1879:2014 having 1.5 mm thick wall frame (size 101.60 mm, 44.45 mm, 83.21 mm), 2.0 mm thick shutter side (size 54 mm, 46 mm), 0.99 mm thick door glass bit (size	Sqm	39.938														

[illegible]

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	powder coated to any colour with a coat not less than 25 microns in thickness and density of 4 mg per square cm etc. including all accessories like swing door clousure, swing door lock, swing door mohiar, labour charge, fabrication, fitting fixing in position, carriage and electricity charge keeping provision for fitting 5 mm thick glass including neoprene sealant etc. complete in all respect as per drawing and accepted by the Engineer-in-charge.											

[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	minimum 1.2 mm thick shutter lock (size 49.20 mm 25.80 mm, 0.543 kg/m) and minimum 1.2 mm thick inter lock (size 34.40 mm, 32.13 mm, 0.562 kg/m) sections all aluminium members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 microns in thickness or powder coated to any colour with a coat not less than 25 microns in thickness and density of 4 mg per square cm etc. including all accessories like sliding door key lock, sliding door wheel, sliding door mohar, sliding door neoprene, bolts and nuts including sealants, keeping														

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	provision for fitting 5 mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the E-I-C. Anodized to any colour, [Size : 900mmx1400mm]														



Item No	Description of Item	Unit	Quantity	Rate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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18	Supplying, fitting and fixing of the best quality any sizes uPVC plastic door shutter with frame having specific gravity of 1.35 - 1.45, panel wall thickness 1.7 mm-2.2 mm, shutter/panel thickness 37.5 mm & weighing 17.25 kg/m2 and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards and ASTM, BS/ISO/IS standards of different sizes uPVC plastic door shutter with uPVC plastic frame (frame size:150mm x 62.50mm) fitting - fixing in brick wall/ R.C.C wall with at least 3 Nos. SS hinges by min 64 Nos. Ø	Sqm	1.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

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Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	pipe for hand-rail, 2 mm thick 40 mm dia 5 nos vertical SS pipes in each flight, 1.5 mm thick 20 mm dia 5 nos horizontal SS pipes as per drawing, design including carrying, polishing, fabricating, welding and fixing with tread by 25 mm long royal bolt etc.all complete and accepted by the Engineer-in- charge.																
20	Electrification works including conceal pipe wiring, Cable, Energy Meter, Circuit breaker & 56" size ceiling fan etc. all complete as per instruction of E.I.C.	LS	1.000														



[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	standard. (vi) body: Aluminium body.														
22	Water Supply Fitting, Fixing 100 mm inside diameter best quality uPVC soil, waste and ventilation pipe, CP bib Cock, CP pillar cock, Groove cutting in brick work, R.C.C floor, including cost for concealing of G.I. pipe work (Groove Cutting 40*40 mm), CPVC pressure pipe for water supply, etc. all complete as per instruction of E.I.C.	LS	1.000												

[illegible]

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	should suffer any loss of reflectivity on the glaze. There shall be no crazing and no stain on the ware. The materials used for making glaze shall not contain lead compound. In case of certain coloring oxides used for making colored glaze, the lead content, if any, shall not exceed 5 percent of the weight of the glaze materials. Appliances shall be clearly and indelibly marked at a prominent place, visible even after the appliances are installed with the following: a) manufacturer's name and/or registered trademark, b) the number of Bangladesh standard and c) country of origin. Each product shall also be marked with the BSTI Certification Mark. The fixture should be placed in position preparing the base of pan with cement mortar (1:4) and																	

[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	holes wherever required and mending good the damages and fitting, fixing & finishing etc. complete with all necessary fittings and connections approved and accepted by the Engineer- in-charge.														
25	Supplying, fitting and fixing of best quality toilet paper holder of standard size including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer- in- charge. PVC toilet paper holder	Each	25.000												



[illegible]

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	accepted by the Engineer- in-charge. (300 liter capacity)														
27	Construction of septic tank of different sizes with walls of brick work in cement mortar (1:6) having a lining of minimum 125 mm R.C.C cast against the walls as per approved type plan over a brick flat soling and 150 mm thick reinforced cement concrete flooring (1:2:4) with 125 mm thick walls in partition and 12 mm thick cement plaster (1:4) with N.C.F. to insides of walls on floor and all around outside walls by 450 mm height at top including supplying, fitting and fixing of two R.C.C. Tees and providing 450 mm dia water sealed heavy type C.I.	Each	25,000												



Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	manhole cover with locking/unlocking arrangement and 100 mm thick R.C.C (1:2:4) top slab, including centering, shuttering, fabricating, casting and curing etc. complete up to required depth including necessary earth work in excavation and shoring, bailing out water and side filling including the cost of all materials, operations and incidental charges. etc. all complete as per type plan approved and accepted by the Engineer-in-charge (Rate is including cost of reinforcement and its fabrication, binding and placing) For 30 users																

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
28	CENTRIFUGAL PUMP MOTOR SET SINGLE STAGE (SINGLE PHASE)(For lower capacity/smaller household requirement) Providing of single stage 2800-2900 RPM monoblock type Centrifugal water pump motor set (reservoir to overhead tank) manufactured according to relevant BDS standard and ISO 9906:2012, GRADE 3B/ DIN/ NEMA/ IEC/ BS/ VDE/ JIS/CEI 2-3/ CSA/ GS/ SONCAP/ ROHS & ISO 9001 (Quality) ISO 14001 (Environment and Safety) standard of following capacity suitable for operation at single phase, 230 V ± 5 %, 50 Hz AC having insulation: B &	Set	25.000															

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	protection: IPX4 (minimum) & CE certified . Country of Manufacture: Bangladesh/ China/ Vietnam/ Malaysia as per sample accepted / approved by the Engineer-in- charge. HP-1.5 Discharge (liter/min)- 10-120 Head (meter)- 39-20 Suction dia (mm)-32 Delivery dia (mm)- 25														

Item No	Description of Item	Unit	Quantity	Rate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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29	Chair Size 550mm (L) x515mm (W) x850m (H) Chair seat Raw materials :- Polypropylene Impact copolymer Chair top Specific on 465mm(L) x480mm(W) x425m (H) Plastic weight 174 Chair colour Deep blue, Brick red, black, Or Steel tu, Specification Round tube - 25mm x 1.2mm, Steel frame Dimension 550mm(L) x 515mm(W) x 47 Manufacturing & Supplying teacher chair made of Polypropylene Impact Copolymer Plastic and Legs are structure made of MS Round tube -25mm x 1.2mm (22x1.2 mm), welded (0.5" weld length@2 C/C	Each	50.000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</



Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency# 1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	continuously through the MS tube), cold bended & formed strictly as per drawing. The frame of chair must be cleaned in 07 (seven) stage tank with phosphate chemical method pure along with polyester powder coating for pre-head at 230 ^o c for 22 minutes in heat oven for curing the paint to make the permanent of color of steel frame. Finishing including assembling of all components and best quality PVC stoppers necessary number and type of nuts and bolts and packing shall be used as shown in the same must be supplied and get approval from Upazila																	



Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	Engineer/Executive Engineer before manufacturing of the lot. Bottom of legs will be provided with PVC cap/shoe as per drawing BUET test: Physical strength, Breaking strength of Polypropylene impact co Polymer Plastic frame: i) Hardness, Rock well, ii) Tensile strength All complete as per direction of the E-I-C.																
30	Supplying best quality Tea Table of standard size made of best quality well matured, fully seasoned jack wood (timber should be sapless) in/c superior quality varnishing/French polishing and finishing, etc. all complete	Each	25.000														

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	as per design (if provided) and direction of the E-I-C. (This item includes all fittings, fixings and delivering the furniture at the instructed place).														
	Total for Bill No. 1 (carried forward to Summary, p. ———)														



Bill No. 2: Construction of HBB Road

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
1	Clearing and Grubbing: The work consists of cutting, removing and disposing of all materials such as trees, bushes, shrubs, stumps, roots, grass, weeds, rubbish, and removal of topsoil and other organic material etc. all complete as per direction of Engineer in Charge.	Sqm	1,17,177.700									

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
2	Earth filling work with specified soil in any type of embankment, where earth shall be carried by truck/boat or any other means, supplied at contractor's own cost including royalty, cutting, carrying, filling and compacting to 85%/95%/ 98% of Maximum Dry Density (MDD) at Optimum Moisture Content (OMC), with reference to laboratory density test AASHTO standard hammer by throwing earth in layers not more than 150mm in proper alignment, grade, camber and side slope in all types of soil except rocky, gravelly and slushy including benching not more than 300mm in vertical and 600mm in horizontal steps along the sides while widening any embankment, with clod breaking to maximum size of 100mm, benching the side slopes, removing roots and stumps of trees of girth upto 200mm and other foreign particles, stripping/ploughing the base of embankment and borrow pit area,	Cum	4,06,507.380									

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	dug bailing, clearing jungles, bail out of water, rough dressing including 150mm cambering at the centre of crest with all leads and lifts complete (compaction will be done by the contractor with approved equipment including all ancillary charges for compaction and testing) as per direction of Engineer in charge. Payment will be made on compacted volume. The item is applicable when earth is supplied and arranged by the contractor from a distance beyond 200m from the end of right of way. Outside municipal area, 95% Compaction											



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
3	BC&SGP(300mm): Earth work in box cutting up to 300mm depth & Preparation of sub-grade by sqm excavating road crest another 300mm depth, removing soils to a safe distance or spreading the excavated earth on road flanks, slopes. In preparing 300mm sub-grade below the box, excavating top 150mm layer and excavated earth set aside to reuse, then scarifying the bottom 150 mm layer, breaking clods to 40mm maximum in size, leveling, dressing, watering to OMC \pm 2% & compacting the 1st layer by appropriate mechanical means to attain design CBR at specified degree of compaction, subsequently prepare 2nd layer by spreading aside materials on top of prepared 1st	Sqm	55,272,500									

Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	layer, removing all deleterious material breaking clods, leveling, dressing, watering to OMC ± 2% and compacting the layer following the same procedure as 1st layer to attain design CBR including maintaining proper grade, camber and alignment, super elevation on curves etc. all complete as per direction of the E-I-C. (When in-situ sub grade materials is suitable but very loose) Degree of Compaction: Minimum 98% of MDD (Standard Proctor)																
4	Providing improved sub-grade with sand F.M.>0.80 having compacted thickness as per specification including cost of sand, carrying, local handling, spreading uniformly in layers of 150mm to proper grade camber, super elevation, rolling	Cum	16,581.750														

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	properly with 7-10 tone vibratory roller and watering profusely for compaction 95% MDD (Modified Proctor Test) including cost of fuel, lubricants, spares, maintenance, driver etc. all complete and accepted by the Engineer-in-charge.																	
5	Single layer brick flat soling in road work with first class or picked jhama bricks as per alignment, camber and grade including filling joints with sand (F.M. 0.80) etc. complete including cost of all materials and accepted by the Engineer-in-charge.	Sqm	55,272.500															
6	Herring bone bond (HBB) with brick on edges pavement with first class or picked jhama bricks as per alignment, camber and grade over 12 mm thick sand cushion (F.M. 0.80)	Sqm	55,272.500															

Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
	including filling the joints with the same sand including cost of all materials and accepted by the Engineer-in-charge.																		
7	Brick on end edging (75 mm across the road) with first class or picked jhama bricks and filling the gaps with fine sand (F.M. 0.80) including cutting trenches, true to level and grade, removing earth, refilling and ramming the sides properly including cost of all materials and accepted by the Engineer-in-charge.	Meter	44,218.000																
8	Creating turf on the side slopes and top of embankment with good quality turf not less than 225 mm square chunk, watering till the grass grown including all leads and lifts etc. complete and accepted by the Engineer-in-charge.	Sqm	1,97,413.680																

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	Supply and installation of street lights with solar system														
1	Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However,	Cum	1,146.960												

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth											
2	Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	Cum	430.110									
3	Supplying and laying of single layer polythene sheet weighing one	Sqm	798.713									

Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	kilogram per 6.5 square metewr in floor or any where below cement concrete complete in all respect and accepted by Engineer in charge.														
4	Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge.(Cement: CEM-II/B-M) Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2	Cum	716.850												

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency# 1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
5	Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum fcr = 33.5 MPa, satisfying a specified compressive strength f'c = 25 MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type- I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making	Cum	256.872															

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)											



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
6	FORM WORK (Steel): Centering and shuttering , including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:	Sqm	2,309.850									
7	Supplying, fabrication and fixing to detail as per design : ribbed or deformed bar reinforcement (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning	Kg	14,937.384									



Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	rust, if any, bending and binding in position with supply of G.I. wires,conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile											

Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
	strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively																		
8	Supply and fixing of galvanized anchor bolts of variable dia for rigid frame conforming to ASTM F1554 Grade 55, Galvanized to A153, Class C or equivalent with minimum yield strength of 380 MPa, manual of steel construction by American Institute of Steel Construction (AISC) etc. including the cost of washer & bolts, material testing etc. all complete as per drawing, specification and direction of the Engineer-in-charge.	Kg	11,186.40																



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Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	ground. Solar Panel: Max Power: 12V/150WP, Cell Type: Polycrystalline/Monocrystalline, Voltage at Maximum Power (Vmpp): 17.8V, Current at Maximum Power (Impp): 8.43A, Open Circuit Voltage (Voc): 22.5A, Short Circuit Current (Isc): 9.36A, Cell Efficiency: 18.0%, Junction Box Protection Class: IP 65, Power Tolerance: $\pm 10\%$, Lifespan: 25years Battery: AH Lithium iron phosphet battery, Battery Type: LifePO4, Capacity: 28Ah, Rated Working Voltage: 12.8V, Efficiency: 95%, Operating Temperature Range: $-10^{\circ}\text{C} \sim 70^{\circ}\text{C}$, Life Span: >8Years. Controller:											



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Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
	LED Light: (30W) i) Lamp Efficiency : >125.53lm/Watt ii) LED Type : SMD iii) CRI : >80 iv) Input Voltage : DC 12V v) Beam Angle : 120° vi) LifeSpan : >50000 Hours vii) Color Temperature : 6000-6500K viii) Working Temperature : -10°C ~70°C ix) Lamp Fixture : High Pressure Die casting Aluminum Corrosion resistant alloy heat sink. x) Classification : IP65																		
	50kWp Hybrid solar system at watch tower (250 KW P)																		

Item No	Description of Item	Unit	Quantity	Rate															
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3						
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount				
1	OFF-GRID SOLAR PANEL SYSTEM : Supplying, installation, testing & commissioning of following capacity solar system (offgrid) for 24 Hrs backup with required quantities of mono/poly crystalline silicon solar PV modules,Solar suited Deep Cycle Lead Acid battery (12V), with required size Maximum power Point tracking (MPPT)/PWM charge-controller & inverter as per relevant international standards & certification such as IEC/CE/UL as per following specification to produce AC- 220V. 50Hz pure sine wave for suitable use of all standard AC appliances with battery racks/cabinet, solar PV mounting	kWp	29.00																

[illegible]

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	70%, Frame: Anodized Aluminum Alloy, Operating Temperature -40° ~ + 85°C, Junction box IP68, Three bypass diodes, PID Resistance, 12 Years Product Warranty, 30 Year Linear Power Warranty, 0.40% Annual Degradation Over 30 years, All necessary fittings as per relevant international standards & certification (TUV, CE, PV CYCLE, IEC61215, ISO9001:2015, ISO14001:2015 and more), Country of Origin: China . INVERTER: The Inverter is specially designed for DC to AC power which provides pure sine wave. The inverter(s) comply with the following requirements:											

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Item No	Description of Item	Unit	Quantity	Rate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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	Frequency ranges: 50-60 Hz. Relative humidity: 5- 95%, noncondensing, Operating temperature range: -10° - 55°C, Cooling method: Natural Convention. ENERGY METER: Supplying and installation of energy meters with following features I. Single phase / three phase (as per requirement) II. Energy meter to be provided to record the amount of solar energy provided from the solar system. GENERAL GUIDELINE/CRITERIA: I. The bidder shall examine the site before the design of solar system & its components II. The bidder shall have facilities and proper tools and machineries for																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	installing, testing & commissioning of solar panel. III. Adequate space & height shall be provided in the rows of panels for easy air flow to avoid excessive heat generation in the panel and to provide access for rain water drainage and damage to protect from dirty water. Minimum air gap between two panels shall be 25 mm. IV. All frames of the PV module, combiner box, inverter etc. shall be equipotential bonded and earthed with the building earth electrode which is conventional and / or chemical electrode system with soil conductivity enhancing material that the earth resistance must be less than 1 Ohm as per related standard and code of practice.											

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	V. The solar panel mounting shall be of galvanized iron or equivalent to ensure rust protection of the installation. All nut bolts shall be of stainless steel (SS) or galvanized mild steel (MS) materials. VI. After successful completion, testing & commissioning of the whole system the contractor shall have to train nominated person(s) of the user for a period of at least 2 days. VII. After completion of whole system and before handing over the system to the concerned authority, the contractor must have to provide minimum 30 days' satisfactory operation for performance evaluation. VIII. Technical specification with catalogue of PV module, inverter																	

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	must be submited with technical offer. IX. Only approved cable shall be used for wiring.											
	X. Sufficient AC and DC circuit breakers shall be used to ensure proper safety of the system											
2	BATTERY: Solar suited Deep Cycle Lead Acid battery (12V) Battery capacity: 200 Ah Compliance : ISO9001 & ROHS (Restriction of Hazardous Substances) certified company	No.	75									
3	MAIN DISTRIBUTION BOARD (MDB) Providing & fixing 250V, 50 Hz grade following concealed type subdistribution board made of 18-SWG MS sheet complete with hinged type door, built-in type locking	no.	25.00									

Item No	Description of Item	Unit	Quantity	Rate														
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
	arrangement, one no. 60 A capacity bus-bar with required no. of holes there on on insulators at both ends, copper blocks for neutral and earth terminal, SPMCBs Manufactured / Assembled and tesled in accordance with IEC / VDE / NEMA / BS / JIS along with relevant BDS IEC standard having minimum breaking capacity 6 / 10-KA with thermal over cunent and instantaneous etectromagnetic shon circuit release, necessary arrangement for fixing of MCBs duly painted with powder coating with epoxy polyester resin on all surfaces of board (gray / offwhite) etc. In front side there will be tempered thick fiber glass of nrinimum 8 mm thickness with rubber gaskets etc. with SPMCBs																	

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	accepted / approved by the Engineer-in-charge. Incoming: 1x6A DPMCB (10 KA) Outgoing : 4x6A SPMCB (10 KA)											
4	CONCEALED CONDUIT POINT WIRING (BYA) (WITHOUT SWITCH) Concealed conduit wiring for following point looping at the switch board with earth terminal with 1C-2x 1.5 sqmm pVC insulated and sheathed stranded cable (BYA) & 1C-2x1.5 sqmm pVC insulated ECC (BYA) (Green / yellow bi-colour) including circuit wiring with (From SDB to Switch Board) 1C-2x2.5 sqmm pVC insulated and sheathed stranded cable (BYA) & 1C-2x2.5 sqmm pVC insulated ECC (BYA) Green / Yellow bi-colour through	nos.	150.00									



Item No	Description of Item	Unit	Quantity	Rate													
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3				
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
	PVC conduit (one conduit from switch board to common point on ceiling is considered to draw 3 pair of cable) of reputed manufacturer of minimum 25 mm dia & 1.7 mm wall thickness complete with 18 SWG CP sheet / PVC switch board & pull box with 3mm thick ebonire sheet cover, without switch, fixing materials etc.(without switch) as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to IEC / BS / VDE standards along with relevant BDS standard. The work shall be carried out as per direction & approval of the																

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	Engineer In Charge. Light / exhaust or wall bracket fan point											
	Fan point	nos.	25.00									
5	CONCEALED WIRING (BYA) Concealed conduit wiring with followline PVC insulated and sheathed stranded cable (BYA) & PVC insulated Green / Yellow bi-coloured ECC wire (BYA) through PVC conduit of reputed manufacturer complete with 18 SWC GP sheet pull box with 3mm thick ebonite sheet cover, fixing materials etc. as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed). The work shall be carried	m	250.00									



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9

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	centigrade) of 76.2 mm. (3") depth. (Manufacturer shall have certificate of standard which they follow. 13 Amps Socket Outlets											
8	CEILING FAN Supply, installation, testing & commissioning of AC capacitor type ceiling fan (without regulator) of following specifications and sizes complete with minimum 305 mm. (1 ft.) long and 0.75-1.0" dia, 2.3mm thickness MS Pipe down rod, tempered cast aluminum blades, 2.5 µf 400V AC capacitor, canopy double Z ball Bearing best quality silicon sheet core, best quality copper made super enamel wire aluminum alloyed casting body having safety pin with powder coated heat/ docu paint as required etc. connecting PVC wire	nos.	25.00									

Item No	Description of Item	Unit	Quantity	Rate								
				Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	complete as required. Before supply and installation, all components must be approved by the engineer in charge. Rated voltage : 230 volts Rated frequency : 50 Hz Rated speed : 300 rpm \pm 5 % Service value : Minimum 3.5 m ³ /min/watt Temperature rise : Maximum 55°C Class of Insulation : Minimum E Noise level : Maximum 60 dB at a distance of 1 meter. 1400 mm. (56") Sweep Input power : Maximum 65 watt.											
9	LED Bulb Light source 9W LED Bulb Material: MS Sheet, Glass Size: D-250mm H-110mm Gloria cat no- GCLF-601 LED-9w	nos.	50.00									

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Item No	Description of Item	Unit	Quantity	Rate											
				Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
				Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
	necessary connecting copper sockets, bolts, nuts, etc. complete for maintaining earth resistance within 1 ohm for system earthing. Depth of bottom of main electrode at 37338 mm (122.5 ft) from GL & length of electrode 36576 mm. (120 ft). (for system earthing)														
	Total for Bill No. 2 (carried forward to Summary, p.)														



Bill No. 3: Environmental Compliance

[illegible]

Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		wastewater for every half-year including baseline covering 06 nearby canals satisfying the provision of Section VII & Schedule E of the bidding) (6 location * 6 times) document											
4	9.4	Drinking water Quality testing of 02 construction camps, 04 sites and 01 Site office including baseline for every half-year satisfying the provision of Section VII & Schedule E of the bidding document (6 location * 6 times)	Nos	42.00									
5	9.5	Implementation of Site specific Environment Management Plan, Contractor's Environmental Action Plan (CEAP) satisfying the provision of Section VII & Schedule E of the bidding document, obtaining approval of the same from the											

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Item No	Code	Description of Item	Unit	Quantity	Rate																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Item No	Code	Description of Item	Unit	Quantity	Rate														
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
		material at worksite, both bins will be kept in a safe and easily accessible place, so that will easy to use and no adverse impact will generate on the surrounding environment, including continuing the full functioning of waste disposal(buried/incineration) in accordance with the full satisfaction of the project manager throughout the contract period, all complete as per drawing, specification and direction of the Engineer-in-charge. Entire relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.																	



Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
9	9.5 D	Traffic Management: Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge, unless specified otherwise, including keeping provision for existing traffic	LS	5.00									

Item No	Code	Description of Item	Unit	Quantity	Rate														
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
		and pedestrian movements in such a way as to assure that a single lane at least 3.0m wide is available for public traffic at all times (including access to properties and local roads) affected by the contractor's activities shall be maintained at all times (day & night), including removal of all temporary constructions on completion of the activities, etc. all complete as per requirement and instruction of Engineer-in-charge. All relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.																	

Item No	Code	Description of Item	Unit	Quantity	Rate													
					Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3				
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
10	9.5 E	Control of Air Pollution (Dust Suppression): Maintaining, carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust which has originated from contractor's activities/ operations at the worksite and site office, including sprinkling water on aggregates/unpaved roads at least three times a day or more depending on the atmospheric conditions, including keeping necessary covering/protection on stockpiled fine aggregates to reduce dust nuisance during natural air blowing, all complete like emission of dust into the atmosphere shall be strictly controlled during manufacture,	LS	7.00														

Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		handling, storage of concrete, road aggregates, and to be used such methods and equipment as are necessary for collection and disposal, or prevention, of dust during these operations means of eliminating atmospheric discharges of dust as per requirement all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.											
11	9.5 G	Control of Water Pollution: Providing necessary arrangement to prevent entrance, or accidental spillage, solid matter, contaminants, debris, garbage, cement, concrete, sanitary waste, oil, other petroleum products, pollutants and	LS	5.00									



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Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		contractor shall submit the detailed plan and drawing of the construction camp for approval of the engineer. The construction camp should be provided with sufficient natural light, heat protecting ceiling, dam proofing etc. as per direction of E-I-C. All materials, equipment and plant, furniture, fittings recovered from dismantling the camps and removing access road will be the property of the contractor upon completion of the work. The contractor will responsible for maintaining the facilities of the camps in good condition throughout the contract period and payment of this item shall be made only with the final bill. Area of Construction Camp: 139.35 sqm.											

[illegible]

Item No	Code	Description of Item	Unit	Quantity	Rate													
					Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2			Foreign Currency #3				
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount		
14	9.5 J	Personal Protection Equipment for Workers: Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket for construction workers made of 100% polyester waterproof fabric, fluorescent yellow/orange/green/red/blue or pantone color, (ii) suitable hand protection gloves for construction	LS	120.00														

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Item No	Code	Description of Item	Unit	Quantity	Rate														
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
		face shields, ear muffs(v) suitable eye protection goggles to protect against specific workplace hazards, fit properly and be reasonably comfortable to wear, provide unrestricted vision and movement, including instructing workers to wear strictly during working time and reviewing periodically, updating, evaluating the effectiveness of PPE and maintaining, replacing worn or damaged PPE etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.																	

[illegible]

Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		vegetation clearance and soil disturbance within defined allocated land boundaries including avoiding environmentally sensitive or valuable areas such as nature reserves, archaeological sites, areas inhabited by sensitive species, areas adjacent to surface water bodies, providing necessary protective fencing and safety measures with warning signboard, including furnishing and placing all materials, labor, equipment, tools and incidentals necessary to complete the work and removal, disposal at a safe distance after completion of work etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be											

Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		made after 100% completion of the contract successfully.											

Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
16	9.5 L	Site Cleaning, Removal and Disposal Activity: Cleaning and maintaining at all times, keeping the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collecting at a central disposal area, on a daily basis and disposing in a manner approved and satisfaction by the Engineer, especially waste water and sewage from office, residential and mobile camps shall be piped to soak pits or other disposal areas, all used fuels, oils, other plant or vehicle fluids, old tires, tubes, other solid waste from household, office, workshop, construction materials, etc. to be kept at safe places and any spillages	LS	1.00									



[illegible]

Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency #1			Foreign Currency #2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		or its equivalent viz. Sepnil Instant Hand Sanitizer among all the workers in the site from commencement of work to completion of work etc. all complete as per sample like in Fig. 5 and direction of the Engineer-in-charge.											
18	9.5 N	Maintenance, Staffing, Security and cleaning Entertainment of the field office for the Engineer.	Month	30.00									
19	9.5 O	Progress Photographs	Month	30.00									
	9.6	Reports: Environment and Social											
20		(a). Preparation, Submission and obtaining approval from the Engineer of the Monthly Progress Report satisfying the provision of Particular Condition Part D.	Nos	30.00									
21		(b). Preparation, Submission and obtaining approval from the	Nos	6.00									

[illegible]

Item No	Code	Description of Item	Unit	Quantity	Rate											
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		entire period of Construction to the satisfaction of the Engineer.														
25	9.8	Design of billboards for posting of GRM related information, Obtaining approval of Engineer, Manufacture, Supply, Erection at Pre approved public places and Maintenance during the entire period of Construction to the satisfaction of the Engineer.	Nos	4.00												
26	9.9	Provision for receiving Daily grievance, Proper registration of complain and management, resolution of such grievances, selection, engagement and monitoring of the referral service providers (GO, NGO, Private) satisfying the provision of GBV/SEA/SH risk mitigation	Month	30.00												

[illegible]

Item No	Code	Description of Item	Unit	Quantity	Rate														
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2			Foreign Currency#3					
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount			
		resolution of such grievance satisfying the provision of GRM and submission of Report Quarterly satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.																	
		Communication																	
29	9.12	Preparation of information brochures related to GBV/SEA/SH risk, mitigation measures, Design, Obtaining approval of Engineer, Manufacture, Supply Erection and Maintenance of billboards, dissemination of information to adjacent community through brochures/leaflets and community consultation during the period of construction satisfying the provision of Communication	Month	30.00															

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[illegible]

Item No	Code	Description of Item	Unit	Quantity	Rate								
					Local Currency (BDT)			Foreign Currency#1			Foreign Currency#2		
					Figure	Word	Amount	Figure	Word	Amount	Figure	Word	Amount
		the period of Construction satisfying the provision of Environment and environmental issue, OHS & COVID 19 issues and Social Issues including submission of Monthly Report satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.											
		Total for Bill No. 3 (carried forward to Summary, p.)											

Bill No. 4: Provisional Sums (PS)

Item no.	Description	Unit	Quantity	Rate		Amount
				Figure	Word	
(i) PS1	Quantity Over-run	LS	1.00	50,00,000.00	One crore taka only	10,000,000.00
(ii) PS2	Price Adjustment	LS	1.00	50,00,000.00	Fifty lacs only	50,00,000.00
(iii) PS3	Unforeseen Work	LS	1.00	50,00,000.00	One crore taka only	10,000,000.00
Total for Bill No. 4 (Carried forward to Summary, p. ____)						
						25,000,000.00

Grand Summary

Contract Name: Security and support amenities (seaside)

Contract No.: WD 10A-BSMSN-BEZA

<i>General Summary</i>		<i>Page</i>	<i>Amount</i>
Bill No. 1: Construction of Boundary Wall			
Bill No. 2: Construction of HBB Road			
Bill No. 3: Environmental Compliance			
Bill No. 4: Provisional Sums (PS)			25,000,000.00
<i>Bid Price (Carried forward to Letter of Bid)</i>			
<p>i) All Provisional Sums are to be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clauses 13.4 and 13.5 of the General Conditions except with respect to DAAB Fees and Expenses for which Sub-Clause 13.4 of the Particular Conditions – Part B shall apply.</p> <p>ii) To be entered by the Employer.</p> <p>* For evaluation purposes, Provisional Sum, other than Daywork will be excluded</p>			

Section V - Eligible Countries

Eligibility for the Provision of Goods, Works, and Non Consulting Services in Bank-Financed Procurement

In reference to ITB 4.8 and 5.1, for the information of the Bidders, at the present time firms, goods and services from the following countries are excluded from this Bidding process:

Under ITB 4.8 (a) and 5.1: *Israel*.

Under ITB 4.8 (b) and 5.1: *N/A*



Section VI - Fraud and Corruption

1. Purpose

- 1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

2. Requirements

- 2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors, and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

- 2.2 To this end, the Bank:

- a. Defines, for the purposes of this provision, the terms set forth below as follows:
 - i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
 - iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
 - iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - v. "obstructive practice" is:
 - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

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- (b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.
- b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- d. Pursuant to the Banks Anti-Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;¹ (ii) to be a nominated² sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
- e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers: and their sub-contractors, sub-consultants, service providers, suppliers, agents, personnel, permit the Bank to inspect³ all

¹ For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

² A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

³ Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

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PART 2 –Works' Requirements

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Section VII - Works' Requirements

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Scope of Works

1 BACKGROUND:

- 1.1 Establishment of Economic zones in Bangladesh is a groundbreaking initiative of the present government. Honorable Prime Minister of the People's Republic of Bangladesh Sheikh Hasina has taken this commendable initiative to materialize the dream of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman to create "Sonar Bangla".
- 1.2 BEZA has been established to facilitate development and operation of Economic Zones throughout the country. The main objective of BEZA is to act as a change agent for faster economic growth by creating investment friendly environment and attracting FDI.
- 1.3 BEZA's mission is to persistently create value for the investors by establishing attractive investment facilities in the economic zones through One-Stop Service and competitive incentive packages.
- 1.4 BEZA wants to establish 100 Economic Zones on 30000 hectares of land in the next 15 years with an employment generation for 10 million people.
- 1.5 In November 2010, Government of Bangladesh Established Bangladesh Economic Zones Authority (BEZA) under the Bangladesh Economic Zones Act to drive new Economic zone regime. The authority is attached with the Prime Minister's Office (PMO) and is mandated to establish, license, perate, and control economic zones in Bangladesh. Moreover, the authority is also committed to develop backward linkage industries, creating employment opportunities and contribute ot poverty reduction program.
- 1.6 BEZA's Vision for Industrial Development is in line with Government's long-term outlook, defined in its Vision 2021, wherein, the Government of Bangladesh has set its development targets with the objectives to achieve middle-income country threshold by 2021, provide its citizens a higher standard of living, better access to education, improved social justice, and a more equitable socio-economic environment.
- 1.7 BEZA is created with the objective of delivering on the industry growth target. The duties and functions of BEZA are aligned to realize the development priorities as outlaid in the Vision 2021. Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project that is under BEZA, implementing Economic Zones in Bangladessh.
- 1.8 Industrialization is expected to play a pivotal role in achieving the above targets. Bangladesh government is committed to provide right policy intervention and framework to facilitate this growth and promote private participation in the economy's growth. Among 100 nos Economic Zones Mirsarai Economic Zone is pioneer Economic Zone.

- 1.9 Mirsarai Economic Zone will be the first multi-sector Economic Zone in the country, with a large area of 30,000 acres. The Zone has the potential to fulfill the conditions necessary to become a successful economic zone. Once it is established, it is expected that there will be a huge demand for plots in the Mirsarai Economic Zone by both local and foreign investors.
- 1.10 The site is suitable for garment, garment accessories, integrated textile, motorbike assembling, automobile parts manufacturing industries etc. segment of industries. Gas supply is available within 10 km.
- 1.11 Site has access to waterways, Chittagong Port, railway station. It is situated at 67 km from Chittagong port, 182 km from Dhaka, 79 km from Chittagong airport. Development of Economics Zones is expected to create employment for more than 700,000 workers and shall protect the people of that locality from cyclone and tidal surge.
- 1.12 For sustainability of the economic zone at Mirsarai, Chittagong, It is necessary to protect project area.
- 1.13 The proposed project involves development of boundary wall along sea side and a HBB road.

2 OBJECTIVE OF THE WORK:

- 2.1 To protect the project area from external attack.
- 2.2 To safeguard the BEZA area including its infrastructures and communication network for uninterrupted economic authorities.

3 THE SCOPE OF WORK:

Package No.	Lot No.	Brief description	Location of Work	Quantity	Completion Period
WD10A-BSMSN-BEZA	Single	Construction of Boundary Wall; and Construction of HBB Road	Along sea side	About 23 Km	30 months

Specification

Technical Specifications

CIVIL WORKS

1. EXCAVATION OF FOUNDATION TRENCHES

1.1. SCOPE OF WORK :

The work covered by this item consists of earthwork in excavation in all types of soil up to a depth of 1.5m or more and in removing the spoil to a safe distance up to a lead not exceeding 50m.

The item covers earthwork in excavation for all types of structures such as buildings of all types, roads, airfields, parade grounds, ponds, reservoirs, canals, drains, underground structures etc.

1.2. METHOD OF CONSTRUCTION

Before commencing foundation work, the site shall be cleaned of all types of grass, weeds, shrubs, jungles, trees of up to 6" diameter and their roots. Trees are to be cut, sized and stacked properly at a suitable place as directed by Engineer- in - charge. The whole area shall be roughly levelled and all holes carefully filled up with sand or rammed earth and levelled off as required.

Permanent Bench mark is to be set at a suitable point at the site at a distance of 3m outside the area of excavation by constructing a 25.4cm x 25.4 cm Brick pillar. Proposed GL and PL of the proposed building shall be judiciously fixed and marked on the pillar as per drawing and direction. Proposed G.L. and P.L shall be fixed with respect to highest flood level of the area as well as plinth of other buildings or the major roads in the area.

Layout of the proposed construction shall be set on the ground following the foundation plan of the structural design and read in conjunction with Architectural Plan. The centre lines shall be set out accurately by means of a theodolite for big structure and by any other approved method for other structures.

Brick pillars shall be constructed showing centre lines of walls, columns etc. at a distance of 3m from the outer edge of the trenches. No work shall be started till the layout is checked and approved by the Engineer-in-charge. Masonry pillars shall be 25.4cm x 25.4cm in size with 50cm above ground level and necessary foundation and shall be constructed with 1:6 cement sand mortar using first class bricks and the top shall be smooth finish.

Trenches shall be marked on the ground with chalk powder and be allowed to be checked by the Engineer- in- charge.

Excavation shall be made to the specified depth and width of the foundation as shown on the structural drawing. While excavating the trench, the last 75mm (3") of the excavation shall be left



unexcavated initially. This depth should be dug out carefully in the final dressing after checking the level. The bottom of the foundation must be perfectly levelled longitudinally and transversely. All foundation trenches must be taken down to firm hard soil. If any soft or weak spot in foundation bed is observed, this should be reported to Engineer-in – charge for necessary instruction.

All earth excavated shall be removed outside the site to a lead not exceeding 50 meter.

The depth and width of the excavation may be increased or decreased by the Engineer-in-charge to meet the requirement of the Architectural plan or structural design.

Shoring, sheeting or bracing of the sides of the trenches must be done strongly, if required. Arrangement for de-watering with water pump must be made, when required. The dewatering system shall include superficial pumping and drainage.

Protective measures shall be taken to prevent damage to adjoining structures, land, under ground service lines etc. caused by vibration, moving equipment or any action connected with earthwork in excavation failing which the contractor shall pay the damages or restore it to its original position.

No material excavated from the foundation trenches shall be placed nearer than 1m from the edge of foundation. Surplus of the excavated soil left after back filling of the trenches shall be suitably spread on the work site or be removed to a distance as directed by Engineer-in-charge

1.3. PRECAUTIONS :

Earthwork in excavation shall not be commenced before the pillars marking the centre lines and B.M bearing known levels are checked by the Engineer-in-charge.

All loose materials and residue of foreign materials shall be removed before concrete casting is commenced.

In case if any utility service line is found to lie in the trench, the lines shall be protected from injuries or damages due to strikes from excavation tools. Immediate attention of the Engineer-in-charge shall be drawn to the presence of utility lines and measures shall be taken by the contractor without additional cost, to support them till the works below ground are completed.

Site Engineer shall inspect to confirm that the foundation bed has a uniform bearing capacity and there is no loose spot. If there is any loose spot, the area shall be specially treated in consultation with the designer.

Special care shall be taken to retain the sides of the foundation trench from falling and thus, filling the trench.

Excavation of trenches should be taken up only after receipt of detail structural drawings for the foundation.

2. BRICK SOLING IN FOUNDATION

2.1. SCOPE :

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The work covered by this item consists of brick flat soling on all types of soil at any depth with 1st class brick.

The item consists of a single layer of brick flat soling at the bottom of foundation trenches, floors, roads, pavements, drains and all other underground structures etc.

2.2. METHODS OF CONSTRUCTION:

1st class bricks are only to be used in the work. The specification of brick shall conform to specification described in section 1.2.

The bed must be prepared level and compacted and dewatered and cleared of all loose materials. The bricks shall be laid flat as close as possible to each other and the joints broken.

The joints between bricks are to be filled in with sand of min. F.M 0.8 so as to stop any movement of the brick in any direction.

3. MASS CONCRETE IN FOUNDATION

3.1. SCOPE :

Unless stated otherwise the item shall consist of preparing and pouring of cement concrete in proportion 1:3:6 in foundation trenches in all types of soil at any depth.

3.2. MATERIALS:

Coarse aggregate shall be picked jhama brick chips grades from 6mm to 20 mm of approved quality. The chips should be obtained by breaking well burnt picked jhama bricks /bats on a clear pucca platform. The aggregate should be free from all kinds of dust, leaves, grass, earth or any other organic materials. It should be properly screened by screen of specified meshes to remove the brick dust and particles smaller than 6mm. For cleaning of the surfaces having clay or dirt, the brick khoa must be washed with water on the preceding day of its use.

Fine aggregate i.e. sand should have a minimum fineness modulus (F.M 0 of 1.2, properly screened and washed to free it from clay lumps, organic materials, salts etc.

Cement shall be ordinary Portland cement. It should be free from cakes. Cement should not have set in any way before use. Cement Should be tested before use and test results shall be approved by the Engineer-in-charge.

Water used for mixing shall be clean potable water free from harmful chemicals and salts.

3.4. METHOD OF CONSTRUCTION:

The concrete should be mixed in such a quantity as can be used in about half an hour. The fine and coarse aggregates shall be measured in standard measuring boxes. The batch boxes should be of such size as to contain the exact quantity of the dry aggregates required for mixing one bag of cement .

In case of hand mixing the coarse aggregate shall be measured by measuring boxes and stacked on a clean and smooth water tight platform large enough to allow efficient handling of the ingredients. Another stack of sand measured as above should also be placed on the mixing platform. The required

quantity of cement is to be added over the stack of sand with uniform thickness and the whole mixed dry $2/3$ times thoroughly to bring it to a uniform colour. This mixture of sand and cement shall then be placed over the stacks of coarse aggregate and thoroughly mixed dry at least thrice by means of spade with a little jerk added to it while cutting and spreading the mixture. The required quantity of water is to be added gradually to one side of the dry mix. The process of turning over is to be continued by backward and forward pushes of the spade. The entire mass is to be turned over at least three times until a homogeneous mixture of the required consistency is obtained.

3.5. MACHINE MIXING

When the mixing of the ingredients are done in a Mixing Machine half of the required quantity of aggregates for one bag of cement is placed on the hopper of the mixing Machine. Cement is then placed over it and last of all the other half of aggregates is added to it. The requisite quantity of water is then gradually added as the drum is rotated. The speed of rotation of the drum shall not exceed that prescribed by the manufacturer. The mixing is continued until proper consistency is attained. The quantity of water should first be ascertained by trials and then by slump test. The duration of the rotation shall not be less than two minutes. To determine whether the required consistency has been attained, slump test should be undertaken and the slump must not be more than that specified by the Engineer-in-charge. Excess water shall, on no account, be used as this weakens the concrete.

3.6. PLACING OF CONCRETE

Concrete shall be deposited in place without segregation and without disturbing the uniformity of the mix. The concrete shall in no case be dropped from a height greater than 600mm. Gaps if purposely left in the brick soling, as per design, must be filled in with concrete. The concreting shall be carried on at such rate that the concrete is at all times plastic and flows easily into all spaces inside the forms. All concrete shall be thoroughly compacted by rodding with M.S Rods $5\frac{7}{8}$ and higher dia. In addition, trowels shall also be used to compact the concrete near the surface of the form, During the operation of placing, concrete shall be thrown in to corners and edges of the forms. While the concrete is still plastic it shall also be slightly rammed by flat bottom rammer until a thin film of mortar comes up to the surface. The finished surface shall be properly smoothened and levelled as specified. For compaction of concrete, wooden or steel tampers or rammers may be used instead of vibrator.


In order to improve bond with masonry/ concrete work coming above it, if required, the surface shall be roughened before it reaches initial set, by securing with the help of a pointed tool.

3.7. CURING

As soon as the cement concrete has hardened sufficiently within few hours of casting it shall be covered with canvas or mats in order to protect it from the strong sun or dry wind. After 24 hours, it shall be covered with empty gunny bags and kept constantly wet by watering for at least 3 days.

3.8. PRECAUTION

Before the laying of concrete in foundation is started the brick soling below shall be sprinkled with water, so that no loss of water from the concrete can occur due to the absorption of water by dry bricks.



In case subsoil water tends to rise and wash away the foundation concrete while this is being done, de-watering of the foundation bed should be done from sumps by using pump or by manual labour, The de-watering should continue until the concrete has set.

4. BRICK WORK IN FOUNDATION AND PLINTH

4.1. SCOPE

The work covered by this item consists of the constructing brick walls and brick columns of any thickness and dimensions with first class bricks in cement mortar in foundation up to plinth.

4.2. MATERIALS

Bricks for use shall be regular is size and shape and shall conform to BDS 208: 1980 common building clay bricks (First Revision)

Cement shall be ordinary Portland Cement Type 1 conforming to BDS 232:1974, Specification for Portland Cement (Ordinary and Rapid Hardening) (First Revision)

Sand shall be as specified in material section. Water shall be clean and free from salt and other harmful chemicals. For saline zone special care shall be taken so that water containing salt is not used.

4.3. METHOD OF CONSTRUCTION

Cement mortar shall consist of a mixture by volume of one part cement to six parts of sand unless otherwise specified thickness of mortar joints between bricks both horizontally and vertically shall not be more than 10mm ($\frac{3}{8}$ ").

The size of the first class bricks shall be 9.5" x 4.5" x 2.75" and shall conform to the specification of a 1st class brick as described.

The fineness modules of sand used for cement mortar shall be minimum 1.2 sand shall be screened and washed before use.

The work shall be true to plumb, curved or slopped as may be required or shown in the architectural drawing, Bricks shall be perfectly clean and free from moss or dirt of any kind. If necessary, the bricks shall be cleaned by scrubbing with steel brush and washed.

The bricks must not be used until they have been thoroughly soaked in a soaking vat for at least 24 hours in clear water. Water of soaking vat shall be replaced at regular intervals to avoid concentration of salt and dirt. Soaking of bricks to saturation frees them to great extent from salt, which otherwise would cause the plaster, white wash, colour wash, distemper or plastic paint to disintegrate and fall of in scales.

The cement and sand shall be mixed dry in the specified proportion on a clean board or platform, until the colour of the mixture is uniform. Water shall then be added sparingly, only the minimum necessary being used to produce a workable mixture of normal consistency. The water cement ratio in no case shall exceed 0.5 by weight.

Each course of brick shall be laid level and perfect in bond with the frog mark on top so that every brick is well bedded and flushed with mortar and that the surface of the brick course is made straight and to

the plumb. The vertical joints to the back work shall be broken. The joints must be filled thoroughly, with mortar leaving no gap, unless otherwise specified. The bond shall be English and no half bricks or part bricks shall be used than minimum required to complete the bond. Pouring of water in the joints at the time of laying the bricks shall be strictly prohibited. The masons must be equipped with adequate numbers of plumb bobs, levels square and other necessary tools. No mortar joint shall exceed $\frac{3}{8}$ " (10mm) in thickness. Wider joints seriously weaken the structure. The consistency of mortar should be attained by the minimum quantity of water in it.

Mixing of mortar in huge quantity shall be avoided. Cement mortar shall be mixed in such quantities as can be used within 30 minutes. Mortar which has crossed the initial setting time, shall not be used nor shall it be remixed with fresh mortar. Such mortars shall be discarded and removed from working site. The top of every days work shall be covered with water proof covering to prevent rain water spoiling the days work.

The joints of brick work that shall remain below ground shall be made flush with trowels at the time of brick work and the portion of plinth above ground level should have the joints raked well to a depth of 12mm ($\frac{1}{2}$ ") with a bent iron rod.

All fixture in the brickwork so long as they are included within the estimate for the work and shown on the plans or anticipated must be built in positions shown or as may be specified by the Engineer-in-charge, as the brickwork proceeds.

At the end of day's work, the vertical and horizontal joints must be raked to a depth of $\frac{1}{2}$ " (12mm) with a bent iron rod, so as to ensure a good adhesion to the plaster to be done subsequently.

At frequent intervals the wall surface shall be checked with the straight edge (patta) and the plumb bob to see that the wall is in correct vertical plane and that there is no depression on the surface anywhere. The straight edge should be put on various angles to ensure correct surface of brick work.

All masonry shall be built true to the plumb within the tolerances prescribed below:

- a) Deviation from vertical within a story shall not exceed 6mm per 3m height.
- b) Deviation in verticality in total height of any wall of a building more than one story in height shall not exceed 12mm.
- c) Deviation in from position shown on plan of any brickwork shall not exceed 12mm.
- d) Relative displacement between load bearing walls in adjacent stories intended to be in vertical alignment shall not exceed 6mm.
- e) Deviation of bed joint from horizontal in a length of 12m shall not exceed 6mm subject to a maximum of 12mm.

Any pipe or conduit may pass vertically or horizontally through any masonry by means of a sleeve at least large enough to pass any hub or coupling on the pipe line. Such sleeves shall not be placed closer than three diameters centre to centre nor shall they unduly impair the strength of construction.

Chases, Recesses and Holes shall be permitted within the tolerances prescribed below:



- a) Vertical chases are preferred instead of horizontal chases and chases, recesses and holes are to be considered in the structural design.
- b) Depth of vertical and horizontal chases in load bearing walls shall not exceed one-third and one-sixth of the wall thickness respectively.
- c) Vertical chases shall not be closer than 2m in any stretch of wall and shall not be located within 350mm of an opening or within 230mm of a cross wall that serves as a stiffening wall for stability.
- d) Horizontal chases shall be located in the upper or lower middle third height of wall at a distance not less than 600mm from lateral support.
- e) Recesses and holes in masonry walls shall be kept at the time of construction so as to avoid subsequent cutting. If cutting is necessary, it shall be done using sharp tools, without causing heavy impact and damage to the surrounding area.
- f) No chase, recess or hole shall be provided in half brick load bearing walls, excepting the minimum number of holes needed for scaffolding.

Walls are always to be carried out at regular height along the entire length and throughout the building. When brickwork in any section of a building can not be carried up in level courses, the work is to be racked back in regular steps of one course each. The maximum height that will be permitted to be done in one day should not exceed 1 metre in 10" walls.

Curing shall be done for at least 7 days, Proper care must be taken to see that the brickwork is kept constantly wet for 7 days. A brass hand sprayer should be used for the purpose. Should the construction agency fails to water the work to the satisfaction of Engineer-in-charge the later shall do it departmentally and charge the cost to the contractor.

Measurement for brickwork shall be given as 250mm width for one brick length and 375mm for one brick and a half brick length. No deduction shall be made for flues, storm drainage, sewerage, electrical conduits and other utility pipe holes, for payment of works.

Necessary scaffolding shall be done at the expenses of the contractor for proper execution of the brickwork. The rates shall include the cost of erection and removal of scaffolding trowel finishing the brick joints during work and curing for 7 days complete.

4.4. BRICKWORK UPTO PLINTH LEVEL IN VERANDAH

The height of the plinth wall at the outside of the verandah shall be kept less than the height of the inner wall by the thickness of one brick, so that a proper outward slope can be maintained in the verandah at the time of laying of verandah floor.

4.5. PRECAUTIONS

Soaking of brick for 24 hours before use must be ensured. Mixing of mortar to correct proportion and adding correct quantity of water for correct consistency of mortar shall be carefully looked into.

Mixing of mortar in huge quantity shall be avoided. Only the quantity that can be used in half an hour shall be mixed. Before water is added sand and cement shall be thoroughly mixed in dry condition.

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Masons shall not be allowed to pour water in mortar on the joints in bricks at the time of laying. The joints shall always be filled completely with trowels.

Special care shall be taken to see that brickwork is cured for at least 7 days.

5. BACK FILLING IN FOUNDATION TRENCHES AND PLINTH

5.1. SCOPE

The work covered by this item consist of filling the foundation trenches, plinth and interior of the sub-structure walls up to plinth level with excavated earth available or from other areas of the site or from a distant place, as instructed by the Engineer – in-charge. Sand may be used as fill materials, if specifically ordered by the superintending Engineer.

5.2. METHOD OF CONSTRUCTION

As soon as a building is finished upto ground level, the space between the structure and the sides of the trenches shall be cleared of whatever debris might have fallen into it. After removal of debris and other foreign materials, filling shall be done in layers, not more than 15 cm thick. Each layer shall be compacted at optimum moisture content before the next layer is placed on it. The density obtained shall be 95% of the maximum that can be obtained with the filled materials at optimum moisture content. Compaction shall be done by vibrator or frog hammer or vibrocompactor.

It is the common experience that cracks in the floors occur vertically on the trench line. This is due to settlement of the fill in the trench. As the width of the trench to be filled up is narrow, it is liable to be inadequately compacted. care shall therefore, be taken to achieve the required degree of compaction of the fill materials in the trenches and in the floor areas.

Optimum moisture content of soil should be determined by testing the soil in the laboratory. When this is not possible, an approximate method of determining the moisture content which is most suitable for compaction of a given mass of soil, is to mix a few batches of the dry soil with gradually increasing water and then taking a lump of each one after the other in the palm and pressing the by the fingers. The moisture content at which the lump just retains its shape after being pressed and released, approximately be taken as optimum moisture suitable for the maximum compaction of the soil.

As soon as the well reaches upto plinth, the filling of the interior of the walls upto the plinth should be taken. Procedure for filling and compaction shall be same as stated earlier.

The trench and plinth filling is one of the most important item in the building construction. A lot of failures in the floor caused by settlement of earth has happened. People not conversant with the technical aspects may justifiably conclude that the building having a defective floor may face greater dangers. The floor is conspicuously exhibited and one gets a very poor impression about the workmanship, the supervision and the quality of the whole work. Utmost care must, therefore, be taken to compact the fill materials underlying the floors.

Saturating the filled materials with water shall be avoided as the water confined in the sides of the soil shall evaporate and form voids inside, resulting in harmful settlement.

The plinth fill shall be inspected by Executive Engineer / Sub-Divisional Engineer according to importance of the building before the floor is laid.

5.3. PRECAUTION

- a) The top minimum 6" (15cm) thick layer of fill shall invariably be of sand.
- b) Special care shall be taken that column or any other member of building is not hit or damaged during compaction.

c) Special care shall be taken to compact the inner sides of the wall, wherein most of the cases of cracks in floors occur.

d) Fill materials shall not be over saturated with water with the wrong impression of better compaction.

Adequate compaction will not be attained if the soil is dry or very wet. Optimum moisture content is needed for proper compaction of soil.

e) No loose brick or brick bat shall be allowed to get buried inside the fill materials. Any other loose materials such as pieces of bamboo, wood, paper, vegetable matters shall also be removed before the earth filling is started.

f) Big lump of earth or the like shall be broken to small pieces for proper compaction.

g) Fineness modules of sand used for filling trenches and floors shall be minimum 0.8 and It should be pure sand with minimum quantity of silt or clay.

h) Before sand filling, sample shall be submitted to Engineer-in-charge for approval.

i) Where it is not possible to use vibrator or frog hammer, the compaction shall be done with the help of a steel hammer of minimum 10 lbs weight.

6. DAMP PROOF COURSE

6.1. DEFINITION

A damp proof course is a continuous layer of damp resisting material provided with the objective of protecting the superstructure of a building against dampness.

6.2. CAUSES AND SOURCES OF DAMPNES

Absorption of moisture by the materials is one of the main causes of dampness. Due to granular nature of materials, moisture finds an easy access through the voids and this aided by the capillary action assists the moisture to travel in different directions. Thus due to either bad workmanship or use of defective materials, moisture may find its way to the interior through the wall, floor or roof.

The major sources of dampness are :

a) Dampness rising through the foundation walling. Moisture from wet ground may rise well above ground level on account of capillary action.

b) Splashing rain water which rebounds after hitting the wall surface may also cause dampness.

c) Rain water may percolate through roof covering. Faulty eave course and eave gutters may also allow the rain water to descend through the top of the outer wall.

6.3. EFFECTS OF DAMPNES

The various effects caused by the dampness of the building may be summarised as below:

- a) It causes efflorescence which may ultimately result in the disintegration of bricks, tiles etc.
- b) It may result in softening and crumbling of plaster.
- c) It may cause bleaching and flocking of paint with the formation of coloured patches.
- d) It may result in the warping, buckling and rotting of timber.
- e) It may lead to the corrosion of metal.
- f) It may detorate the electrical fittings.
- g) It promotes growth of termites.

6.4. MATERIALS

Coarse aggregate shall consist of picked jhama chips graded from 12mm to 6mm. Fine aggregate shall be 50% local sand of F.M 1.2 and 50% Sylhet sand of F.M 2.5 minimum. Cement shall be ordinary Portland cement type -1. Water shall be clean and free from chemicals and salt.

6.5. METHOD OF CONSTRUCTION

The surface over which the damp proof course is to be laid shall be thoroughly scrapped to remove mud, dirt etc. and washed clean with clear water.

The mix proportion shall be 1: 1 ½ :3 and thickness 37mm (1 ½").

Shuttering shall be done on both sides of the wall. The shuttering shall be strong and so fixed that it does not get disturbed during compaction and the concrete slurry does not leak out.

The concrete prepared by mixing the ingredients shall be laid and tampered roughly to make a dense mass.

After 24 hours of its laying, the concrete layer shall be cured for at least 7 days. After curing is complete the surface shall be left to dry out to receive a coat of hot bitumen. The dried surface of concrete shall be properly cleaned with brush and finally with a piece of cloth soaked in Kerosene oil.

At coat of Bitumen 80-100 penetration, heated to 300°F shall be applied uniform on the hardened and dry concrete surface using 30 lbs per 100 sft. per coat. Bitumen shall be applied with brush.

6.6. PRECAUTIONS

The top surface of the D.P.C shall be in the same level of floor finish and shall not be carried across doorways or other openings. The upper layer of cement concrete floors shall be continued over such openings and shall be laid at the same time as floor.

A damp proof course shall not be less than 15cm (6") above the highest level of the ground and shall be above the normal level to which water splashes from the ground when it is raining.

The damp proof course should be continued unbroken throughout the length and thickness of wall.

The base of D.P.C layer shall be even. The uneven base shall cause the retention of air voids between the base and the D.P.C which is not desirable.

If there is a cavity wall D.P.C shall be laid separately for the two leaves.

7. BRICK WORK IN SUPERSTRUCTURE

7.1. SCOPE

The work covered by this item consists of construction brick wall and brick columns of 250mm thickness or more with 1st class bricks in cements mortar (1:6)/(1:4) or any other proportion as stated in the bill of quantities in the superstructure.

7.2. METHOD OF CONSTRUCTION

This should generally be made as specified for the brickwork in foundation up to plinth level. However, it is to be remembered that utmost care is needed in the superstructure wall as it will remain exposed and the workmanship of the plumb, the uniformity of the surface etc. will tell very seriously on the finishing and look of the building.

7.3. REINFORCED BRICK WALL

Brick walls may be reinforced with M.S bars for safety against earthquake or high wind. Reinforced brick walls shall be designed properly as per code by the design office before execution at the site. Care should be taken so that reinforcements are well covered with mortar and their ends are anchored to the walls connecting the R.B walls at right angles to it.

7.4. BRICK ARCHES

Depending upon the nature of work and quality of bricks used brick arches may be classified as rough arches, axed brick arches, gauzed brick arches etc.

Rough arches are built with ordinary bricks which are not cut to wedge shapes. In order that all the bed joints may be normal to the curve of the arch, the joints are made wedge shaped. Thus the joints at the extrados are wider than these at the intrados. The wedge shaped joints spoils the appearance of the arch, as such rough arches are seldom used for facing brickworks. It is suitable for plastered surface.

In axed brick arches, the brick are cut to wedge shape. Thus the joints of arches are of uniform thickness. Since the wedge shaped units can not be finely dressed, the appearance of the arch is not very attractive.

For gauzed brick arches, bricks are accurately prepared to a wedge shape for the arch construction. This is difficult method and special type of bricks are used in this type of arch construction.

Arches are also defined in names derived from the shape of the curve like flat arch, semi-circular arch, segmental arch etc.

When used over opening of doors or windows, the flat arch acts similar to a lintel. Flat arches also known as straight arch is laid with its bed joints either vertical or radiating to a centre. Flat arches are not strong compared with other forms.

The semi circular arch derives its name from the shape of the curve given to the arch soffit. Semi circular arches are the strongest and exert no thrust on abutments or piers.

Segmental arches are segmental in shape and is commonly provided for openings of various sizes. The bed joints of segmental arches radiate from a common point which lies below the springing line and is equidistant from all points on the arch curve. When used over a lintel segmental arch is termed as 'relieving arch' A good rule for the radius of segmental brick arches over doors and windows or other small openings is to make the radius equal to the width of the opening.

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7.5. METHOD OF CONSTRUCTION

The usual centering for arch construction consists of a horizontal frame known as centre or turning piece. The centering differs according to the shape of the arch curve and the span of the opening. The centering may be of timber or brickwork. The upper surface of the centering is given the shape of the soffit of the arch to be constructed.

After the centering is properly erected in position, skewbacks are first prepared and voussions are arranged in the form of arch curve starting from the skewbacks and proceeding towards crown. Keystone is finally inserted to lock all the voussions in position. The viceroys must be properly bedded to ensure strength and stability of the arch.

The thickness of arch ring may be taken for brickwork in cement mortar 1:4 as follows :

- | | |
|-------------------------|-----|
| a) Upto 5' – 0" | 10" |
| b) 6' – 0" to 14' – 0" | 15" |
| c) 15' – 0" to 25' – 0" | 20" |

The thickness of arch ring at springing may be taken the same as at crown for small spans. In case of large spans over 6m, the thickness at the springing should be increased by about 20 percent.

It is preferable to provide all arches of span 6' - 0" and above with keys. For spans 6' - 0" to 12' - 0" there should be one key at the crown and for spans above 12' - 0" additional keys should be provided so that the distance between the keys is not more than 9' - 0" measured along the intrades. Keys should extend over the full thickness of the arch.

8. BRICK WORK WITH SPECIAL QUALITY SORTED OUT BRICKS

8.1. SCOPE

The work covered by this item consists of constructing brick wall and brick pillar of 250mm thickness or more with special quality sorted out 1st class bricks in cement mortar (1:4) and flush pointing the exterior surface with cement mortar 1:2.

8.2. MATERIALS

Bricks for use shall be regular in size and shape and shall conform to BDS 208: 1980 common building clay bricks (First edition). Special quality sorted out first class bricks having good texture, exact size, shape, edge and corners shall be used. There shall not be any crack or blemishes in the bricks.

Cement shall be ordinary Portland Cement Type – 1 conforming to BDS 232: 1974.

Sand shall be as specified in Material Section.

Water shall be clean and free from salt and other harmful materials.

8.3. METHOD OF CONSTRUCTION

Before starting the work, sorted out bricks of special quality shall be stacked separately for approval by the Engineer-in-charge. No brick shall be used from the ordinary stack of 1st class brick unless it is sorted separately for this particular type of brick work.

The work shall be carried out as per specification laid down in section 11.2 excepting that cement mortar shall consist of one part of cement to four parts of sand by volume.

Care shall be taken that exposed bricks are not stained as the work proceeds. No rubbing of faces shall be allowed to remove smear or stain. While putting mortar between joints special care shall be taken so that mortar does not roll down the face of the brick.

As work progresses clamps, anchors, hold-fasts and other items of items of various trades shall be permitted after the completion of the brick work. Holdfasts and similar fixtures shall be built in the surrounding brickwork in 1:3 cement mortar without disturbing the joint pattern.

Brick joints shall be water tight and no leakage shall be allowed. Brick joints shall be of uniform thickness and not more than 10mm (3/8"). Both vertical and horizontal joints shall be checked from time to time so that uniformity of thickness is maintained throughout the brickwork.

During brick laying, the joints on the exposed surface shall be carefully raked to a depth of 10mm (3/8"). Pointing shall follow after the masonry has been cured for 7 days. Masonry surfaces and joints shall first be thoroughly scrubbed and cleaned with clear water. When the wall surface is dry, pointing mortar with a cement sand ratio of 1:2 shall be applied with small steel trowels to fill the joints. Extreme care shall be taken that the mortar does not spread over the edges of the brick. The mortar shall be compacted by pressing the trowel hard against the joint and finished by drawing the trowel with a steady, firm tangential motion over the surface. The mortar consistency shall neither be too stiff nor too soft but must be of a consistency to take a polish at the time of finishing. The surface of the finished mortar shall be flush with the brick surface.

Flush pointing shall be cured for 7 days.

8.4. PRECAUTIONS

Only selected brick of uniform size and texture shall be used.

Selected bricks shall be stacked separately for this particular work. Blemishes and spreading of mortar on the brick surface shall be strictly controlled.

As the brick surface shall remain exposed special care shall be taken to give the surface a decent look and uniform joints and texture.

As there will be no plaster over the surface, special care shall be taken to fill the joints, both vertical and horizontal, properly to avoid leakage of water through the joints.

9. FACING BRICK WORK IN FLOOR / PAVEMENT

9.1. SCOPE

The work covered by this item consists of providing facing brick work in floor / pavement with machine made facing bricks. It may be either 100mm thick brick-on-edge or 50mm thick flat.

9.2. MATERIALS

Bricks shall be machine made pressed brick of size 200x 100x 50mm (8"x 4"x 2").

Specification for cement and sand shall be as stated under section 12.2.

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9.3. METHOD OF CONSTRUCTION

The cement mortar for preparation of bed and making joints between bricks shall consists of a mixer by volume of one part of cement to four parts of sands. The thickness of joints between bricks shall not be more than 6mm ($\frac{1}{4}$ ").

Before commencement of work, the bed shall be made perfectly level or set to any other suitable grade. No wearing coarse is proposed on this type of work.

After preparation of the bed, ceramic bricks shall either be laid flat or on edge on a bed of mortar keeping a gap of 6mm. The joints between the bricks shall then be solidly filled to the full depth by sand-cement mortar. Flush pointing shall be done as per specification stated under section 12.3. The work shall be cured for 7 days.

After completion of work, the top surface, shall be carefully cleaned of any spare or loose mortar or any other stain.

The same work can be done also by 17 hole / 10 hole ceramic brick or ordinary 1st class bricks on edge.

9.4. PRECAUTIONS

Level or grade should be properly maintained for drainage of rain water.

Vertical joints should be properly filled with mortar so that water does not leak into the bed and damage the work.

Green works should be fenced properly so that Human and cattle do not tread on it and damage the work.

No. mud band should be used for curing the work to avoid stain on the brick.

10. REINFORCED CONCRETE WORK

10.1. SCOPE

The work covered by this item consists of but not limited to reinforced concrete construction in foundation footings, columns, lines, beams, slabs, wall panels, retaining walls, water tanks, reservoirs etc. The R.C.C members may be cast in situ or pre cast in the work site or in a central manufacturing workshop from where they are carried and fixed in the desired position in the proposed structure.

10.2. CEMENT

Cement shall be ordinary Portland cement Type 1 conforming to BDS 232-1974 or any other type as specified in the design.

Requirements of cement shall conform to specifications as stated in section 5.2 la of Bangladesh National Building Code (BNBC) in addition to the requirement of BDS 232- 1974.

No cement which has been stored through a monsoon or for a period more than six months shall be used for reinforced concrete until samples have been tested and found to meet the requirement of standard specification. Approval of the Engineer-in-charge shall taken before any cement is used.

Cement bags containing clods giving indications of starting of initial setting shall not be used in R.C.C. work. It is important that the strength of cement is ascertained by testing before use. Cement shall never

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be measured loose but shall be so done in terms of bags, care being taken to determine the volume content of cement in bags.

The cement shall be stored at site in such a manner as to permit easy access for proper inspection, handling and identification of each shipment and in a suitable weather tight building that will protect the cement from dampness and wastage.

Cement shall be protected from moisture and damage in transit and shall be stored in the site in a store provided with a wooden floor raised not less than 30mm from the ground. Cement shall not be stacked higher than 6 bags.

Cement bags shall not be piled against the wall, a space of 300mm shall be left between the exterior walls and the cement bags. The bags shall be placed close together in the pile to reduce circulation of air as much as possible. For extra safety, Particularly during monsoon, the pile of cement bags shall be enclosed completely by polythene sheet or covered with a tarpaulin.

Batches of cement shall be used for the work in the order in which they are delivered to the site. Each consignment shall be stacked separately, so that the older cement may be identified readily for use earlier.

Only one brand of cement shall be used for a particular casting work except by written permission from the Engineer. Different types of cement shall be stored separately and shall not be mixed.

Use of rebagged cement shall not be allowed.

Engineer, at his discretion shall test cement which he feels to have deteriorated through age, damage to bags, improper storage or for any other reason. In the event of any sample being found to be not in accordance with BDS 232-1974 or any other standard as specified, the whole consignment from which the sample comes shall be rejected and removed from the site immediately notwithstanding any previous acceptance other-wise.

10.3. AGGREGATE :

Concrete aggregate shall conform to the "Coarse aggregate and fine aggregate from Natural source for concrete (BDS 243-19630) and made from Grade 'A' brick conforming to BDS 208 "Specification for common building clay bricks".

10.4. Coarse Aggregate

Coarse aggregate shall consist of either crushed stone or picked jhama brick chips as specified.

All coarse aggregate shall be cleaned and made free from dust and other impurities by screening and washing in water immediately before use. Aggregate coated with clay, salt, organic matter or crushed dust will not bond with surrounding cement paste.

Maximum nominal size of coarse aggregate shall not be larger than the most restricting of the following

- a) $1/5^{\text{th}}$ the narrowest dimension between sides of form.
- b) $1/3^{\text{rd}}$ the depth of the slabs



c) 3/4th minimum clear spacing between individual reinforcing bars, or bundle of bars or prestressing tendons or ducts.

The above limitations may be relaxed if, in the judgement of the Engineer, workability and methods of construction are such that concrete can be placed without honey comb or voids. Minimum size of coarse aggregate shall be such that it will be retained 100% by sieve No.4.

It is of major importance that aggregate be non-reactive with cement and water and that it be structurally sound, strong and durable.

The contamination of aggregate with top soil, humus or earthy materials containing products of organic decay even in small amounts is practically certain to cause early disintegration of the member.

One other important characteristic of coarse aggregate is surface texture. A material of rugged surface is by reason of its greater likelihood of mechanically adhering to cement paste more desirable than another of vitreous, or smoothly structured surface.

Size and shape as well as the relative number of particles of different size, are important in determining the suitability of materials for use as coarse aggregate. Since major function of aggregate is to act as bulk filler, the particle offering least resistance to rearrangement among their kind are most desirable. In other words, the aggregate should be well graded.

The angular shapes of the coarse aggregate play a very important role in attaining the compactness and strength of the concrete.

River shingles with its round surface give almost the same compressive strength as the sharp faced brick chips. As such to attain greater strength of concrete boulders should be brought to site and broken to proper size to use as coarse aggregate.

10.5. Fine Aggregate

For concrete, any sound filler materials that will pass through a sieve having square openings of 1/4 inch size shall be reckoned as sand or fine aggregate. It should be well graded particles and retained on No. 100 sieve in which not more than 5% dust is allowed. Coarseness of sand plays a very important role in the compactness and strength of concrete. Every endeavour should be made to obtain the coarsest variety of sand and the minimum fineness modules (F.M) sand for concrete work shall be 2.5 particle larger than 1/4 inch in size are declared as coarse aggregate.

It should be free from clay and other foreign materials as far as possible. The amount of clay contained in sand may be ascertained by stirring samples of sand in clear water in glasses and allowed to settle for about 15 minutes after brick stirring. The thickness of clay deposit will be apparent and any staff containing appreciable amount of clay shall be rejected.

Sand shall be well graded and must contain all sizes from the maximum specified down to the smallest size.

Sand should be washed thoroughly to get rid of the clay and other undesirable materials particularly salt before use in R.C.C.

10.6. WATER

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Water used in mixing concrete shall be clean and free from injurious amount of oils, acids, alkalis, salts, organic materials and other substances that may be harmful to concrete or reinforcement.

Non potable water shall not be used in concrete only if specified mortar test cubes made with non potable water produce at least 90% of the strength achieved with potable water.

10.7. STEEL REINFORCEMENT

Reinforcing steel shall conform to "Specification for steel Bars and Wires for the Reinforcement of concrete" (BDS 1313).

Reinforcing steel shall be deformed bars of grade 40 and grade 60 having f_y equals to 275 MPa and 400 MPa respectively. Bars manufactured only from billet steel shall be used as reinforcing bars. Bars produced from scrap shall not be used as reinforcing bars under any circumstances.

Before use reinforcing bars shall be tested either from BUET or any other standard laboratory approved by the concerned Executive Engineer (Design), to ascertain its yield stress, ultimate strength, chemical composition, percentage elongation etc. The result shall have to conform with the design strength specified by the Design Engineer.

Allowable tensile values of reinforcing bars shall be:

- a) $f_s = 125$ MPa (1800 psi.) with mild steel (Built) deformed bars grade 40 having minimum $f_y = 276$ MPa (40,000 Psi.)
- b) $f_s = 165$ MPa (24000 Psi.) with deformed bars Grade 60 having minimum $f_y = 415$ MPa (60000Psi.)

10.8. CONCRETE STRENGTH

Standard cylinder crushing strength of concrete at 28 days shall be minimum.

- a) 17 Mpa (2500 Psi.) with brick jhama chips and mix proportion (1:2:4).
- b) 20 MPa (3000 Psi.) with brick jhama chips and mix proportion 1:1 ½ :3
- c) 25 MPa (3500 Psi.) with brick crushed stone coarse aggregate and mix proportion 1:1 ½ :3

7 days crushing strength shall be less than 70% of the specified 28 days crushing strength.

Testing of concrete shall be done frequently and test result furnished to the design office for checking and record.

Slump test shall be performed at site for every days concrete mix to ascertain the consistency and water cement ratio of the mix.

10.9. GENERAL DESIGN REQUIREMENTS

- (a) Structural drawings shall be read in conjunction with Architectural drawings. For any contradiction between structural and architectural drawings, structural designer shall be consulted for any correction or modification.



- (b) All written dimensions shall be followed and not scaled from drawing. For dimensions of structural members like slab, beam, column etc. structural drawing shall be followed.
- (c) No deviation from structural design is advised without the approval of the concerned designer.
- (d) Cement, aggregate, M.S. Rod shall be tested either in BUET or in a standard testing laboratory approved by the concerned Executive Engineer and test result shall be furnished regularly to the design office for checking and record.
- (e) Polythene sheet as per specification shall be laid underneath all concrete work to prevent leakage.
- (f) Plain and Reinforced concrete casting must not be done without the presence of an officer in the rank of Assistant Engineer and Sub-Assistant Engineer in the site order book.
- (g) Cement blocks of required thickness made of (1:2) cement mortar shall be used under or sides of the reinforcing bars to maintain clear cover, Under no circumstances, broken brick shall be used as clear cover blocks.
- (h) Conduits and pipes embedded in concrete shall satisfy the following requirements :
- Concealed PVC or any other pipe laid in the slab for electrical or any other trade shall be placed at the middle between top and bottom reinforcement. Under no circumstances, it shall be laid beneath the bottom reinforcement.
 - Conduits and pipes with their fittings, embedded within a column shall not displace more than 4% of the area of cross section of column.
 - Conduits and pipes shall not be larger in outside dimension than 1/3rd the overall thickness of slab, beam or wall in which they are embedded.
 - Conduits and pipes shall not placed closer than three times the diameter or width on centres..
 - Concrete and pipes, conduits or fittings shall not be less than 0.75" (20mm) for concrete not exposed to weather or in contact with ground nor 1.5" (40mm) for concrete exposed to earth or weather.
- (i) The following minimum concrete cover shall be provided for reinforcing bars for cast-in-place reinforced concrete :

Non- Saline Zone :

- Slabs, walls $\frac{3}{4}$ " (20mm)
- Beams, girders,
- columns (to ties, stirrups or spirals) 1 $\frac{1}{2}$ " (40mm)
- Concrete in contact with soil. 3" (75mm)

10. Beams, girders or slabs supported on R.C.C columns or walls shall not be cast or erected until concrete in the vertical support member is no longer plastic.

11. Clear distance between parallel bars (except in columns and between multiple layers of bars in beams) shall not be less than the nominal bars diameter, $1 \frac{1}{3}$ times the size of coarse aggregate nor 1 inch (25mm).

12. Where reinforcing bars in beams and girders are placed in two or more layers, the clear distance between layers shall not be less than 1" inch and the bars in upper layers shall be placed directly above those in the lower layers.

13. In column, the clear distance between longitudinal bars shall not be less than $1 \frac{1}{2}$ inch (40mm).

14. Corner reinforcement shall be provided in any exterior corner of two way slab system. spacing of reinforcement shall be equal to the spacing of maximum positive reinforcement.

10.10. ADMIXTURE

An admixture is an extra component sometimes added to a concrete mixture for the purpose of creating a special property or for neutralizing a normal characteristic of the concrete, or to some deficiency of the mixture.

Chemical admixtures are added to concrete for the purpose of modifying the normal plastic life of the mixture or for influencing its rate of gaining hardness and strength. A disadvantage of most chemical admixtures is that small changes in their amount cause great change in their action. Furthermore, some may retard one type of cement and accelerate another.

Thus, successful use of admixtures requires, precautionary study with the associated cement before they are used, because their adequacy of performance is difficult to measure at a construction site during the progress of work as consistency of action is not visually evident, abnormality of behaviour is not immediately disclosed and may not become known until some year after the structure is built.

There are several dispassionate reasons why some Engineers are sceptical of admixtures in general. Successful use of these requires watchful observation and vigorous control, other-wise if they are used beyond certain limits, they may be disastrous, Successful use can only be achieved by expert technicians.

10.11. WATER- CEMENT RATIO

For complete hydration of a given amount of cement, an amount of water equal to 25 percent of that of cement, by weight is needed chemically. An additional 10-15 percent must be present, however, to provide mobility for the water in the cement paste during the hydration process so that it can reach the cement particles. This makes for a total minimum water cement ratio of 0.35-0.4 by weight. This corresponds to 4.5 gallon of water per sack of cement, the most customary way of expressing the water cement ratio. Water cement ratio in concrete is generally considerably larger than this minimum to provide the necessary workability of the concrete mix.

Provided the mix is sufficiently workable to be adequately compacted, the concrete with least amount of water gives the maximum strength. The quantity of water to be used in the mix should be minimum, consistent with the workability of the forms. It should be remembered that an excess



water in a concrete mix makes the concrete weak, porous and permeable to moisture, reduces the durability of the concrete and increases the shrinkage stress in it, resulting in cracks.

Concrete consistency is frequently measured by the slump test. A metal mould in the shape of a truncated cone 12 inch high is filled with fresh concrete in a carefully specified manner. Immediately upon being filled, the mould is lifted off and the slump of the concrete is measured as the difference in height between the mould and the pile of concrete.

The slump is a good measure of total water content in the mix and should be kept as low as is compatible with workability.

The following limits of slump should be followed as a guide line:

Sl.No.	Type of work	In inch
1.	Slab, beam & column	2" - 6"
2.	Foundation, footing, wall etc.	1" - 5"
3.	Mass concrete	1" - 3"

10.12. CONCRETE MIX PROPORTION

Proportions of materials for concrete shall be such that :

- a. Workability and consistency are achieved for proper placement into forms and around reinforcement, without segregation or excessive bleeding.
- b. Resistance to weather and other special exposure conditions to meet the durability requirements, are attained.
- c. The mix attains the designed strength. Concrete proportions, including water –cement ratio shall be established on the basis of field experience and / or trial mix with materials to be used.

10.13. PREPARATION BEFORE MIXING CONCRETE

Before mixing concrete, preparation shall include the following:

- (a) All equipment for mixing and transporting concrete shall be cleaned.
- (b) The platform where the concrete shall be poured from mixer machine shall be cleaned with water and free from debris and other harmful materials.
- (c) Containers for measuring aggregates, sand, water, cement shall be checked and approved by the Site Engineer.
- (d) All debris shall be removed from spaces to be occupied by concrete.
- (e) Form shall be properly cleaned and coated.
- (f) Masonry filler units that will be in contact with concrete shall be soaked thoroughly.
- (g) Coarse aggregate shall be thoroughly watered and cleaned of all foreign materials. Silt and mud.
- (h) Reinforcement shall be thoroughly cleaned of deleterious coatings.
- (i) Concrete blocks for maintaining clear cover shall be properly placed.
- (ii) Water shall be removed from the place of deposit before concrete is placed.

- (k) All laitance and other unsound materials shall be removed before additional concrete is placed against hardened concrete.
- (l) All reinforcements shall be checked to verify whether the rods of the specified number, diameter, length and shape with proper laps have been provided and the necessary clearance maintained as shown in the design drawing. It shall also be checked if the rods have been tied rigidly by wires, with the correct spacing in between. The effective depth shall be checked to see whether it conforms to that shown in the drawings.
- (m) No rectification works, for any part of the proposed R.C.C work, whether it relates to bending, binding of the reinforcement or to the correction of form work shall be allowed to be left for the day of the casting of the concrete. All such rectifications and corrections shall have to be done and complete on the day before casting is taken up.
- (n) The supporting brick walls should be smoothened to avoid adhesion or grip of grip of the concrete of the slab with the wall resulting in cracks in the wall due to contraction and shrinkage stresses developed when setting. This may be done by plastering the top surface of the wall and net cement finishing and properly curing with water and then placing polythene sheet on the top before laying concrete.
- (o) For important work, vibrator should be kept ready for vibrating the concrete.
- (p) Shuttering shall be properly wetted before laying of concrete.
- (q) Opening for fixing W.C pans, pipes clamps for fan hooks may be kept in the forms before casting concrete, so that the concrete is not to be partially dismantled and disturbed afterwards.
- (r) An officer not below the rank of Sub-Divisional Engineer shall approve in writing the form work, reinforcement detail, the quality of cement, sand and coarse aggregate at least one day before casting work is started.

10.14. MIXING OF CONCRETE

1. All concrete shall be mixed in a mixer machine unless otherwise approved by the site Engineer. Every batch shall be mixed in accordance with standard specification and shall be subject to rejection if not conforming to specification.
2. All concrete shall be mixed thoroughly until there is uniform distribution of materials and shall be discharged completely before the mixer is recharged.
3. Every batch shall be mixed for at least 90 seconds or until a uniform consistency of the mixture is obtained.
4. Platform where concrete shall be unloaded and the drum of the mixture machine shall be cleaned at regular intervals.
5. The volume of concrete mixed in each batch shall not exceed the manufacturers rated capacity.



6. A detail record shall be kept to identify:
 - (a) No. of batches produced
 - (b) Proportion of materials used
 - (c) Approximate location of final deposit in the structure
 - (d) Time and date of mixing and placing
7. Remixing of concrete shall not be permitted and any concrete mixed and not used within half an hour must be discarded. Mixing which may have undergone initial setting must also be discarded.

10.15. HANDLING AND PLACING CONCRETE

A most thorough and careful design can be completely defeated by improper practices in the handling of ingredients and placing of concrete. Unrestrained dropping, steep cutting and horizontal flow of concrete are extremely harmful and should not be tolerated. Whenever possible concrete should be placed in a form at its final resting place in a structure. Lateral flow of concrete causes the coarse aggregate and the mortar to come to rest at different places in a form and this may result in porous, honey combed or other unsuitable concrete.

In almost all situations concrete should be deposited vertically and in horizontal layers of reasonable depth. Great lift of a simple pour encourages segregation of coarse and sedimentation of the finer constituents of mixtures and moreover may cause unwanted displacement of forms.

No deposition of concrete shall be done before the surface on which concrete is to be poured, reinforcements and forms have been inspected and approved by the Engineer.

Concrete shall be transported from mixing to placing of final deposit as readily as practical while plastic and within the initial setting time, so that it flows readily into spaces between and around reinforcement. Partially hardened concrete shall not be deposited. Retampered concrete or concrete that has been remixed after initial set shall not be used.

After concreting is started, it shall be carried on as a continuous operation until placing of a panel or section is complete. During pouring of concrete, the mason shall not be allowed to use his mug and water.

Concrete shall be deposited continuously in layers not exceeding 12" or of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause formation of seams and planes of weakness within the section.

In order to secure full bond at the construction joints to the surface of concrete already placed including vertical and inclined surfaces, shall be thoroughly cleaned of foreign materials and laitance and slightly roughened. Shortly before new concrete is deposited, the joints shall be saturated with water. After free water disappears, the joints shall be given thorough coating of neat cement slurry to the consistency of a heavy paste. New concrete shall be deposited before the neat cement dries.

The concrete in R.C.C slabs shall be laid to proper thickness. To achieve this two strips of concrete about 6" wide and a little over the specified thickness should first be placed 6'- 0" to 8'- 0" apart, compacted and levelled to the exact thickness. Concrete is then poured within the intervening space between the strips (locally known as paya) and properly compacted to the desired thickness. Care shall be taken that during concreting, the rods are not displaced and that the effective depth of the slabs and the beams, the spacing of the stirrups and rings and the clear cover to the bars are maintained. Care shall be taken to see that the top negative rods are not displaced at all which seriously affects the design and the desired strength of the structure. Particular attention shall be given to the spacing and placing of rods in the cantilevers.

To ensure that above, the following procedures among others in practice shall be adopted:

- a) Wooden block with handle shall be placed on the shuttering to check the depth of casting.
- b) Before and during casting, the main reinforcing bars both positive and negative shall be kept in position. Negative reinforcement shall be kept in position with steel chairs. Adequate precautions against displacement and depression of rods due to trampling of the workers, shall be taken. If the rods are displaced, these shall be reset to their correct position and tied rigidly again before concreting can be done.

c) For maintaining the correct clear cover of the bottom reinforcement in the slabs & beams, concrete blocks of proper size should be used and these may be incorporated in the casting. Care must be taken so that no wooden block or any other foreign stuff remains within the concrete mass. Pieces of bricks must not be used as clear cover blocks. To avoid exposure of reinforcing bars and subsequent corrosion due to oxidation, special care shall be taken so that design clear cover is maintained properly.

Care must be taken so that the lines of rods are straight and parallel to the edges of the slab in both the direction. The ends of the rods shall have uniform clearance to the formwork.

Walking on recently poured concrete shall not be allowed. In unavoidable circumstances wooden planks may be laid on concrete for the purpose.

10.16. COMPACTION OF CONCRETE

Concrete shall be thoroughly consolidated by suitable means such as tamping, rodding and spading and shall be thoroughly worked around reinforcement and embedded fixtures and into of reinforcement and the essential for the elimination of large casual voids, the complete encasement of reinforcement and the proper contact of concrete with form faces and embedded fixtures. Compacting is achieved by hand tamping with a variety of hand tools but now more commonly and successfully with power driven vibrators.

Proper use of mechanical vibrator is beneficial to the compressive strength and bond strength between concrete and steel. But the consistency of concrete to be vibrated and no honeycombed surface appears after the removal of formwork. Where beams are deep and where spacing of rods



allows, wooden bargaths 2 ½" square and about 5'- 0" long shall be used in addition to the M.S rods for compacting the concrete.

Tamping on the laid concrete in slab shall be done with fairly heavy wooden straight edges (patta) fixed with handle by two masons at either end till the level of the finished surface is attained, proper compaction made and laitance comes out on the surface. Wooden mallets shall also be used for obtaining a uniform compaction and for filling up depressions.

While using mechanical vibrators for compaction of concrete the following precautions shall be taken:

1) The vibrator shall be applied at the point of deposit and the area of freshly deposited concrete. The vibrators shall be inserted and withdrawn out of the concrete slowly. The vibration shall be of sufficient duration and intensity to thoroughly compact the concrete but shall not be continued so as to cause segregation. Vibration shall not be continued at any one point to the extend that localized areas of grout are formed. Application of vibrators shall be at points uniformly spaced and not further apart than twice the radius over which the vibration is visibly effective.

Vibrator shall not be applied directly or through the reinforcement to sections or layers of concrete which have hardened.

Vibrators shall not be used to transport concrete in the forms.

Vibrators in the running conditions shall not be allowed to rest on reinforcement which extends to concrete that has partially hardened.

10.17. SURFACE FINISHING

Concrete surface shall be made smooth and levelled and brought to proper grade.

Steel trowel finish shall be made for exposed floor slab and roof slabs without lime terracing.

Wood float finish shall be done for all slab to receive artificial patent stone, terrazzo flooring, using wire brooms after the concrete is partially set.

Plastering to the concrete surface, where necessary, should be done immediately after the removal of formwork before concrete dries up and hardens.

10.18. CURING

Curing means preventing or delaying up of intrinsic moisture inside the capillaries of concrete for adequate hydration of cement in the mix in order that concrete may continue to gain strength. Curing also help against shrinkage cracking in plastic as well as in hardening concrete.

Directly after concrete has been placed in the formwork, water begins to evaporate from the fresh concrete surface. It is therefore important to protect the concrete surface against drying out as soon as placing and compaction have been completed and before the water shine disappears completely.

The following are the main methods of curing:

10.19. Retaining formwork:

This method is useful for curing vertical surfaces of structural elements like walls or columns or ceiling of floor slabs. Formwork used for casting concrete are normally, kept in place for four to seven

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days and they afford good protection against heat, wind, rain and cold. Wood left in place furnish good protection. To aid curing forms should be oiled and wetted before casting and may also be wetted during hardening.

10.20. Covering concrete surfaces with wet material:

This is most widely used method. It is done by covering the concrete surfaces by wet Hessian, which should be continuously kept wet. Normally for the first 24 hours. The concrete, is protected by formwork. In structural concrete, formwork supporting the vertical surfaces are sometimes struck off after 24 hours. These surfaces such as those of columns and walls are then kept moist by surrounding it with Hessian, damp sawdust or straw. The frequency of wetting depends upon the temperature, velocity of wind, humidity etc.

10.21. Ponding method

This is the most efficient method of curing. For the first 18 to 24 hours, the exposed surface is covered with moist Hessian or canvas. After that small banks of lean mortar are built around and along the slab, dividing the slab into number of rectangular ponds. These ponds are filled with water. This method is suitable for the construction of floors, roof slabs, roads and airfields.

10.22. EMBEDDED PIPES AND CONDUITS

The contractor shall co-ordinate with all other trades in placement of pipes, conduits, equipments and other accessories and shall provide the necessary openings in the concrete slabs. Concrete shall not be poured before placement of pipe and other concealed service lines.

The piping shall be so fabricated and installed that it will not require any cutting, bending or displacement of the reinforcement from its proper location. If any bending or displacement is required the attention of the Engineer shall be drawn for his decision.

All pipes, conduits or fixtures required to be embedded in the concrete shall be placed and secured in position before casting is commenced.

Special care shall be taken in case of conduit pipes for electrical wiring so that it is not laid in the slab below the bottom reinforcement, which shall invariably result in cracks in the slabs. These pipes shall be placed between the top and bottom reinforcements. Placing of conduit pipes parallel to the main reinforcement shall be avoided as far as practical. Conduit shall be placed diagonal to the reinforcement as far as practical to avoid cracks in the slab.

For the purpose of payment no deduction shall be made on account of displacements of concrete by pipes, utilities and other embedment and reinforcements unless otherwise specified.

Conduits and pipes of aluminium shall not be embedded in structural concrete unless effectively coated or covered to prevent aluminium concrete reaction or electrolytic action between aluminium and steel.

Conduits, pipes and sleeves passing through the slab, beam or wall shall not impair significantly the strength of the construction.



Conduits and pipes with their fittings embedded within a column shall not displace more than 4 percent of the area of cross section on which strength is calculated.

Conduits shall not be large in outside dimension than $\frac{1}{3}$ rd the overall thickness of slab, wall or beam in which they are embedded.

Conduits shall not be spaced closer than 3 diameters or widths on centre.

10.23. FORMWORK AND SCAFFOLDING

Forms are intended to define the contour and locate the position of individual members with reference to the structure, as a whole. Forms shall result in a final structure that conforms to shape, line, dimensions of the members as required by the design, drawings and specifications. To limit satisfactorily the size, shape and position of parts of the structure, it is necessary that forms be built to resist the forces imposed upon them.

All forms shall be of wood or metal as specified and shall be built mortar tight and of sufficient rigidity to prevent distortion due to the pressure of the concrete and other loads incident to the construction operation. Forms shall be constructed and maintained so as to prevent warping and the opening of joints due to shrinkage of the timber.

The form shall be substantial and unyielding and shall be so designed that the finished concrete will conform to the proper dimensions and contours.


Forms shall be so constructed that it can be dismantled without causing damage to the concrete or disturbing the centering and shuttering of other elements.

The formwork shall be water tight specially for the roof slab. Bamboo matting may be placed on planks or steel sheets to provide a rough surface after stripping of the formwork. Alternately ceiling may be roughed up by chiselling immediately after stripping off the formwork.

Suitable camber shall be provided in the formwork for horizontal members. The camber for beams and slab shall be 1 in 250 and for cantilevers 1 in 50 of the projected length.

Scaffolds shall be made from strong and suitable bamboo poles, wooden post or steel pipes. They shall be adequately tied to vertical member resting on firm floor.

Strong ropes shall be used to tie up bamboo poles. Bamboo for vertical supports shall not be less than 75 mm in diameter and shall be straight as far as possible. Bamboos may be used as vertical support for up to a height of 4m if horizontal bracings are provided at the center. Splicing shall not be allowed. Good, sound and uniform bamboos shall be collected in sufficient quantities for providing scaffolding, providing temporary stage etc. the bamboos shall be free from any defects. Joining bamboos with only nail shall be prohibited. Steel centering frame may be used for any height. In case of patented materials, the instruction of the manufacturer regarding the load carrying capacity shall be followed. Post to post support shall be provided with wooden planks. When tubular steel and timber centering is to be used in combination necessary precaution shall be taken to avoid any unequal settlement.



Tubular steel centering shall be thoroughly inspected before erection. Defective members shall be discarded. Adjustment screws shall be set to their approximate final adjustment after assembling the basic unit and the unit shall be levelled and plumbed.

The centering frames shall be braced to make a rigid and solid unit. Struts and diagonal braces shall be in proper position and secured. As erection progresses, all connecting devices shall be in place and fastened for full stability of joints and units.

In addition, cross bracing with bamboo or wooden posts shall be provided along with tie or guys of steel wire or rod not less than 6 mm.

Wooden planks or steel sheets shall be placed across horizontally below bamboos or wooden post to provide suitable footrest and carry construction materials. The whole assembly shall be securely lashed together.

The props shall be placed on timber planks, false brick work or steel sheet covering several posts at a time so as to eliminate the possibility of any sinking of the earth below particularly when the earth is likely to be moistened by water.

Care shall be exercised that centering of columns are true to plumb and thoroughly cross braced to keep them in position.

Due attention shall be given not to disturb the top layer of brick work at the time of fixing the shuttering. If this happens, the top course should be replaced by fresh brick work.

The shape, strength, rigidity, water tightness and surface smoothness of reused form shall be maintained at all time. Any warped or bulged timber must be resized before being reused. Forms which are unsatisfactory in any respect shall not be reused.

Half seasoned soft wood, laminated board or other smooth sheet shall be used for formwork for a fair faced finish.

The formwork made of materials liable to absorb water shall always be sprinkled with water to prevent water absorption from concrete. Water shall not be profusely used and the formwork shall be in a saturated surface dry condition.

All forms shall be tested both individually and in combination before final use to detect any flaw or defect. Measures shall be taken immediately to remedy any fault, if detected, before the formwork is ready for use. The frame and its joints shall be checked from time to time for the decay in ropes, bamboos, planks etc. the defective parts shall be replaced before the formwork is used.

Scaffolding and formwork shall be checked to see if all the props are stiffly supported over the firm base. If any form is found off base, wooden edges shall be inserted below the prop to obtain the required degree of rigidity, with regard to horizontal movement. Pieces of planks shall be used under each prop to distribute the load to a sufficient area of the ground.

The props should be adequately braced and the spacing shall not be more than 2'- 6" square below R.C.C slab centering. Very strong bamboo or salbullah props shall be used for the shuttering of R.C.C beams.



No clay plaster, packing with pieces of per, jute, cotton waste etc. shall be allowed to make up the gaps between the centering.

Metal ties or anchorages like bolts and nuts within the forms in vertical members shall be loosened and withdrawn before initial setting of concrete. The resulting hole shall be filled with rich mortar and the surface left smooth, sound, even and uniform in colour.

Forms shall not be removed until the concrete has developed sufficient strength to support all predicted loads.

Form shall be removed until the concrete has developed sufficient strength to support all predicted loads.

Form shall be removed in such a manner as to ensure the complete safety of the structure.

For all R.C.C work with proportion 1:1 ½ : 3 steel shuttering shall be used.

An officer not below the rank of Sub-Divisional Engineer, shall check all reinforcing detail and levelling of the centering. In case of slab supporting on brick work, the top level of the brick wall shall be levelled either by a levelling instrument or water level and shuttering shall be levelled with respect to the top of the brick work.

The form shall not be removed before the expiry of the minimum period specified below:

- | | |
|--------------------------------------|-----------|
| 1) Bottom of the slabs | = 15 days |
| 2) Bottom of the beams & girders | = 21 days |
| 3) Sides of the beam | = 7 days |
| 4) Sides of the columns | = 3 days |
| 5) Sides of the pedestals & footings | = 2 days |

11. PLASTERING

11.1. SCOPE

The work covered by this item consists of providing plaster of any specified thickness and proportion on surfaces of brick work and concrete for protection of masonry surface and concrete and also for giving an aesthetic appearance.

11.2. SURFACE PREPARATION

Before commencing plastering work, all drawings, finishing schedules will have to be checked thoroughly to identify the surfaces receiving the particular type of plastering.

All concealed utility service lines, conduits, pipes, clamps, door/ window frames and other such inserts must be in position before plastering commences. Chiselling and patch repairing of plastering shall not be permitted.

All joints of masonry shall be raked out to depth of 10 mm. All brick faces shall be made free of dust, cement mortar, algae, moss, dirt etc. by washing with water. The surface shall also be soaked with water before plaster is applied.

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When a flat smooth surface such as ceiling or a surface of exposed concrete is plastered, the surface shall be roughened beforehand by picking thoroughly with a suitable sharp picking tool and also be watered.

11.3. MATERIALS

Cement shall be ordinary Portland cement Type 1 and sand shall be specified in the schedule of rate. Mix proportion for wall shall be 1:4 sand shall be screened by a 100 mesh wire netting sieve and washed to get free from clay and other salts. It shall be carefully washed in water to get rid of the trouble of saltpetre action in plaster and dampness to the wall due to efflorescence's. The mortar for plaster should be mixed dry in the proportion as specified and wet mixing shall be in small quantity to avoid initial setting of cement before it can be used up. Mixing of mortar on a finished floor must not be allowed.

11.4. APPLICATION METHOD

Before the application of plaster, the surface shall be soaked with water so that water from the mortar is not absorbed by the dry surface. The cement and sand properly mixed with water in the proportion as specified shall be laid on the clean walls to a thickness of 12 mm. Thicker plaster on average up to 20 mm, may be necessary for the uneven face of the 250 mm. Wall laid plaster shall be finished by straight edge and trowel. Adequately long straight edge shall be used to bring the surface to true plane and level. After finishing the plaster with trowels and after some hours steel trowel (USHA) shall be used to make the plaster smooth. Care should be taken to see that Usha in the plaster for obtaining a perfectly smooth surface having no undulation.

Guide bunds of plaster called the 'Paya' first be laid on the wall at suitable distance and their verticality and their being in the same plane shall be checked by a wooden straight edge (patta) and plumb bob. Then the space in between shall be made even by laying the plastering materials and finishing the surface evenly between the guide bunds. The surface and level of plaster should be checked by placing the straight edge horizontally, vertically and at different angles.

When a flat smooth surface like ceiling is to be plastered, the same method shall be applied but the thickness shall be only 6 mm. The use of 'Usha' in the ceiling plaster is very important as this is the only way how the ceiling plaster can be conveniently made smooth and even. It should be remembered that the lack of attention on this point shall give a poor finish to the ceiling, leaving trowel and uneven 'Usha' mark which speaks seriously on the aesthetic look and the finish of the room. Particular attention shall be given to this by the field officer.

Another way of checking the level of ceiling plaster is by high powered electric light. Unevenness of plaster in the ceiling will be clearly visible if high power bulb is lit in the room. Level of ceiling plaster can also be checked by spraying water on the ceiling and checking the movement of water drops on the ceiling. On a level surface of ceiling water drop shall not move horizontally, rather it will stay at one point or fall on the floor. While on an uneven surface, water drop tends to move towards the lower levels.



A full wall or ceiling of a room will preferably be completed at a time.

Corner and edges shall be slightly rounded up but the corner in the corner in the junction or wall and roof, wall and floor and junction between walls shall have either straight edge or uniform curvature as desired by the architect.

11.5. CURING

Curing of plaster shall be done for 7 days. Brass hand sprayers or water pipes shall be used for curing plastered surface. Care shall be taken to see that the plastered surfaces are kept wet for at least 7 days. For want of curing, plaster becomes weak even though right proportion has been used.

11.6. PRECAUTION

a) utmost care shall be taken to the correct and smooth finish of plaster without which the surface and the building presents a very poor show. Edges and mouldings must be true to line and level.

b) Sand shall be well screened and thoroughly washed in water for getting out of foreign materials and undesirable salts.

c) Care shall be taken to avoid trowel and 'usha' marks and depressions and holes on the surface.

d) Sand and cement shall be mixed very thoroughly in dry condition before water is applied and in no case the quantity mixed should be for more than ½ hours use. Mixing in big quantity shall be avoided.

e) Special care shall be taken for curing.

12. PATENT STONE FLOORING:

12.1. SCOPE

The work covered by this item consists of providing artificial patent stone flooring with cement concrete in the proportion of 1 part cement, 2 part sand (50% local sand of FM 1.2 and 50% Sylhet sand of FM 1.5) and four parts of clean, twice washed 12mm down graded picked jhama chips and finishing the top with neat cement.

12.2. MATERIALS

Cement : Ordinary Portland cement Type -1

Sand : Sand shall be 50% local sand of FM 1.2 and 50% Sylhet sand of F.M. 2.5.

Coarse aggregate : Coarse Aggregate shall be 12mm (1/2") down graded picked jhama chips.

Samples of sand and coarse aggregate shall be approved by the Engineer-in-charge before use.

12.3. METHOD OF CONSTRUCTION

Before proceeding with the work a sample panel of flooring shall be prepared for approval by the Engineer-in-charge.

The sub-floor over which the artificial stone flooring will be laid shall be thoroughly picked and washed clean of laitance, dust, dirt and other foreign materials. Following the preparatory work, the

sub-floor shall be thoroughly wetted with clean water by ponding at least overnight prior to the application of the flooring. All excess water shall be removed ahead of the application of the bonding slurry, so that the concrete surface is uniformly damp but not glistening wet.

A creamy bonding slurry of cement shall be applied and well scrubbed into the surface with stiff bristle brushes. Only as much bonding slurry shall be mixed and applied as will be covered by the succeeding coat before the slurry dries out. In general not over 10m (100 sft) shall be slurried at one time in order to maintain a live glue for bonding. Apply and brush in the slurry in small areas not exceeding 2.5 sq.m Excess or dead slurry shall be constantly removed from the base by broom.

Before laying the concrete mix, temporary dividers shall be installed to pour concrete in 'chequered board' plan. The temporary dividers may be of metal strips or wooden battens of true line and shape. The top of the dividers shall be perfectly level with the level of the finished floor desired.

Concrete mix shall be applied promptly in specified thickness after slurring before the paste has hardened or dried. The method of measuring and mixing cement, sand and khoa shall be as per specification described elsewhere for cement concrete. The mixture shall be spread evenly between the battens. It shall be brought to an even grade by means of a strike board, then beaten and prodded with wooden pattas to thoroughly consolidate it until the mortar comes to the surface and smoothed off with a wood float so as to give a surface free from depressions or irregularities. If any depression has to be filled a small quantity of the finer materials in the proportions specified may be used but this should be avoided as far possible.

Minimum 1.5mm thick, neat cement finishing shall be done using cement powder strained through fine cloth and paste of cement shall be rubbed in the surface with the help of small steel trowels working on the surface carefully, and repeatedly using at least 4 passes over the entire area till the neat cement finish is very smooth, polished, plane and hard.

The sequence of filling in the panels shall be on "chequered board" plan. The casting of the complementary sets shall be done at least 48 hours after the first set is cast and dividers removed.

The top shall be moist, cured for at least 7 days by banding with a cement sand lean mortar band and not with mud. The flooring shall not be subjected to moderate use before 14 days and to severe use before 28 days.

12.4 COLOURED FLOORING :

3mm thick coloured topping made of a mixer of 1 part of red oxide of iron or any other approved colouring materials and 3 to 6 parts of Portland cement . For coloured cement floor, mix pigment colour with neat surface cement in the proportion of 1:3 to 1:6 (coloured : cement) to have the desired colour. White cement mixed with colour pigment to the desired proportion may also be used, but for strength it is better if ordinary Portland cement is mixed with white cement in the proportion of 1:1 to 1:3 (grey Portland cement : white cement) and then to add colour pigment to have the desired colour.



When colour pigment is mixed with white cement, the requirement of colour pigment is much less, may be 1:5 to 1:10 (pigment : white cement).

The proportion shall be decided after making several sample mixtures.

The mixture shall be mixed dry thoroughly by hand till a uniform mix is obtained. Then it should be screened through fine cloth so as to attain the best uniformity of the mix. Water shall be added gradually and the mixture turned over carefully so that a uniform paste is obtained. Water shall be used very sparingly, as otherwise, the colour will be spoiled by efflorescence.

The paste shall then be laid very carefully over the artificial stone flooring to a thickness of 3mm to obtain a smooth surface. A rectangular English trowel shall be used for finishing. The surface shall be tested with a straight edge and a spirit level. It shall then be left for twelve hours undisturbed so that it dries up slowly.

It shall then be polished with soft stone. Three different types of polishing stones one after the other shall be used till a perfectly smooth and glossy surface is obtained. While polishing the surface, sufficient water shall be used and all round off.

For coloured floor, if the floor dries up quickly, hair cracks shall develop. On the other hand, if water is kept stagnant for curing, floor shall be discoloured. So curing of coloured floor shall be done by Hessian cloth or jute bag kept wet for several days.

12.5. PRECAUTIONS

Flooring must be done according to "chequered board" plan after every 48 hours of doing the earlier one.

No slop should be given in bed room, drawing room. Proper slope for natural drainage shall be given in kitchen, verandah, bath room etc.

Mud must not be used for preparation of band for curing the floor to avoid stain of mud on the floor.

For coloured flooring, mixing of colour should be done thoroughly and percentage of colour should be kept constant to give a uniform look.

Curing coloured floor shall be done by wetting Hessian cloth or jute bags instead of stagnant water to avoid discolouring of the floor.

Cement coloured patent stone flooring shall be done after about 10 to 12 days after the finishing work is completed.

13. FLOOR / WALL TILE WORK

13.1 SCOPE

The work covered by this item consists of providing glazed tiles on walls and floors.

13.2 MATERIALS

Glazed tiles if specified as local shall be manufactured by BISF and foreign made glazed tiles shall be from the country as specified by the Engineer-in-charge. Setting bed for wall shall be cement

mortar with proportion 1:3 and for floor 1:2. colour and size of glazed tile shall be as specified by the Engineer-in-charge. or the Architect.

13.3 METHOD OF CONSTRUCTION

For walls, the top of the glazed tiles shall be in the same line with full tile at the top. No. cut piece tile shall be laid at the top. For maintaining level in the bathroom, a slope is provided towards outlet of water, as such bottom lines of the four walls shall be at different levels. First a line shall be drawn on the four walls of the bathroom in such a way that the height of the wall up to which tiles shall be laid above this selected bottom line. Area below the selected line shall be fitted up by cut piece tiles of different heights according to the slope of the floor. It must be remembered that floor tiles shall be laid only after completion of wall tile work. If the floor is made of terrazzo tiles, area below the bottom selected line may be made of cast-in-situ-terrazzo wall.

Glazed tiles shall be laid true to levels and in plumb line. The tiles shall be press laid in such a way that no hollow space remains between the tiles and the base mortar.

If there is a false ceiling in the bath room and the wall tiles are laid up to the bottom of the false ceiling, then the ceiling plaster of the false ceiling shall be done after laying the wall tiles to maintain perfect horizontal line between the junction of top level of the tiles and the plastered bottom of the false ceiling.

The joints of the tiles shall be filled with white cement to arrive at an uniform and smooth joints. The tiles shall be cured at least 7 days.

Floor tiles shall be non-slip or as specified in the schedule of items of work and as directed by the Engineer-in-charge.

Floor tiles shall be laid by maintaining proper slope towards drain on cement mortar bed of 1:2 proportion. Proper care shall be taken so that no hollow space remains in the mortar bed.

The joints shall be filled in with white cement.

14. WHITE WASH

16.1 SCOPE

The work covered by this item consists of providing a plastered wall or ceiling with one or more coats of washing with time to which gluing materials and small quantity of blue is added. In color washing a color pigment is added to the lime water mix.

16.2 MATERIALS

- a) Quick or stone lime
- b) Gum Arabic / Glue / Adhesive glue
- c) Robin blue
- d) Colour pigment
- e) Water

16.3 MIXING



Stone lime shall be slaked on the spot. The slaked limes shall then be placed either in a tub or any other container containing clean water. It shall be mixed and stirred thoroughly until it attains the consistency of thick cream.

The mixer thus prepared shall be allowed to rest for about 12 hours. The floating foreign materials are removed from the top surface. The mix is then stirred thoroughly for about 10 minutes. When sufficiently mixed, it shall be strained into a separate container through coarse cloth. Gum Arabic in the proportion of 250gm of gum to 20 kg 1 cft. of lime shall be added and dissolved in the strained mix. A small quantity of Robin blue is also added to mix as desired by the Engineer to give a slight bluish tinge.

Colour pigment according to colour schedule or as directed by the Engineer shall be added to the mix in case of colour wash.

Requisite quantity of water shall then be added so as to produce a slurry of the required consistency. It shall be stirred sufficiently to ensure uniform mixing. It necessary it shall be rubbed with sand paper.

16.4 SURFACE PREPARATION

Before the white wash is applied the surface of the wall or ceiling shall be thoroughly cleaned and free from all foreign materials. Defects shall be repaired accordingly. If necessary it shall be rubbed with sand paper.

Before application of white wash sample work shall be done on selected surfaces for the approval of the Engineer. In case of colour wash this is more important to select the right shade as desired by the Engineer or Architect.

16.5 APPLICATION METHOD

White wash shall be applied on the surface in two over a coat of priming. Each coat of washing shall consist of two course, one applied vertically and the other horizontally.

Each coat shall be allowed to be dried up perfectly before a succeeding coat is applied over it. In case of colour wash, priming coat is applied over it. In case of color wash, priming coat shall be white.

Whatever scaffolding is necessary for white wash, it shall be free standing so that it can not damage or scratch the painted surface.

The final coat shall be laid on with hair brush and not with brushes made of jute. the final coat shall be perfectly smooth, free from any marks of brush or others.

16.6 PRECAUTION

a) Before application of the white wash or colour wash, the floor surfaces and dado of walls shall be kept moist so that the white wash or colour wash dropping marks can be easily cleaned. If the surface is dry it becomes very difficult to remove the stain. In important surfaces, it should be covered with Hessian, so as to eliminate dropping of white wash on those surfaces.

b) After the days work, the surface of the dado and floor of each room and verandah shall be thoroughly washed with water and cleaned by rubbing.



c) Any white or colour wash dropping on the wood works of doors and windows, ventilators, partitions, shall be removed by rubbing with a piece of wet cloth and washing with water. Such marks on painted surface should be washed and finished with oiling, if necessary.

d) Quantity of colour wash shall be mixed at a time in such a way that one room or a wall surface which is visible at a time can be completed, in order to ensure uniform colour throughout.

15 DISTEMPER

15.1 SCOPE

The work covered by this item consists of finishing the plastered surfaces with two coats of synthetic polyvinyl distemper applied over a prime coat of chalk wash with glue or sealer. This is exclusively for interior decoration and the distempered surface is non-washable.

15.2 MATERIALS

- High quality SPD of approved Brand
- Shell lime
- Whiting
- Putty
- Sealer
- Clean water

(No distemper, the make of which has not been approved by the Executive Engineer shall be used. Whiting is made by reducing pure white chalk to a fine powder.)

15.3 SURFACE PREPARATION

The surface to receive distemper shall be thoroughly rubbed with sand paper, to be made free from all dirt, grease, loose paint and other foreign materials. If necessary, the surface shall be washed with water and dried. If during this process, any part of the old smooth surface gets damaged, it shall be repaired and the plaster applied so that the surface of the new work lies evenly with the old. Any depressions, holes in the plaster shall be repaired with approved putty.

After the repaired patches are thoroughly dry, the wall shall be washed over twice with a solution made from equal proportion of whiting and best shell lime. Distemper is applied upon the base thus prepared.

Sample of distempering work shall be done on selected surface for approval of the Executive Engineer before final application.

15.4 MIXING AND APPLICATION

Only proprietary distemper shall be used and the manufacturer's instruction for mixing and applying them must be followed. Distemper paste from the sealed container shall be dumped in a separate container. Quantity of water as per manufacturer's instruction shall be added in the same container and stirred and mixed until it attains the desired consistency.



Distemper shall be applied on the surfaces by proper distemper brushes so as to leave no mark. The brush shall be dipped in the mix and stroked on the walls horizontally. The mason shall work in such a manner that no overlap is visible when the surface is finished.

Each coat shall be perfectly dry before the succeeding coat is applied over it.

Two coats of distemper shall be applied over the prime coat.

15.5 PRECAUTION

- 1 Only approved brand of distemper shall be free standing and not to damage or scratch the painted surface.
- 2 Whatever scaffolding is necessary, it shall be free standing and not to damage or scratch the painted surface.
- 3 Adequate precautionary measures shall be taken so as not to damage or stain the floors, walls or any other work while applying distemper. Any damage, stain or spots caused while distemping shall be rectified and removed instantly.
- 4 The thinned material shall not be kept longer time for menses.

In alignment with the above specification, the following writings need to be construed as a whole:

Construction of Protection Wall

Providing and maintenance one **project profile signboards** to be placed at a suitable place of the site including submission of proposals for the materials of the signboards and text layout containing 3D picture, safety instructions, project information with security light etc to the Engineer-in-charge for approval which will be positioned as directed by the Engineer-in-charge and removing the same on completion of the works or as instructed by the Engineer-in-charge.

Bench Mark Pillar: Manufacturing, supplying & fixing in position RCC (1:2:4) Bench Mark Pillars of size 150mm x 150mm x 750mm, with 400mm x 400mm x 100mm base having 3 nos. 10mm dia MS bar each way at base, 4 nos. 10mm dia vertical bar and 8 nos. 6mm dia tie, including cost of form works, concreting, reinforcement, plastering at top, inscribing on exposed surface, finishing surface, curing, earth cutting, embedding 450mm below GL., backfilling, ramming etc. complete as per direction of E-I-C.

Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-



in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth

Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.

Pre-cast pile made in reinforced cement concrete with minimum cement content relates to mix ratio 1:1.25:2.5 having minimum $f'_{cr} = 38.5$ Mpa, and satisfying specified compressive strength $f'_c = 30$ Mpa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM & cement conforming to BDS EN-197-1- CEM-I (52.5 N) / ASTM-C 150 Type - I, best quality coarse sand (F.M.2.2), 20 mm down well graded crushed stone chips conforming to ASTM C-33, mixing in standard mixture machine and fed by standard measuring boxes, including all related works like screening through proper sieves, cleaning and washing, centering and placing reinforcement cages in position, casting, compacting by vibrators and tapered rods as where necessary, curing for 28 days etc. cost of water, electricity and other charges, providing fitting and fixing pile shoe in position, tools, plants & equipments, mobilization, demobilization, labour, test of materials and concrete etc. all complete as per design, drawing and accepted by the E-I-C. charge. (Rate is excluding the cost of reinforcement and its fabrication, binding, welding and placing)

Cost of bed preparation including one layer brick flat soling with first class/picked jhama bricks including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge, Minimum 12 mm thick cement sand (F.M. 1.2) plaster with neat cement finishing with cement (1:4) including washing of sand, finishing the edges and corners and curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect and accepted by the Engineer-in-charge (Cement: CEM-II/B-M) and polythene as separator between pile layers during casting concrete.

Supplying and laying of **single layer polythene sheet** weighing one kilogram per 6.5 square metewr in floorf or any where below cement concrete complete in all respect and accepted by Engineer in charge.



Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2

Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum $f'_{cr} = 33.5$ MPa, satisfying a specified compressive strength $f'_c = 25$ MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type- I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded **stone chips** conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)

Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for: Pedestal, column, column capital, lift wall and wall

Mobilization and demobilization of drop hammer type pre-cast pile driving rig.

Driving 300 mm x 300 mm to 350 mm x 350 mm size pre-cast pile with drop hammer type rig, and maintaining driving log in prescribed format Before commencing driving operation, contractor shall submit method statement for carrying out the driving operation including sequence of driving to the Engineer-in-charge for approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under contract.

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Labour for **breaking head of hardened cast in situ bored pile/pre-cast pile** up to a required length by any means but without damaging the rest and removing the dismantled materials such as concrete to a safe distance including scraps and cleaning concrete from steel/M.S. rods, straightening and bending of pile bars, preparation and making platform where necessary, carrying, all sorts of handling, stacking the same properly after clearing, leveling and dressing the situ and clearing the bed etc. complete in all respect and accepted by the Engineer-in-charge. (Measurement will be given for the actual pile head volume to be broken)

Brick works with 10 holes machine made bricks of approved size (241 mm x 114 mm x 70 mm) having uniform colour carefully laid in cement sand (F.M. 1.2) mortar (1:4) in superstructure with uniform width and depth of joints, true to vertical and horizontal lines including raking out joints, filling the interstices with mortar, cleaning and soaking bricks at least for 24 hours before use and washing and screening of sand, necessary scaffolding, curing at least for 7 days and pointing with cement sand (F.M. 1.2) mortar (1:2) including cost of water, electricity and other charges etc. complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

Supplying, fabrication and fixing to detail as per design : **ribbed or deformed bar reinforcement** (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (R_{eH}) = 400 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively



Epoxy Coated Steel Reinforcing Bars : Grade 420 MPa (B420 DWR: Complying BDS ISO 6935-2:2016/ASTM A615 for reinforcement bar with ASTM A775/BDS ISO 14654:2013 Specification for fusion Bonded Epoxy Coating)) ribbed or deformed bar with fusion bonded epoxy coated. Ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (R_{eH}) = 420 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively.as per ASTM A775/ BDS ISO 14654: 2013 specification for a coating thickness (after curing) of 175 to 300 microns for 10mm to 16mm and 175 to 400 microns for 20mm to 50mm re-bars.Supplying, fabrication and fixing to detail as per drawing: Ribbed or deformed fusion bonded epoxy coated bar (including laboratory test) for reinforcement concrete, produced and marked with accordance ASTM A615 and ASTM A775 (for epoxy coating) including straightening and cleaning rust, if any, being and binding in position with using of PVC coated binding wire instead of GI wires, including extra cost on account of touch-up material (all cut edges/weld areas and bend locations where coating has been damaged touch up shall be done with same paint, the upper thickness limit shall not apply to repaired areas of damaged coating) and repair work and flexibility & holiday testing, including all taxes, etc. complete to ensure proper resistance of FBE against corrosive environment counting necessary laboratory test etc, (excluding splice or laps) complete in all respect and accepted by the Engineer- in -charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard).

Manufacturing, supplying, fitting and fixing **M.S. box tube (made with 2 nos angle) post** (bottom end bifurcated) made by thorough welding of two Nos. 75 x 75 x 5 mm M.S. angle and vertically placing the post into C.C. or R.C.C. foundation including cutting angle to required shape and size including covering the top of the post with 6 mm thick M.S. plate etc. all complete as per drawing and accepted by the Engineer-in-charge. (Rate is excluding the cost of C.C./R.C.C. foundation and paint)

Manufacturing, supplying, fitting and fixing **M.S. grill fencing** as per design with outer frames having 38 mm x 38 mm x 6 mm M.S. angle and inner members having 6 mm dia M.S. rod placed @ 110 mm c/c Vertical direction and @ 38 mm c/c in horizontal direction, welding each criss-cross end of rod with corners of outer frame including cutting rods and size angles to required shapes and size and setting the entire fence with the previously installed box tube (box tube made with 2 nos. angle) post including thorough and full welding the frame with the angle box posts, painting

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2 coats of synthetic enamel paint over a coat of anti-corrosive priming etc. all complete as per drawing and accepted by the Engineer-in-charge. Rate is excluding the cost of angle box tube post. excluding the cost of paint

Supply and application of Epoxy based **corrosion protection paint** to the surface of the structural steel members conforming to SA 2.5; the corrosion class shall be C3 in accordance with BS EN ISO 12944-2 and durability class in accordance with BS EN ISO 12944-5; the Steel members to be shot blasted inside the enclosed shot blasting chamber, final coat paint must be applied on site after installation, including the cost of primer, testing and necessary accessories, all complete as per drawing, specification and direction of Engineer-in-charge.

Mobilization and demobilization of boring equipment and man-power: at site (drilling rig comprising drilling pipe, drop hammer, tripod, pulley, chain, wrangle, sample collection devices etc tools and plants; tripod for temporary camp, necessary work-force etc) (Once for one site)

Sub- Soil investigation by 100 mm dia percussion wash boring including collecting disturbed and undisturbed soil samples in numbers as required for classification of soil, conducting SPT using auto trip hammer, stratification of layers, analysing physical parameters of soils like Atterberg limits, specific gravity, grain size distribution (by wet sieve, hydrometer if required), ground water table location, direct shear test, unconfined compression test, unit weight (dry/weight), natural moisture content ; C - ϕ values and other strength parameters to ascertain bearing capacity , skin friction, end bearings etc at every 1.5m interval as per respective national/international standards and entering all these data & information in necessary tables & graphs and finally furnishing them in the form of standard sub-soil investigation report with CD containing video of sub-soil investigation operation of concerned site duly signed by competent engineer & exploratory office.

Liquefaction analysis, Pile lateral capacity and pile settlement, Pile capacity (a. Pre-cast pile- 400mmX 400mm, b. Cast-in-situ- 600mm dia

Bore hole depth from 0 to 20 m

Additional charge for bore hole depth above 20.0 m and upto 30.0 m



Providing and maintaining **semi pucca site office** as per drawing with necessary furniture, sanitary & electrical/ power facilities with full time Air-Conditioned, water supply arrangement, office and survey equipment for the use of the Engineer and his staff, all complete including removal of structures and restoration of the site on completion of the work. The contractor shall submit the detailed plan and drawing of the site office for approval of the engineer. The site office should be provided with sufficient natural light, heat protecting ceiling, dam proofing etc. as per direction of E-I-C. All materials, equipment and plant, furniture, fittings recovered from dismantling the office and removing access road will be the property of the contractor upon completion of the work. The contractor will responsible for maintaining the facilities of site office in good condition throughout the contract period and payment of this item shall be made only with the final bill.

Area of field office: minimum 80 sqm plinth area.


Construction of Entry Gate

Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth

Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.

Supplying and laying of **single layer polythene sheet** weighing one kilogram per 6.5 square metewr in floorf or any where below cement concrete complete in all respect and accepted by Engineer in charge.

Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-



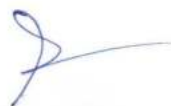
charge.(Cement:

CEM-II/B-M)

Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2

Pre-cast pile with reinforced cement concrete having minimum cement content relates to mix ratio 1:1.25:2.5, minimum $f'_{cr} = 35$ Mpa, and satisfying specified compressive strength $f'_c = 30$ Mpa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM & cement conforming to BDS EN-197-1- CEM-I (52.5N) / ASTM-C 150 Type – I, best quality coarse sand (F.M.2.2), 20 mm down well graded crushed stone chips conforming to ASTM C-33, mixing in standard mixture machine and fed by standard measuring boxes, including all related works like screening through proper sieves, cleaning and washing, centering and shuttering with M.S sheet, M.S angle, F.I bar, nuts and bolts, champering edges if so, preparation of casting beds, laying polythene there in, placing reinforcement cages in position, casting, compacting by vibrators and tapered rods as where necessary, curing for 28 days etc., cost of water, electricity, all materials and other charges, providing fitting and fixing pile shoe in position, tools, plants & equipments, mobilization, demobilization, labour, conducting laboratory test of materials and concrete etc. all complete as per design, drawing and accepted by the Engineer-in- charge.

Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum $f'_{cr} = 33.5$ MPa, satisfying a specified compressive strength $f'_c = 25$ MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type– I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded **stone chips** conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering) Individual & combined footing, pile cap, raft/mat, floor slab and foundation beam up to plinth level



Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:

Cast-in-place fair-faced concrete works with $f'_{cr}=33.5$ Mpa and $f'_c=25$ Mpa at 28 days on standard cylinders by using 75% of OPC and 25% of white cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type – I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2, 20 mm down and well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification) at mix ratio of 1:1.5:3, adding coloring pigment admixture (satisfying ASTM C979) as per architectural design, conforming to the standard practice of code ACI/BNBC/ASTM including conducting necessary tests, screening sand and chips through proper sieves, washing, making and placing shutter in position maintaining true to plumb, making shutter water tight properly, placing reinforcement in position, including pouring of concrete in form, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges etc. all complete, approved and accepted by the Engineer-in-charge.

(Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc.

For column, wall, beam, slab, drop wall, cornice etc. up to ground floor

Formwork for making 'fair-faced' surface of the concrete as per design, drawing and direction of Engineer-in-charge. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 10 BWG, angles of minimum size 50 mm x 50 mm x 6 mm, flat bars, formwork releasing agent etc.)

Added rate for additional height in centering, shuttering where ever required with adequate bracing, propping etc. over a height of 4.0 m, for every additional height of 1 meter or part thereof.

Driving 300 mm x 300 mm to 350 mm x 350 mm size pre-cast pile with drop hammer type rig, and maintaining driving log in prescribed format Before commencing driving operation, contractor shall submit method statement for carrying out the driving operation including sequence of driving to the Engineer-in-charge for approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under contract.

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Labour for **breaking head of hardened cast in situ bored pile/pre-cast pile** up to a required length by any means but without damaging the rest and removing the dismantled materials such as concrete to a safe distance including scraps and cleaning concrete from steel/M.S. rods, straightening and bending of pile bars, preparation and making platform where necessary, carrying, all sorts of handling, stacking the same properly after clearing, leveling and dressing the situ and clearing the bed etc. complete in all respect and accepted by the Engineer-in-charge. (Measurement will be given for the actual pile head volume to be broken)

Supplying, fabrication and fixing to detail as per design : **ribbed or deformed bar reinforcement** (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard **Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615)** ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (R_{eH}) = 400 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively



Epoxy Coated Steel Reinforcing Bars : Grade 420 MPa (B420 DWR: Complying BDS ISO 6935-2:2016/ASTM A615 for reinforcement bar with ASTM A775/BDS ISO 14654:2013 Specification for fusion Bonded Epoxy Coating)) ribbed or deformed bar with fusion bonded epoxy coated. Ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (ReH)= 420 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively.as per ASTM A775/ BDS ISO 14654: 2013 specification for a coating thickness (after curing) of 175 to 300 microns for 10mm to 16mm and 175 to 400 microns for 20mm to 50mm re-bars.Supplying, fabrication and fixing to detail as per drawing: Ribbed or deformed fusion bonded epoxy coated bar (including laboratory test) for reinforcement concrete, produced and marked with accordance ASTM A615 and ASTM A775 (for epoxy coating) including straightening and cleaning rust, if any, being and binding in position with using of PVC coated binding wire instead of GI wires, including extra cost on account of touch-up material (all cut edges/weld areas and bend locations where coating has been damaged touch up shall be done with same paint, the upper thickness limit shall not apply to repaired areas of damaged coating) and repair work and flexibility & holiday testing, including all taxes, etc. complete to ensure proper resistance of FBE against corrosive environment counting necessary laboratory test etc, (excluding splice or laps) complete in all respect and accepted by the Engineer- in -charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard).

Digital name of project by LED Sing including wiring, cable, pipeing etc. all completed as per approval and accepted by Engineer in charge.

Supplying, fitting, fixing and installation of **ordinary type M.S. gate (double leaf)** of any design and shape with 38 mm x 38 mm x 6 mm M.S. angle box (made by welding 2 nos. 38 mm x 38 mm x 6 mm angle) outer frame having 25 mm x 50 mm x 25 mm x 5 mm M.S. channel (made by welding 2 nos. of channel) placed part diagonally after cutting and shaping as per requirement, part horizontally @ 75 mm c/c, the two part of each leaf being separated by a vertical member of 38 mm x 38 mm x 6 mm M.S. box and welded the each ends of diagonal and horizontal members properly with the box frame as per architectural drawing providing full locking arrangement on 3 mm thick M.S. plates providing 38 mm x 38 mm x 6 mm M.S. angle clamps, fitting fixing with the outer frame of the gate, the clamp being embedded in R.C.C. pillars with cement concrete (1:2:4) including. cutting holes and mending good the damages, finishing, curing and where

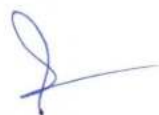
necessary painting two coats with approved quality of synthetic enamel paint over a coat of priming (including cost of polish/ paint etc. of any type). item is for acoustic work in auditorium, Hall Room, Seminar Room etc.) (Rate is Including cost of polish/ paint etc. of any type).

Supply and application of Epoxy based **corrosion protection paint** to the surface of the structural steel members conforming to SA 2.5; the corrosion class shall be C3 in accordance with BS EN ISO 12944-2 and durability class in accordance with BS EN ISO 12944-5; the Steel members to be shot blasted inside the enclosed shot blasting chamber, final coat paint must be applied on site after installation, including the cost of primer, testing and necessary accessories, all complete as per drawing, specification and direction of Engineer-in-charge.

Construction of Guard Room

Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth

Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.



Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2

Supplying and laying of **single layer polythene sheet** weighing one kilogram per 6.5 square metewr in floor or any where below cement concrete complete in all respect and accepted by Engineer in charge.

Sand filling in foundation trenches and plinth with sand having minimum F.M. 0.5 in 150 mm layers including leveling, watering and compaction to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only, all complete and accepted by the Engineer-in-charge.

Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

125 mm brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, raking out joints, cleaning and soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:6) having with fresh cement to both inner and outer surface of wall, finishing the edges and corners including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

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Premium synthetic enamel paint of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, having high water resistance, high bondability, flexibility property; using specified brand thinner applying to metallic or wooden surface by brass/roller/spray in two coats over single coat anti-corrosive coating including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, all complete in all floors and accepted by the Engineer-in charge.

Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum $f'_{cr} = 33.5$ MPa, satisfying a specified compressive strength $f_c = 25$ MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type- I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded **stone chips** conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)

Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:

Supplying, fabrication and fixing to detail as per design : **ribbed or deformed bar reinforcement** (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard **Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615)** ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy



(ReH)= 400 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively

Supplying fitting and fixing **railing & rail post** made of various dia MS pipes of standard thickness for normal, ornamental Bridge or any other structure including required ms plate, nutbolt, cutting, welding, painting with anticorrosive paint, laying in position etc. all complete as per design, drawing, specification & the direction of the E-I-C. 75mm dia. and wall thickness 4mm

Supplying, fitting and fixing **M.S. flat bar clamp** of 225 mm x 38 mm x 6 mm size having bifurcated ends to door and window frames with necessary screws including cutting grooves in chowkat (if necessary) and encasing inside the wall with cement concrete (1:2:4) etc, all complete and accepted by the Engineer-in-charge.

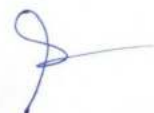
Supplying, fitting, fixing **window grills of any design made with 25 mm x 6 mm F.I. bar @ 100 mm c/c as both outer and inner section**; including fabrication, welding, cost of electricity workshop charges, carriage, cutting grooves, mending good the damages, tools and plants, finished with anti-corrosive painting (Red-Oxide) etc. complete for all floors accepted by the Engineer-in-charge. (Total weight per sqm should be approx. 19 kg and add or deduct @ Tk. 100.00 for each kg/sqm excess or less respectively)

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Supplying, fitting and fixing of **aluminium sliding window** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification and BDS 1879:2014 having minimum 1.2 mm thick outer bottom (size 75.50 mm, 32mm, 0.605 kg/m), minimum 1.2 mm thick outer top (size 75.50 mm, 28.50 mm, 0.705 kg/m), minimum 1.2 mm thick shutter top (size 33 mm, 26.80 mm, 0.42 kg/m), minimum 1.2 mm thick shutter bottom (size 60mm, 24.40 mm, 0.589 kg/m), minimum 1.2 mm thick outer side (size 75.50 mm, 19.90 mm, 0.52 kg/m), minimum 1.2 mm thick shutter lock (size 49.20 mm, 25.80 mm, 0.543 kg/m) and minimum 1.2 mm thick inter lock (size 34.40 mm, 32.13 mm, 0.562 kg/m) sections all aluminium members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 microns in thickness or powder coated to any colour with a coat not less than 25 microns in thickness and density of 4 mg per square cm etc. including all accessories like sliding door key lock, sliding door wheel, sliding door mohiar, sliding door neoprene, bolts and nuts including sealants, keeping provision for fitting 5 mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the E-I-C. Anodized to any colour, [Size : 900mmx1400mm]

Supplying, fitting and fixing of **12 mm thick clear tempered glass wall upto 3.0 m height** with vertical fin glass support of same thickness and support shall be at least 1.2 m c/c fixed properly with glass by silicon glue with supply and fittings of all required accessories such as SS u channel, nut bolts, aluminium angle, steel rowel bolt, screws, rivets norton tape masking tape, structural sealant, gum bracket rod etc. all complete in all respect as per drawing and direction of the Engineer-in-charge.

Supplying fitting and fixing of **aluminium swing door** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification and BDS 1879:2014 having 1.5 mm thick wall frame (size 101.60 mm, 44.45 mm, 83.21 mm), 2.0 mm thick shutter side (size 54 mm, 46 mm), 0.99 mm thick door glass bit (size 16.54 mm, 15.49 mm, 0.115 kg/m), 1.8 mm thick clousure section (size 101.60 mm, 42.93 mm), 1.5 mm thick 106.60 mm clousure cover (0.392 kg/m), 4 mm thick floor bottom (size 101.60 mm, 12.70 mm, 1 kg/m), 1.8 mm thick shutter bottom (size 82.6 mm, 43.99 mm, 0.60 kg/m), 1.8 mm thick shutter top (size 51 mm, 43.99 mm, 1.88 kg/m) and 2.3 mm to 4.01 mm thick handle (size 101.60 mm, 38.10 mm, 25.40 mm short, 1.35 kg/m) section of all aluminum members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 microns in thickness or powder coated to any colour with a coat not less than 25 microns in thickness and density of 4 mg per



square cm etc. including all accessories like swing door clousure, swing door lock, swing door mohiar, labour charge, fabrication, fitting fixing in position, carriage and electricity charge keeping provision for fitting 5 mm thick glass including neoprene sealant etc. complete in all respect as per drawing and accepted by the Engineer-in-charge. Anodized to any colour

Supplying, fitting and fixing of the best quality any sizes **uPVC plastic door shutter with frame** having specific gravity of 1.35 - 1.45, panel wall thickness 1.7 mm-2.2 mm, shutter/panel thickness 37.5 mm & weighing 17.25 kg/m² and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards and ASTM, BS/ISO/IS standards of different sizes uPVC plastic door shutter with uPVC plastic frame (frame size: 150mm x 62.50mm) fitting - fixing in brick wall/ R.C.C wall with at least 3 Nos. SS hinges by min 64 Nos. Ø 3.17 mm and 3.97 mm 12.7 mm long rivets, 12 nos. 25.4 mm SS screws, Ø 9.38 mm, 150 mm long SS tower bolts 2 nos., 146 mm SS handle by rivet 6 Nos., G.I inner joint, 234.95 mm x 127 mm clamp, 76.2 mm x 57.15 mm, 6 Nos. GI clamp, 2 nos. outer GI joint clamp making necessary grooves and mending good the damages, finishing, curing, carrying the same to the site and local carriage etc. complete in all respect and accepted by the Engineer-in-charge


Supplying, fitting and fixing **country made homogeneous matt finished/ rustic floor tiles** complying BDS ISO 13006: 2015, water absorption $\leq 0.5\%$, modulus of rupture (MOR) ≥ 27 N/mm², irrespective of color &/or design, with 20 mm thick cement sand (F.M. 1.2) mortar (1:4) base and raking out the joints with white cement including cutting and laying the tiles in proper way and finishing with care etc. all complete and accepted by the Engineer-in-charge.

(Cement:

CEM-II/B-M)

Matt or rustic floor tiles of size 600 mm x 600 mm and below

Supplying, fitting and fixing **country made rustic or matt finished wall tiles** complying BDS ISO 13006: 2015, irrespective of color &/or design, with 20 mm thick cement sand (F.M. 1.2) mortar (1:3) base and raking out the joints with white cement including cutting, laying and hire charge of machine and finishing with care etc. including water, electricity and other charges



complete in all respect and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)
Matt or rustic wall tiles less than or equal to 300 mm x 600 mm size

Uni-Block Paver: Supplying and laying factory made cement concrete interlocking high strength as specified paver universal uni-block made by block making machine with mechanically compressed with high load- bearing capacity, enriched weather resistance, the low water absorption capacity of standard thick and approved design/shape, size in required long lasting colour, texture and pattern conforming BS-6717 or as specified approved by the E-I-C, laid over the prepared sand bedding layer maintaining grade, camber and super-elevation, including cleaning etc. all complete in all respect as per drawing, specification, direction and accepted by the Engineer-in-charge. Cost included all materials, their carriages, hire charges of machineries, equipment for construction and quality control as per specification, wages of labour and operational staff etc. **60mm Thick (Size: 222mmx110mm), Colour: Red/Black/any other Suitable Colour, Minimum Compressive Strength: 25MPa**

Supplying, fitting and fixing of Bangladesh pattern, **long pan with foot-rest**. The sanitary ware shall conform BDS1162:2014. The glaze shall be thoroughly fused to body. The minimum thickness of body at any section shall be 5 mm. When assembled together and when examined from a distance of 60 cm, the outer surface shall not show to the unaided eye, blemishes or defects in excess of those listed in BDS standard. The mean value of water absorption shall not be greater than 0.5% of the ware when dry. When tested with chemical solutions (Acetic acid, Citric acid, Detergent, Hydrochloric acid, Sodium hydroxide, Sodium stearate and Sulfuric acid of various strength) as per BDS1162:2014 procedure, none of the test pieces should suffer any loss of reflectivity on the glaze. There shall be no crazing and no stain on the ware. The materials used for making glaze shall not contain lead compound. In case of certain coloring oxides used for making colored glaze, the lead content, if any, shall not exceed 5 percent of the weight of the glaze materials. Appliances shall be clearly and indelibly marked at a prominent place, visible even after the appliances are installed with the following: a) manufacturer's name and/or registered trademark, b) the number of Bangladesh standard and c) country of origin. Each product shall also be marked with the BSTI Certification Mark. The fixture should be placed in position preparing the base of pan with cement mortar (1:4) and with wire mesh or rods, if necessary in all floors including making holes wherever required and mending good the damages and fitting, fixing, finishing etc. complete with all necessary fittings and



connections approved and accepted by the Engineer- in- charge. Approx. 530 X 400 X 230 mm size, minimum 11.0 kg of weight

Supplying, fitting and fixing of **plastic low-down of any color**, on walls or directly over water closet with necessary accessories, making holes wherever required and mending good the damages and fitting, fixing & finishing etc. complete with all necessary fittings and connections approved and accepted by the Engineer- in- charge.

Supplying, fitting and fixing of **best quality toilet paper holder** of standard size including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer- in- charge. PVC toilet paper holder

Supply and installation of **food-graded plastic internal mini water tank** for the use in kitchen, bathroom and toilet for emergency storage and supply of water manufactured from liner low density polyethylene (ILDPE) roto-grade (ultra violet) stabilized which complies FDA (Federal Department of Agriculture, USA) regulations 21 CFR 1277. 152, having food grade quality where no recycled material is used carrying, lifting, fitting, fixing in position including supply of necessary hardware, consumables, fittings etc. all complete approved and accepted by the Engineer- in- charge. (300 liter capacity)

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Construction of **septic tank of different sizes with walls of brick work in cement mortar (1:6)** having a lining of minimum 125 mm R.C.C cast against the walls as per approved type plan over a brick flat soling and 150 mm thick reinforced cement concrete flooring (1:2:4) with 125 mm thick walls in partition and 12 mm thick cement plaster (1:4) with N.C.F. to insides of walls on floor and all around outside walls by 450 mm height at top including supplying, fitting and fixing of two R.C.C. Tees and providing 450 mm dia water sealed heavy type C.I. manhole cover with locking/unlocking arrangement and 100 mm thick R.C.C (1:2:4) top slab, including centering, shuttering, fabricating, casting and curing etc. complete up to required depth including necessary earth work in excavation and shoring, bailing out water and side filling including the cost of all materials, operations and incidental charges. etc. all complete as per type plan approved and accepted by the Engineer-in-charge (Rate is including cost of reinforcent and its fabrication, binding and placing) **For 30 users**

CENTRIFUGAL PUMP MOTOR SETSINGLE STAGE (SINGLE PHASE)(For lower capacity/smaller household requirement) Providing of single stage 2800-2900 RPM monoblock type Centrifugal water pump motor set (reservoir to overhead tank) manufactured according to relevant BDS standard and ISO 9906:2012, GRADE 3B/ DIN/ NEMA/ IEC/ BS/ VDE/ JIS/CEI 2-3/ CSA/ GS/ SONCAP/ ROHS & ISO 9001 (Quality) ISO 14001 (Environment and Safety) standard of following capacity suitable for operation at single phase, 230 V \pm 5 %, 50 Hz AC having insulation: B & protection: IPX4 (minimum) & CE certified . Country of Manufacture: Bangladesh/ China/ Vietnam/ Malaysia as per sample accepted / approved by the Engineer-in-charge. HP-1.5 Discharge (liter/min)- 10-120 Head (meter)- 39-20 Suction dia (mm)-32 Delivery dia (mm)- 25

Water Supply Fitting, Fixing 100 mm inside diameter best quality uPVC soil, waste and ventilation pipe, CP bib Cock, CP pillar cock, Groove cutting in brick work, R.C.C floor, including cost for concealing of G.I. pipe work (Groove Cutting 40*40 mm), CPVC pressure pipe for water supply, etc. all complete as per instruction of E.I.C.

Electrification works including conceal pipe wiring, Cable, Energy Meter, Circuit breaker & 56" size ceiling fan etc. all complete as per instruction of E.I.C.

Supply & fixing of **LED flood light** fitting of the following features and model with all necessary elements such as driver, chips etc. complete. Model & sample shall be approved by the Engineer

- (i) ENERGY + model No - EPFDL - 17001 / 150 W
or equivalent product of ENERGY +, GLORIA etc.
- (ii) Rated life : 50,000 hr (minimum)
- (iii) Luminous flux : 100 + 1m/w
- (iv) LED chips : EDISON / EPISTOR / OSRAM / PHILIPS / CREE / BRIDGELUX.
- (v) Driver : MEANWELL / OSRAM / PHILIPS / IEC standard.
- (vi) body: Aluminium body.

Chair Size 550mm (L)x 515mm(W)x 850m (H) Chair seat Raw materials :- Polypropylene Impact copolymer Chair top Specific on 465mm (L)x480mm (W) x425m (H) Plastic weight 174 Chair colour Deep blue, Brick red, black, Or Steel tu, Specification Round tube -25mm x 1.2mm, Steel frame Dimension 550mm(L) x 515mm(W) x 47 Manufacturing & Supplying teacher chair made of Polypropylene Impact Copolymer Plastic and Legs are structure made of MS Round tube -25mm x 1.2mm (22x1.2 mm), welded (0.5" weld length@2 C/C continuously through the MS tube), cold bended & formed strictly as per drawing. The frame of chair must be cleaned in 07 (seven) stage tank with phosphate chemical method pure along with polyester powder coating for pre-head at 230°C for 22 minutes in heat oven for curing the paint to make the permanent of color of steel frame. Finishing including assembling of all components and best quality PVC stoppers necessary number and type of nuts and bolts and packing shall be used as shown in the same must be supplied and get approval from Upazila Engineer/Executive Engineer before manufacturing of the lot. Bottom of legs will be provided with PVC cap/shoe as per drawing BUET test: Physical strength, Breaking strength of Polypropylene impact co Polymer Plastic frame: i) Hardness, Rock well, ii) Tensile strength All complete as per direction of the E-I-C.

Supplying best quality **Tea Table** of standard size made of best quality well matured, fully seasoned jack wood (timber should be sapless) in/c superior quality varnishing/French polishing and finishing, etc. all complete as per design (if provided) and direction of the E-I-C. (This item includes all fittings, fixings and delivering the furniture at the instructed place).

Construction of Watch Tower

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Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth

Pre-cast pile made in reinforced cement concrete with minimum cement content relates to mix ratio 1:1.25:2.5 having minimum $f'_{cr} = 38.5$ Mpa, and satisfying specified compressive strength **$f'_c = 30$ Mpa** at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM & cement conforming to BDS EN-197-1- CEM-I (52.5 N) / ASTM-C 150 Type - I, best quality coarse sand (F.M.2.2), 20 mm down well graded crushed stone chips conforming to ASTM C-33, mixing in standard mixture machine and fed by standard measuring boxes, including all related works like screening through proper sieves, cleaning and washing, centering and placing reinforcement cages in position, casting, compacting by vibrators and tapered rods as where necessary, curing for 28 days etc. cost of water, electricity and other charges, providing fitting and fixing pile shoe in position, tools, plants & equipments, mobilization, demobilization, labour, test of materials and concrete etc. all complete as per design, drawing and accepted by the E-I-C

Driving 300 mm x 300 mm to 350 mm x 350 mm size pre-cast pile with drop hammer type rig, and maintaining driving log in prescribed format Before commencing driving operation, contractor shall submit method statement for carrying out the driving operation including sequence of driving to the Engineer-in-charge for approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under contract.

Labour for **breaking head of hardened cast in situ bored pile/pre-cast pile** up to a required length by any means but without damaging the rest and removing the dismantled materials such as concrete to a safe distance including scraps and cleaning concrete from steel/M.S. rods, straightening and bending of pile bars, preparation and making platform where necessary, carrying, all sorts of handling, stacking the same properly after clearing, leveling and dressing the situ and clearing the bed etc. complete in all respect and accepted by the Engineer-in-charge. (Measurement will be given for the actual pile head volume to be broken)



Lean/blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2

Supplying and laying of **single layer polythene sheet** weighing one kilogram per 6.5 square meter in floor or any where below cement concrete complete in all respect and accepted by Engineer in charge.

Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum $f'_{cr} = 33.5$ MPa, satisfying a specified compressive strength $f'_c = 25$ MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type- I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded **stone chips** conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)

Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:

Supplying, fabrication and fixing to detail as per design : **ribbed or deformed bar reinforcement** (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard **Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615)** ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (R_{eH}) = 400 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively

Epoxy Coated Steel Reinforcing Bars : Grade 420 MPa (B420 DWR: Complying BDS ISO 6935-2:2016/ASTM A615 for reinforcement bar with ASTM A775/BDS ISO 14654:2013 Specification for fusion Bonded Epoxy Coating)) ribbed or deformed bar with fusion bonded epoxy coated. Ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (R_{eH}) = 420 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively. as per ASTM A775/ BDS ISO 14654: 2013 specification for a coating thickness (after curing) of 175 to 300 microns for 10mm to 16mm and 175 to 400 microns for 20mm to 50mm re-bars. Supplying, fabrication and fixing to detail as per drawing: Ribbed or deformed fusion bonded epoxy coated bar (including laboratory test) for reinforcement concrete, produced and marked with accordance ASTM A615 and ASTM A775 (for epoxy coating) including straightening and cleaning rust, if any, being and binding in position with using of PVC coated binding wire instead of GI wires, including extra cost on account of touch-up material (all cut edges/weld areas and bend locations where coating has been damaged touch up shall be done with same paint, the upper thickness limit shall not apply to repaired areas of damaged coating) and repair work and flexibility & holiday testing, including all taxes, etc. complete to ensure proper resistance of FBE against corrosive environment counting necessary laboratory test etc, (excluding splice or laps) complete in all respect and accepted by the



Engineer- in -charge (Measurement shall be recorded only on standard mass per unit length of bars, while dia of bars exceeds its standard).

125 mm brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) and making bond with connected walls including necessary scaffolding, raking out joints, cleaning and soaking the bricks for at least 24 hours before use and washing of sand, curing at least for 7 days in all floors including cost of water, electricity and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

Minimum 12 mm thick cement sand (F.M. 1.2) **plaster (1:6)** having with fresh cement to both inner and outer surface of wall, finishing the edges and corners including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)


Premium synthetic enamel paint of approved best quality and colour delivered from authorized local agent of the manufacturer in a sealed container, having high water resistance, high bondability, flexibility property; using specified brand thinner applying to metallic or wooden surface by brass/roller/spray in two coats over single coat anti-corrosive coating including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, all complete in all floors and accepted by the Engineer-in charge.

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Supplying, fitting, fixing **window grills of any design made with 25 mm x 6 mm F.I. bar @ 100 mm c/c as both outer and inner section**; including fabrication, welding, cost of electricity workshop charges, carriage, cutting grooves, mending good the damages, tools and plants, finished with anti-corrosive painting (Red-Oxide) etc. complete for all floors accepted by the Engineer-in-charge. (Total weight per sqm should be approx. 19 kg and add or deduct @ Tk. 100.00 for each kg/sqm excess or less respectively)

Supplying fitting and fixing of **aluminium swing door** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification and BDS 1879:2014 having 1.5 mm thick wall frame (size 101.60 mm, 44.45 mm, 83.21 mm), 2.0 mm thick shutter side (size 54 mm, 46 mm), 0.99 mm thick door glass bit (size 16.54 mm, 15.49 mm, 0.115 kg/m), 1.8 mm thick closure section (size 101.60 mm, 42.93 mm), 1.5 mm thick 106.60 mm closure cover (0.392 kg/m), 4 mm thick floor bottom (size 101.60 mm, 12.70 mm, 1 kg/m), 1.8 mm thick shutter bottom (size 82.6 mm, 43.99 mm, 0.60 kg/m), 1.8 mm thick shutter top (size 51 mm, 43.99 mm, 1.88 kg/m) and 2.3 mm to 4.01 mm thick handle (size 101.60 mm, 38.10 mm, 25.40 mm short, 1.35 kg/m) section of all aluminum members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 microns in thickness or powder coated to any colour with a coat not less than 25 microns in thickness and density of 4 mg per square cm etc. including all accessories like swing door clousure, swing door lock, swing door mohiar, labour charge, fabrication, fitting fixing in position, carriage and electricity charge keeping provision for fitting 5 mm thick glass including neoprene sealant etc. complete in all respect as per drawing and accepted by the Engineer-in-charge.

Supplying, fitting and fixing of **aluminium sliding window** as per the U.S. Architectural Aluminium Manufacturer's Association (AAMA) standard specification and BDS 1879:2014 having minimum 1.2 mm thick outer bottom (size 75.50 mm, 32mm, 0.605 kg/m), minimum 1.2 mm thick outer top (size 75.50 mm, 28.50 mm 0.705 kg/m), minimum 1.2 mm thick shutter top (size 33 mm, 26.80 mm, 0.42 kg/m), minimum 1.2 mm thick shutter bottom (size 60mm, 24.40 mm, 0.589 kg/m), minimum 1.2 mm thick outer side (size 75.50 mm, 19.90 mm, 0.52 kg/m), minimum 1.2 mm thick shutter lock (size 49.20 mm 25.80 mm, 0.543 kg/m) and minimum 1.2 mm thick inter lock (size 34.40 mm, 32.13 mm, 0.562 kg/m) sections all aluminium members will be anodized to aluminium bronze/silver/ss/black colour with a coat not less than 15 microns in thickness or powder coated to any colour with a coat not less than 25 microns in thickness and density of 4 mg per square cm etc. including all accessories like sliding door key lock, sliding door wheel, sliding door mohiar, sliding door neoprene, bolts and nuts including



sealants, keeping provision for fitting 5 mm thick glass including labour charge for fitting of accessories, making grooves and mending good damages, carriage, and electricity complete in all respect as per drawing and accepted by the E-I-C. Anodized to any colour, [Size : 900mmx1400mm]

Supplying, fitting and fixing of the best quality any sizes **uPVC plastic door shutter with frame** having specific gravity of 1.35 - 1.45, panel wall thickness 1.7 mm-2.2 mm, shutter/panel thickness 37.5 mm & weighing 17.25 kg/m² and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards and ASTM, BS/ISO/IS standards of different sizes uPVC plastic door shutter with uPVC plastic frame (frame size:150mm x 62.50mm) fitting - fixing in brick wall/ R.C.C wall with at least 3 Nos. SS hinges by min 64 Nos. Ø 3.17 mm and 3.97 mm 12.7 mm long rivets, 12 nos. 25.4 mm SS screws, Ø 9.38 mm, 150 mm long SS tower bolts 2 nos., 146 mm SS handle by rivet 6 Nos., G.I inner joint, 234.95 mm x 127 mm clamp, 76.2 mm x 57.15 mm, 6 Nos. GI clamp, 2 nos. outer GI joint clamp making necessary grooves and mending good the damages, finishing, curing, carrying the same to the site and local carriage etc. complete in all respect and accepted by the Engineer-in-charge

Supplying, fitting and fixing **stainless steel (SS) stair railing** of standard height with 2 mm thick 62 mm dia SS pipe for hand-rail, 2 mm thick 40 mm dia 5 nos vertical SS pipes in each flight, 1.5 mm thick 20 mm dia 5 nos horizontal SS pipes as per drawing, design including carrying, polishing, fabricating, welding and fixing with tread by 25 mm long royal bolt etc.all complete and accepted by the Engineer-in-charge.

Electrification works including conceal pipe wiring, Cable, Energy Meter, Circuit breaker & 56" size ceiling fan etc. all complete as per instruction of E.I.C.

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Supply & fixing of **LED flood light** fitting of the following features and model with all necessary elements such as driver, chips etc. complete. Model & sample shall be approved by the Engineer.

- (i) ENERGY + model No - EPFDL - 17001 / 150 W
or equivalent product of ENERGY +, GLORIA etc.
- (ii) Rated life : 50,000 hr (minimum)
- (iii) Luminux flux : 100 + 1m/w
- (iv) LED chips : EDISON / EPISTOR / OSRAM / PHILIPS / CREE / BRIDGELUX.
- (v) Driver : MEANWELL / OSRAM / PHILIPS / IEC standard.
- (vi) body: Aluminium body.

Water Supply Fitting, Fixing 100 mm inside diameter best quality uPVC soil, waste and ventilation pipe, CP bib Cock, CP pillar cock, Groove cutting in brick work, R.C.C floor, including cost for concealing of G.I. pipe work (Groove Cutting 40*40 mm), CPVC pressure pipe for water supply, etc. all complete as per instruction of E.I.C.

Supplying, fitting and fixing of Bangladesh pattern, **long pan with foot-rest**. The sanitary ware shall conform BDS1162:2014. The glaze shall be thoroughly fused to body. The minimum thickness of body at any section shall be 5 mm. When assembled together and when examined from a distance of 60 cm, the outer surface shall not show to the unaided eye, blemishes or defects in excess of those listed in BDS standard. The mean value of water absorption shall not be greater than 0.5% of the ware when dry. When tested with chemical solutions (Acetic acid, Citric acid, Detergent, Hydrochloric acid, Sodium hydroxide, Sodium stearate and Sulfuric acid of various strength) as per BDS1162:2014 procedure, none of the test pieces should suffer any loss of reflectivity on the glaze. There shall be no crazing and no stain on the ware. The materials used for making glaze shall not contain lead compound. In case of certain coloring oxides used for making colored glaze, the lead content, if any, shall not exceed 5 percent of the weight of the glaze materials. Appliances shall be clearly and indelibly marked at a prominent place, visible even after the appliances are installed with the following: a) manufacturer's name and/or registered trademark, b) the number of Bangladesh standard and c) country of origin. Each product shall also be marked with the BSTI Certification Mark. The fixture should be placed in position preparing the base of pan with cement mortar (1:4) and with wire mesh or rods, if necessary in all floors including making holes wherever required and mending good the damages and fitting, fixing, finishing etc. complete with all necessary fittings and connections approved and accepted by the Engineer- in- charge. Approx. 530 X 400 X 230 mm size, minimum 11.0 kg of weight

Supplying, fitting and fixing of **plastic low-down of any color**, on walls or directly over water closet with necessary accessories, making holes wherever required and mending good the damages and fitting, fixing & finishing etc. complete with all necessary fittings and connections approved and accepted by the Engineer- in- charge.

Supplying, fitting and fixing of **best quality toilet paper holder** of standard size including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer- in- charge. PVC toilet paper holder

Supply and installation of **food-graded plastic internal mini water tank** for the use in kitchen, bathroom and toilet for emergency storage and supply of water manufactured from liner low density polyethylene (ILDPE) roto-grade (ultra violet) stabilized which complies FDA (Federal Department of Agriculture, USA) regulations 21 CFR 1277. 152, having food grade quality where no recycled material is used carrying, lifting, fitting, fixing in position including supply of necessary hardware, consumables, fittings etc. all complete approved and accepted by the Engineer- in- charge. (300 liter capacity)

Construction of **septic tank of different sizes with walls of brick work in cement mortar (1:6)** having a lining of minimum 125 mm R.C.C cast against the walls as per approved type plan over a brick flat soling and 150 mm thick reinforced cement concrete flooring (1:2:4) with 125 mm thick walls in partition and 12 mm thick cement plaster (1:4) with N.C.F. to insides of walls on floor and all around outside walls by 450 mm height at top including supplying, fitting and fixing of two R.C.C. Tees and providing 450 mm dia water sealed heavy type C.I. manhole cover with locking/unlocking arrangement and 100 mm thick R.C.C (1:2:4) top slab, including centering, shuttering, fabricating, casting and curing etc. complete up to required depth including necessary earth work in excavation and shoring, bailing out water and side filling including the cost of all materials, operations and incidental charges. etc. all complete as per type plan approved and accepted by the Engineer-in-charge (Rate is including cost of reinforcent and its fabrication, binding and placing) For 30 users

CENTRIFUGAL PUMP MOTOR SETSINGLE STAGE (SINGLE PHASE)(For lower capacity/smaller household requirement) Providing of single stage 2800-2900 RPM monoblock type Centrifugal water pump motor set (reservoir to overhead tank) manufactured according to relevant BDS standard and ISO 9906:2012, GRADE 3B/ DIN/ NEMA/ IEC/ BS/ VDE/ JIS/CEI 2-3/ CSA/ GS/ SONCAP/ ROHS & ISO 9001 (Quality) ISO 14001 (Environment and Safety) standard of following capacity suitable for operation at single phase, 230 V \pm 5 %, 50 Hz AC having insulation: B & protection: IPX4 (minimum) & CE certified . Country of Manufacture: Bangladesh/ China/



Vietnam/ Malaysia as per sample accepted / approved by the Engineer-in-charge.
HP-1.5 Discharge (liter/min)- 10-120 Head (meter)- 39-20 Suction dia (mm)-32 Delivery dia (mm)- 25

Chair Size 550mm (L) x515mm (W) x850m (H) Chair seat Raw materials :- Polypropylene Impact copolymer Chair top Specific on 465mm(L) x480mm(W) x425m (H) Plastic weight 174 Chair colour Deep blue, Brick red, black, Or Steel tu, Specification Round tube -25mm x 1.2mm, Steel frame Dimension 550mm(L) x 515mm(W) x 47 Manufacturing & Supplying teacher chair made of Polypropylene Impact Copolymer Plastic and Legs are structure made of MS Round tube -25mm x 1.2mm (22x1.2 mm), welded (0.5" weld length@2 C/C continuously through the MS tube), cold bended & formed strictly as per drawing. The frame of chair must be cleaned in 07 (seven) stage tank with phosphate chemical method pure along with polyester powder coating for pre-head at 230°C for 22 minutes in heat oven for curing the paint to make the permanent of color of steel frame. Finishing including assembling of all components and best quality PVC stoppers necessary number and type of nuts and bolts and packing shall be used as shown in the same must be supplied and get approval from Upazila Engineer/Executive Engineer before manufacturing of the lot. Bottom of legs will be provided with PVC cap/shoe as per drawing BUET test: Physical strength, Breaking strength of Polypropylene impact co Polymer Plastic frame: i) Hardness, Rock well, ii) Tensile strength All complete as per direction of the E-I-C.

Supplying best quality Tea Table of standard size made of best quality well matured, fully seasoned jack wood (timber should be sapless) in/c superior quality varnishing/French polishing and finishing, etc. all complete as per design (if provided) and direction of the E-I-C. (This item includes all fittings, fixings and delivering the furniture at the instructed place).

Construction of Embankment cum HBB Road

Clearing and Grubbing: The work consists of cutting, removing and disposing of all materials such as trees, bushes, shrubs, stumps, roots, grass, weeds, rubbish, and removal of topsoil and other organic material etc. all complete as per direction of Engineer in Charge.



Earth filling work with specified soil in any type of embankment, where earth shall be carried by truck/boat or any other means, supplied at contractor's own cost including royalty, cutting, carrying, filling and compacting to 85%/95%/ 98% of Maximum Dry Density (MDD) at Optimum Moisture Content (OMC), with reference to laboratory density test AASHTO standard hammer by throwing earth in layers not more than 150mm in proper alignment, grade, camber and side slope in all types of soil except rocky, gravelly and slushy including benching not more than 300mm in vertical and 600mm in horizontal steps along the sides while widening any embankment, with clod breaking to maximum size of 100mm, benching the side slopes, removing roots and stumps of trees of girth upto 200mm and other foreign particles, stripping/ploughing the base of embankment and borrow pit area, dug bailing, clearing jungles, bail out of water, rough dressing including 150mm cambering at the centre of crest with all leads and lifts complete (compaction will be done by the contractor with approved equipment including all ancillary charges for compaction and testing) as per direction of Engineer in charge. Payment will be made on compacted volume. The item is applicable when earth is supplied and arranged by the contractor from a distance beyond 200m from the end of right of way. Outside municipal area, 95% Compaction

BC&SGP(300mm): Earth work in box cutting up to **300mm depth & Preparation of sub-grade** by sqm excavating road crest another 300mm depth, removing soils to a safe distance or spreading the excavated earth on road flanks, slopes. In preparing 300mm sub-grade below the box, excavating top 150mm layer and excavated earth set aside to reuse, then scarifying the bottom 150 mm layer, breaking clods to 40mm maximum in size, leveling, dressing, watering to $OMC \pm 2\%$ & compacting the 1st layer by appropriate mechanical means to attain design CBR at specified degree of compaction, subsequently prepare 2nd layer by spreading aside materials on top of prepared 1st layer, removing all deleterious material breaking clods, leveling, dressing, watering to $OMC \pm 2\%$ and compacting the layer following the same procedure as 1st layer to attain design CBR including maintaining proper grade, camber and alignment, super elevation on curves etc. all complete as per direction of the E-I-C. (When in-situ sub grade materials is suitable but very loose)

Degree of Compaction: Minimum 98% of MDD (Standard Proctor)

Providing **improved sub-grade** with **sand F.M.>0.80** having compacted thickness as per specification including cost of sand, carrying, local handling, spreading uniformly in layers of 150mm to proper grade camber, super elevation, rolling properly with 7-10 tone vibratory roller and watering profusely for compaction 95% MDD (Modified Proctor Test) including cost

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of fuel, lubricants, spares, maintenance, driver etc. all complete and accepted by the Engineer-in-charge.

Single layer brick flat soling in road work with first class or picked jhama bricks as per alignment, camber and grade including filling joints with sand (F.M. 0.80) etc. complete including cost of all materials and accepted by the Engineer-in-charge.

Herring bone bond (HBB) with brick on edges pavement with first class or picked jhama bricks as per alignment, camber and grade over 12 mm thick sand cushion (F.M. 0.80) including filling the joints with the same sand including cost of all materials and accepted by the Engineer-in-charge.

Brick on end edging (75 mm across the road) with first class or picked jhama bricks and filling the gaps with fine sand (F.M. 0.80) including cutting trenches, true to level and grade, removing earth, refilling and ramming the sides properly including cost of all materials and accepted by the Engineer-in-charge.

Creating turf on the side slopes and top of embankment with good quality turf not less than 225 mm square chunk, watering till the grass grown including all leads and lifts etc. complete and accepted by the Engineer-in-charge.

Supply and installation of street lights with solar system

Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench-mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer-in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract. up to 3 m depth

Earth filling in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.



Supplying and laying of **single layer polythene sheet** weighing one kilogram per 6.5 square meter in floor or any where below cement concrete complete in all respect and accepted by Engineer in charge.

Lean / blinding concrete (1:3:6) in foundation or in floor with cement, sand (F.M. 1.2) and picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting to required level and curing for at least 7 days including the supply of water, electricity, costs of tools & plants and other charges etc. all complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)

Lean / blinding concrete in foundation (1:3:6) with cement, brick chips and sand of F.M. 1.2

Reinforced cement concrete works with minimum cement content relates to mix ratio 1:1.5:3 having maximum water cement ratio = 0.40 and minimum $f'_{cr} = 33.5$ MPa, satisfying a specified compressive strength $f'_c = 25$ MPa at 28 days on standard cylinders as per standard practice of Code ACI/BNBC/ASTM, Cement conforming to BDS EN-197-1-CEM-I, 52.5N (52.5 MPa) / ASTM-C 150 Type-I, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded **stone chips** conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; mixing with standard mixer machine with hopper, fed by standard measuring boxes, casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, other charges, necessary laboratory test etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)

Centering and shuttering, including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for:

Supplying, fabrication and fixing to detail as per design : **ribbed or deformed bar reinforcement** (excluding laboratory test fees) for Reinforced concrete, produced and marked in accordance with BDS ISO 6935-2:2016 (or standard subsequently released from BSTI) including straightening and cleaning rust, if any, bending and binding in position with supply of G.I. wires, conducting necessary laboratory tests etc. (excluding splices or laps) complete in all respect and accepted by the Engineer-in-charge (Measurement shall be recorded only on

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standard mass per unit length of bars, while dia of bars exceeds its standard **Grade 400 (B420DWR: complying BDS ISO 6935-2:2016/ASTM A615)** ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, f_y (R_{eH}) = 400 MPa but f_y not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength f_u to yield strength f_y , shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively

Supply and fixing of **galvanized anchor bolts** of variable dia for rigid frame conforming to ASTM F1554 Grade 55, Galvanized to A153, Class C or equivalent with minimum yield strength of 380 MPa, manual of steel construction by American Institute of Steel Construction (AISC) etc. including the cost of washer & bolts, material testing etc. all complete as per drawing, specification and direction of the Engineer-in- charge.

Supply & Fitting Fixing of 30 watt LED Solar Street Light complete fitting with Solar panel and unique optics and photometric design optimize the light distribution to comply with safety and road lighting standards in terms of luminance, uniformity, glare control etc.
G.I. Pole:

9.00M (30') long GI pipe pole, 1st 6.00M (20') long 150mm (6") diameter, thickness 3.65mm & 2nd 3.00M (10') long 100mm (4") diameter, thickness 3.65mm with base plate 300mm×300mm×10mm size welded and Nut bolt at the bottom, two coat aluminium/desired colour painting. The pole will be installed as per drawing, refilling and RCC 0.3M (1') Zebra colour above ground.

Solar Panel:

Max Power: 12V/150WP, Cell Type: Polycrystalline/Monocrystalline, Voltage at Maximum Power (V_{mpp}): 17.8V, Current at Maximum Power (I_{mpp}): 8.43A, Open Circuit Voltage (V_{oc}): 22.5A, Short Circuit Current (I_{sc}): 9.36A, Cell Efficiency: 18.0%, Junction Box Protection Class: IP 65,

Power	Tolerance:	±	10%,	Lifespan:	25years
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Battery:

AH Lithium iron phosphet battery, Battery Type: LifePO4, Capacity: 28Ah, Rated Working Voltage: 12.8V, Efficiency: 95%, Operating Temperature Range: -10°C ~ 70°C, Life Span: >8Years.

Controller:

Type: MPPT, Capacity: 10A, Rated voltage: 11.0V-14.6V, Self-Consumption (A_v): ≤5mA, HVD: 17.0V×2/24V, Efficiency: 92%-95%, Lifespan: >10 Years, Protection: Load short circuit protection, Polarity reverse polarity protection, Reverse discharge protection.



LED Light: (30W)

- i) Lamp Efficiency : >125.53lm/Watt
- ii) LED Type : SMD
- iii) CRI : >80
- iv) Input Voltage : DC 12V
- v) Beam Angle : 120°
- vi) LifeSpan : >50000 Hours
- vii) Color Temperature : 6000-6500K
- viii) Working Temperature : -10°C-70°C
- viii) Lamp Fixture : High Pressure Die casting Aluminum
Corrosion resistant alloy heat sink.
- x) Classification : IP65


50kWp Hybrid solar system at watch tower (250 KW P)

OFF-GRID SOLAR PANEL SYSTEM :

Supplying, installation, testing & commissioning of following capacity solar system (offgrid) for 24 Hrs backup with required quantities of mono/poly crystalline silicon solar PV modules, Solar suited Deep Cycle Lead Acid battery (12V), with required size Maximum power Point tracking (MPPT)/PWM charge-controller & inverter as per relevant international standards & certification such as IEC/CE/UL as per following specification to produce AC- 220V, 50Hz pure sine wave for suitable use of all standard AC appliances with battery racks/cabinet, solar PV mounting structure, combiner box, fuse box, meter etc. system includes compatible solar cables, equipotential bonded and earthed with the building earth electrode which is conventional and / or chemical electrode system and all accessories as required to complete the installation with one year free operation & maintenance of the system which shall have the following features:

SOLAR PV MODULES/PANEL:

N-Type Mono crystalline (Half-cell), 580Wp, Module Efficiency > 20%, Positive Power Tolerance: (0~+3%), Number of cells per module > 144 (6x24), 3.2 mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass, Fill Factor > 70%, Frame: Anodized Aluminum Alloy, Operating Temperature -40° ~ + 85°C, Junction box IP68, Three bypass diodes, PID Resistance, 12 Years Product Warranty, 30 Year Linear Power Warranty, 0.40% Annual Degradation Over 30 years, All necessary fittings as per relevant international standards & certification (TUV, CE, PV CYCLE, IEC61215, ISO9001:2015, ISO14001:2015 and more), Country of Origin: China .



INVERTER:

The Inverter is specially designed for DC to AC power which provides pure sine wave. The invener(s) comply with the following requirements:

- I. Adopt power fiequency transformed, pure sine wave output, adapt to different load.
- II. Excellent protection design against output short circuit, working reliably.
- III. High inverting efficiency, energy saving and environmental protection
- IV. LCD + LED display show the working status clearly.VII. The Inverler manufacturer has at least 05 (five) years of experience, nominal input vottage 12V DC, output : 220V AC, output waveform : pure / modified sine wave, self

consumption : less than 1 (one) watt, Efficiency : 98% or higher at operating load range from 10% to 100% rated load, Energy source : Priority to solar then battery.IX. Frequency ranges: 50-60 Hz. Relative humidity: 5- 95%, noncondensing, Operating temperature range: -10° - 55°C, Cooling method: Natural Convention.

ENERGY METER:

Supplying and installation ofenergy meters with following features

- I. Single phase / three phase (as per requirement)
- II. Energy meter to be provided to record the amount of solar energy provided from the solar system.

GENERAL GUIDELINE/CRITERIA:

- I. The bidder shall examine the site before the design ofsolar system & its components
- II. The bidder shall have facilities and proper tools and machineries for installing. testing & commissioning of solar panel.
- III. Adequate space & height shall be provided in the rows of panels for easy air flow to avoid excessive heat generation in the panel and to provide access for rain water drainage and damage to protect from dirty water. Minimum air gap between two panels shall be 25 mm.
- IV.All fiames of the PV module, combiner box, inverter etc. shall be equipotential bonded and earthed with the building eanh electrode which is conyentional and / or chemical electrode system with soil conductivity enhancing material that the earth resistance must be less than 1 Ohm as per related standard and code of praclice.
- V. The solar panel mounting shall be of galvanized iron or equivalent to ensure rust protection of the installation. All nut bolts shall be of stainless steel (SS) or galvanized mild steel (MS) materials.



VI. After successful completion, testing & commissioning of the whole system the contractor shall have to train nominated person(s) of the user for a period of at least 2 days.

VII. After completion of whole system and before handing over the system to the concerned authority, the contractor must have to provide minimum 30 days' satisfactory operation for performance evaluation.

VIII. Technical specification with catalogue of PV module, inverter must be submitted with technical offer.

IX. Only approved cable shall be used for wiring.

X. Sufficient AC and DC circuit breakers shall be used to ensure proper safety of the system

BATTERY:

Solar suited Deep Cycle Lead Acid battery (12V)

Battery capacity: 200 Ah

Compliance : ISO9001 & ROHS (Restriction of Hazardous Substances) certified company

MAIN DISTRIBUTION BOARD (MDB)

Providing & fixing 250V, 50 Hz grade following concealed type subdistribution board made of 18-SWG MS sheet complete with hinged type door, built-in type locking arrangement, one no. 60 A capacity bus-bar with required no. of holes there on on insulators at both ends, copper blocks for neutral and earth terminal, SPMCBs Manufactured / Assembled and tested in accordance with IEC / VDE / NEMA / BS / JIS along with relevant BDS IEC standard having minimum breaking capacity 6 / 10-KA with thermal over current and instantaneous electromagnetic short circuit release, necessary arrangement for fixing of MCBs duly painted with powder coating with epoxy polyester resin on all surfaces of board (gray / offwhite) etc. In front side there will be tempered thick fiber glass of minimum 8 mm thickness with rubber gaskets etc. with SPMCBs accepted / approved by the Engineer-in-charge.

Incoming: 1x6A DPMCB (10 KA)

Outgoing : 4x6A SPMCB (10 KA)

CONCEALED CONDUIT POINT WIRING (BYA) (WITHOUT SWITCH)

Concealed conduit wiring for following point looping at the switch board with earth terminal with 1C-2x 1.5 sqmm pVC insulated and sheathed stranded cable (BYA) & 1C-2x1.5 sqmm PVC insulated ECC (BYA) (Green / yellow bi-colour) including circuit wiring with (From SDB to Switch Board) 1C-2x2.5 sqmm pVC insulated and sheathed stranded cable (BYA) & 1C-2x2.5 sqmm PVC insulated ECC (BYA) Green / Yellow bi-colour through PVC conduit (one conduit from switch

board to common point on ceiling is considered to draw 3 pair of cable) of reputed manufacturer of minimum 25 mm dia & 1.7 mm wall thickness complete with 18 SWG CP sheet / PVC switch board & pull box with 3mm thick ebonite sheet cover, without switch, fixing materials etc.(without switch) as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to IEC / BS / VDE standards along with relevant BDS standard. The work shall be carried out as per direction & approval of the Engineer In Charge.
Light / exhaust or wall bracket fan point
Fan point

CONCEALED

WIRING

(BYA)

Concealed conduit wiring with following PVC insulated and sheathed stranded cable (BYA) & PVC insulated Green / Yellow bi- coloured ECC wire (BYA) through PVC conduit of reputed manufacturer complete with 18 SWG GP sheet pull box with 3mm thick ebonite sheet cover. fixing materials etc. as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed). The work shall be carried out as per direction & approval of the Engineer In Charge.
1C-2x2.5sqmm(BYA) cable with 2.5sqmm (BYA) ECC wire through PVC pipe of minimum inner dia 16 mm having wall thickness of 1.5 mm
1C-2x4sqmm(BYA) cable with 4sqmm (BYA) ECC wire through PVC pipe of minimum inner dia 16 mm having wall thickness of 1.5 mm

GANG

SWITCH

Providing & fixing 250 volts. 6 amps (minimum) concealed type following switch manufactured and tested in accordance with relevant IEC / VDE / NEMA / BS / JIS standards mounted on required size 18 SWG galvanized plain sheet / PVC board (Self-extinguishing 650°C) of 76.2 mm (3") depth. All electrical contacts shall be of brass / copper. Before supply and installation, all components must be approved by the engineer in charge.
One gang switch
Four gang switch



Gang type fan regulator

SOCKET

OUTLETS

Providing & fixing 250 volt single phase 3-pin combined switch socket outlet (surface / Concealed type) Manufactured / Assembled and tested in accordance with IEC / VDE / NEMA / BS / JIS along with relevant BDS IEC standard. mounted on required size 18 SWG galvanized plain sheet board / Plastic Board (Self-extinguishing 650 degree centigrade) of 76.2 mm. (3") depth. (Manufacturer shall have certificate of standard which they follow.

13 Amps Socket Outlets

CEILLING FAN

Supply, installation, testing & commissioning of AC capacitor type ceiling fan (without regulator) of following specifications and sizes complete with minimum 305 mm. (1 ft.) long and 0.75-1.0" dia, 2.3mm thickness MS Pipe down rod, tempered cast aluminum blades, 2.5 μ f 400V AC capacitor, canopy double Z ball Bearing best quality silicon sheet core, best quality copper made super enamel wire aluminum alloyed casting body having safety pin with powder coated heat/docu paint as required etc. connecting PVC wire complete as required. Before supply and installation, all components must be approved by the engineer in charge.

Rated voltage : 230 volts

Rated frequency : 50 Hz

Rated speed : 300 rpm \pm 5 %

Service value : Minimum 3.5 m³/ min/watt

Temperature rise : Maximum 55°C

Class of Insulation : Minimum E

Noise level : Maximum 60 dB at a distance of 1 meter.

1400 mm. (56") Sweep

Input power : Maximum 65 watt.

LED Bulb

Light source 9W LED Bulb

Material: MS Sheet, Glass

Size: D-250mm H-110mm

Gloria cat no- GCLF-601 LED-9w

Energy+ EPSL-9024



Asha Cat No. ACS-P 2839 P 10"

Crescent - CPM-10 WH or equivalent

Flood Light Fittings (LED)

Light source: 50W LED Flood light

Gloria Cat no-GLFL-914

Cosmo cat no-BDTCL-LFDL-01

Asha Cat No. ACS-LFL-2155-(50W)

or equivalent

Earthing the electrical installation with 40 mm (1.5") dia c.l. pipe (earth electrode) having 6.35 mm. dia hole across the pipe at 305 mm. interval securely bonded by soldering with 2 nos. of No-2 SWG HDBC earth leads (at the top of the electrode) with its protection by 20 mm. (3/4") dia G.I. pipe up-to plinth level run at a depth of 609.6 mm (2 ft) below G.L up-to main board to be eanched including necessary connecting copper sockets, bolts, nuts, etc. complete for maintaining earth resistance within 1 ohm for system earthing.

Depth of bottom of main electrode at 37338 mm (122.5 ft) from GL & length of electrode 36576 mm. (120 ft). (for system earthing)

OFF-GRID SOLAR PANEL SYSTEM :

Supplying, installation, testing & commissioning of following capacity solar system (offgrid) for 24 Hrs backup with required quantities of mono/poly crystalline silicon solar PV modules, Solar suited Deep Cycle Lead Acid battery (12V), with required size Maximum power Point tracking (MPPT)/PWM charge-controller & inverter as per relevant international standards & certification such as IEC/CE/UL as per following specification to produce AC- 220V. 50Hz pure sine wave for suitable use of all standard AC appliances with battery racks/cabinet, solar PV mounting structure, combiner box. fuse box, meter etc. system includes compatible solar cables, equipotential bonded and earthed with the building earth electrode which is conventional and / or chemical electrode system and all accessories as required to complete the installation with one year free operation & maintenance of the system which shall have the following features:

SOLAR PV MODULES/PANEL:

N-Type Mono crystalline (Half-cell), 580Wp, Module Efficiency > 20%, Positive Power Tolerance: (0~+3%), Number of cells per module > 144 (6x24), 3.2 mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass, Fill Factor > 70%, Frame: Anodized Aluminum Alloy, Operating Temperature -40° ~ + 85°C, Junction box IP68, Three bypass diodes, PID Resistance, 12 Years Product Warranty. 30 Year Linear Power Warranty, 0.40% Annual Degradation Over

30 years, All necessary fittings as per relevant international standards & certification (TUV, CE, PVCycle, IEC61215, ISO9001:2015, ISO14001:2015 and more), Country of Origin: China .

INVERTER:

The Inverter is specially designed for DC to AC power which provides pure sine wave. The inverter(s) comply with the following requirements:

- I. Adopt power frequency transformed, pure sine wave output, adapt to different load.
- II. Excellent protection design against output short circuit, working reliably.
- III. High inverting efficiency, energy saving and environmental protection
- IV. LCD + LED display show the working status clearly.
- VII. The Inverter manufacturer has at least 05 (five) years of experience, nominal input voltage 12V DC, output : 220V AC, output waveform : pure / modified sine wave, self

consumption : less than 1 (one) watt, Efficiency : 98% or higher at operating load range from 10% to 100% rated load, Energy source : Priority to solar then battery.

IX. Frequency ranges: 50-60 Hz.
Relative humidity: 5- 95%, noncondensing, Operating temperature range: -10° - 55°C, Cooling method: Natural Convection.

ENERGY METER:

Supplying and installation of energy meters with following features

- I. Single phase / three phase (as per requirement)
- II. Energy meter to be provided to record the amount of solar energy provided from the solar system.

GENERAL GUIDELINE/CRITERIA:

- I. The bidder shall examine the site before the design of solar system & its components
- II. The bidder shall have facilities and proper tools and machineries for installing, testing & commissioning of solar panel.
- III. Adequate space & height shall be provided in the rows of panels for easy air flow to avoid excessive heat generation in the panel and to provide access for rain water drainage and damage to protect from dirty water. Minimum air gap between two panels shall be 25 mm.
- IV. All frames of the PV module, combiner box, inverter etc. shall be equipotential bonded and earthed with the building earth electrode which is conventional and / or chemical electrode system with soil conductivity enhancing material that the earth resistance must be less than 1 Ohm as per related standard and code of practice.

9

Board) 1C-2x2.5 sqmm pVC insulated and sheathed stranded cable (BYA) & 1C-2x2.5 sqmm PVC insulated ECC (BYA) Green / Yellow bi-colour through PVC conduit (one conduit from switch board to common point on ceiling is considered to draw 3 pair of cable) of reputed manufacturer of minimum 25 mm dia & 1.7 mm wall thickness complete with 18 SWG CP sheet / PVC switch board & pull box with 3mm thick ebonite sheet cover, without switch, fixing materials etc. (without switch) as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed) and cables shall be manufactured and tested according to IEC / BS / VDE standards along with relevant BDS standard. The work shall be carried out as per direction & approval of the Engineer In Charge.

Light / exhaust or wall bracket fan point
Fan point

CONCEALED

WIRING

(BYA)

Concealed conduit wiring with following PVC insulated and sheathed stranded cable (BYA) & PVC insulated Green / Yellow bi-coloured ECC wire (BYA) through PVC conduit of reputed manufacturer complete with 18 SWG GP sheet pull box with 3mm thick ebonite sheet cover, fixing materials etc. as required including mending the damages good. All electrical contacts shall be of brass / copper connected through connector or soldering (no twisting shall be allowed). The work shall be carried out as per direction & approval of the Engineer In Charge.

1C-2x2.5sqmm (BYA) cable with 2.5sqmm (BYA) ECC wire through PVC pipe of minimum inner dia 16 mm having wall thickness of 1.5 mm

1C-2x4sqmm (BYA) cable with 4sqmm (BYA) ECC wire through PVC pipe of minimum inner dia 16 mm having wall thickness of 1.5 mm

GANG

SWITCH

Providing & fixing 250 volts, 6 amps (minimum) concealed type following switch manufactured and tested in accordance with relevant IEC / VDE / NEMA / BS / JIS standards mounted on required size 18 SWG galvanized plain sheet / PVC board (Self-extinguishing 650°C) of 76.2 mm (3") depth. All electrical contacts shall be of brass / copper. Before supply and installation, all components must be approved by the engineer in charge.

One gang switch

Four gang switch

Gang type fan regulator

SOCKET

OUTLETS

Providing & fixing 250 volt single phase 3-pin combined switch socket outlet (surface / Concealed type) Manufactured / Assembled and tested in accordance with IEC / VDE / NEMA / BS / JIS along with relevant BDS IEC standard. mounted on required size 18 SWG galvanized plain sheet board / Plastic Board (Self-extinguishing 650 degree centigrade) of 76.2 mm. (3") depth. (Manufacturer shall have certificate of standard which they follow.

13 Amps Socket Outlets

CEILLING FAN

Supply, installation, testing & commissioning of AC capacitor type ceiling fan (without regulator) of following specifications and sizes complete with minimum 305 mm. (1 ft.) long and 0.75-1.0" dia, 2.3mm thickness MS Pipe down rod, tempered cast aluminum blades, 2.5 μ f 400V AC capacitor, canopy double Z ball Bearing best quality silicon sheet core, best quality copper made super enamel wire aluminum alloyed casting body having safety pin with powder coated heat/docu paint as required etc. connecting PVC wire complete as required. Before supply and installation, all components must be approved by the engineer in charge.

Rated voltage : 230 volts

Rated frequency : 50 Hz

Rated speed : 300 rpm \pm 5 %

Service value : Minimum 3.5 m³/ min/watt

Temperature rise : Maximum 55°C

Class of Insulation : Minimum E

Noise level : Maximum 60 dB at a distance of 1 meter.

1400 mm. (56") Sweep

Input power : Maximum 65 watt.

LED Bulb

Light source 9W LED Bulb

Material: MS Sheet, Glass

Size: D-250mm H-110mm



Gloria cat no- GCLF-601 LED-9w

Energy+ EPSL-9024

Asha Cat No. ACS-P 2839 P 10"

Crescent - CPM-10 WH or equivalent

Flood Light Fittings (LED)

Light source: 50W LED Flood light

Gloria Cat no-GLFL-914

Cosmo cat no-BDTCL-LFDL-01

Asha Cat No. ACS-LFL-2155-(50W)

or equivalent

Earthing the electrical installation with 40 mm (1.5") dia c.l. pipe (earth electrode) having 6.35 mm. dia hole across the pipe at 305 mm. interval securely bonded by soldering with 2 nos. of No- 2 SWG HDBC earth leads (at the top of the electrode) with its protection by 20 mm. (3/4") dia G.I. pipe up-to plinth level run at a depth of 609.6 mm (2 ft) below G.L up-to main board to be eanched including necessary connecting copper sockets, bolts, nuts, etc. complete for maintaining earth resistance within 1 ohm for system earthing. Depth of bottom of main electrode at 37338 mm (122.5 ft) from GL & length of electrode 36576 mm. (120 ft). (for system earthing)

Gang type fan regulator

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Depth of bottom of main electrode at 37338 mm (122.5 ft) from GL & length of electrode 36576 mm. (120 ft). (for system earthing)

Environment Related Activities


Code


- 9.1 **Conduct Air Quality Monitoring** including baseline satisfying the provision of Section VII & Schedule E of the bidding (7 Locations/Every 06 months)
- 9.2 **Noise sampling and testing** in the nearby receptors for every half-year including baseline covering 02 camps 04 sites 01 office site including baseline survey satisfying the provision of Section VII & Schedule E of the bidding document (7 locations*6 times)
- 9.3 **Surface water quality sampling and testing** of nearby waterbodies/canals receiving wastewater for every half-year including baseline covering 06 nearby canals satisfying the provision of Section VII & Schedule E of the bidding) (6 location * 6 times) document
- 9.4 **Drinking water Quality testing** of 02 construction camps, 04 sites and 01 Site office including baseline for every half-year satisfying the provision of Section VII & Schedule E of the bidding document (6 location * 6 times)
- 9.5 **Implementation of Site specific Environment Management Plan**, Contractor's Environmental Action Plan (CEAP) satisfying the provision of Section VII & Schedule E of the bidding document, obtaining approval of the same from the Engineer and maintenance of such approved plan during the entire period of Construction as follows:
- 9.5 A **Drinking Water Facilities:** Providing continuous adequate drinking water supply at construction camps, worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. All complete as per satisfaction and direction of the Engineer-in-charge, all relevant goods and equipment under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.
- 9.5 B **Temporary Toilet Facilities:** Providing at least two nos. portable toilets or constructing temporary semi pucca toilets with two pit latrine one for female worker and another for male worker at worksite (2 nos. in every construction camps, work sites and every 5 km distance) and workers accommodation site in a safe location, so that no adverse impact will generate on the surrounding environment, including providing requisite arrangement for



water supplying etc. All complete as per drawing, specification, direction and satisfaction of the Engineer-in-charge. All relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.

- 9.5 C **Waste Disposal Facilities at Construction office, site and camps:** Providing, installing and maintaining at least 03 (three) nos. waste collection bins one for organic waste, construction and other for hazardous waste of minimum capacity of 30liters with hinge supported 450mm dia cover plate for opening, made of durable plastic material at worksite, both bins will be kept in a safe and easily accessible place, so that will easy to use and no adverse impact will generate on the surrounding environment, including continuing the full functioning of waste disposal(buried/incineration) in accordance with the full satisfaction of the project manager throughout the contract period, all complete as per drawing, specification and direction of the Engineer-in-charge. Entire relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.
- 9.5 D **Traffic Management:** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge, unless specified otherwise, including keeping provision for existing traffic and pedestrian movements in such a way as to assure that a single lane at least 3.0m wide is available for public traffic at all times (including access to properties and local roads) affected by the contractor's activities shall be maintained at all times (day & night), including removal of all temporary constructions on completion of the activities, etc. all complete as per requirement and instruction of Engineer-in-charge. All relevant accessories and arrangements under this item shall be property of the contractor and payment will be made after 100% completion of the contract successfully.

- 9.5 E **Control of Air Pollution (Dust Suppression):** Maintaining, carrying out proper and efficient measures wherever and as often as necessary to reduce dust nuisance, and to prevent dust which has originated from contractor's activities/ operations at the worksite and site office, including sprinkling water on aggregates/unpaved roads at least three times a day or more depending on the atmospheric conditions, including keeping necessary covering/protection on stockpiled fine aggregates to reduce dust nuisance during natural air blowing, all complete like emission of dust into the atmosphere shall be strictly controlled during manufacture, handling, storage of concrete, road aggregates, and to be used such methods and equipment as are necessary for collection and disposal, or prevention, of dust during these operations means of eliminating atmospheric discharges of dust as per requirement all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.
- 9.5 G **Control of Water Pollution:** Providing necessary arrangement to prevent entrance, or accidental spillage, solid matter, contaminants, debris, garbage, cement, concrete, sanitary waste, oil, other petroleum products, pollutants and wastewaters from aggregate processing, concrete batching, or other construction operations into streams, flowing or dry watercourses, lakes, and underground water sources for ensuring water quality, all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.
- 9.5 H **Providing and maintaining semi pucca Construction Camp** with necessary furniture, sanitary & electrical/ power facilities, water supply, fire fighting arrangement all complete including removal of structures and restoration of the site on completion of the work. The contractor shall submit the detailed plan and drawing of the construction camp for approval of the engineer. The construction camp should be provided with sufficient natural light, heat protecting ceiling, dam proofing etc. as per direction of E-I-C. All materials, equipment and plant, furniture, fittings recovered from dismantling the camps and removing access road will be the property of the contractor upon completion of the work. The contractor will responsible for maintaining the facilities of the camps in good condition throughout the contract period and payment of this item shall be made only with the final bill. Area of Construction Camp: 139.35 sqm.
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- 9.5 I **First Aid Box:** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite, site office and camps, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labor requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.
- 9.5 J **Personal Protection Equipment for Workers:** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket for construction workers made of 100% polyester waterproof fabric, fluorescent yellow/orange/green/red/blue or pantone color, (ii) suitable hand protection gloves for construction work of Flexible/ durable/ excellent puncture resistance working gloves with PVC palm and T/C drill back, pasted cuff, palm liner and fit properly and be reasonably comfortable to wear, (iii) appropriate foot protection shoes having impact-resistant toes and heat-resistant soles that will protect the feet against hot working surfaces, (iv) best quality safety helmets of ABS shell, tough, lightweight, durable which will be able to resist penetration by objects, absorb the shock of a blow and water-resistant and slow burning with available four-six-point adjustable suspension for shock- absorbing, slotted sides to accommodate accessories, such as face shields, ear muffs(v) suitable eye protection goggles to protect against specific workplace hazards, fit properly and be reasonably comfortable to wear, provide unrestricted vision and movement, including instructing workers to wear strictly during working time and reviewing periodically, updating, evaluating the effectiveness of PPE and maintaining, replacing worn or damaged PPE etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.
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- 9.5 K **Site Preparation, Protective Fencing & Safety Measure with Warning Sign:** Erecting and maintaining temporary fencing and gates, and if necessary, providing watchmen to ensure that livestock cannot stray at surrounding premises of site office/work site with using of best practice construction techniques to minimize disturbance to fauna and flora, and confining it within defined working areas, utilizing of appropriate techniques to minimize soil erosion, including filling and cutting slopes shall be repaired immediately whenever damaged by surface water, compacting the filled material, using suitable light equipment and confine the effects of vegetation clearance and soil disturbance within defined allocated land boundaries including avoiding environmentally sensitive or valuable areas such as nature reserves, archaeological sites, areas inhabited by sensitive species, areas adjacent to surface water bodies, providing necessary protective fencing and safety measures with warning signboard, including furnishing and placing all materials, labor, equipment, tools and incidentals necessary to complete the work and removal, disposal at a safe distance after completion of work etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully.
- 9.5 L **Site Cleaning, Removal and Disposal Activity:** Cleaning and maintaining at all times, keeping the construction area, storage areas used, free from accumulations of waste materials or rubbish, with necessary arrangement for collecting at a central disposal area, on a daily basis and disposing in a manner approved and satisfaction by the Engineer, especially waste water and sewage from office, residential and mobile camps shall be piped to soak pits or other disposal areas, all used fuels, oils, other plant or vehicle fluids, old tires, tubes, other solid waste from household, office, workshop, construction materials, etc. to be kept at safe places and any spillages shall be cleaned up by either burning in place or collecting the contaminated soils and burning them at the central disposal area, including removing all waste, debris, rubbish, unused materials, concrete forms and other like material, tools, equipment, machinery and surplus/ unwanted materials buried or cleaned up in a manner acceptable to the Engineer after completion of work etc. all complete as per requirement and full satisfaction of Engineer-in-charge. Payment will be made after 100% completion of the contract successfully
- 9.5 M **Supplying of Washable Reusable 3 Layer cotton face mask/KN95 Respiratory face mask with hand sanitizer** like ACI Hexisol hand rub or its equivalent viz. Sepnil Instant Hand Sanitizer among all the workers in the site from commencement of work to



completion of work etc. all complete as per sample like in Fig. 5 and direction of the Engineer-in-charge.

9.5 N Maintenance, Staffing, Security and cleaning Entertainment of the field office for the Engineer.

9.5 O Progress Photographs

9.6 Reports: Environment and Social

(a). Preparation, Submission and obtaining approval from the Engineer of the Monthly Progress Report satisfying the provision of Particular Condition Part D.

(b). Preparation, Submission and obtaining approval from the Engineer of the half yearly Progress Report satisfying the provision of Particular Condition Part D.

(c). Preparation, Submission and obtaining approval from the Engineer of the Yearly/annual report satisfying the provision of Particular Condition Part D.

(d). Preparation, Submission and obtaining approval from the Engineer of the Completion report satisfying the provision of Particular Condition Part D.

Social Related Activities

GBV/SEA/SH risk mitigation

9.7 Design of Grievance Complain Box, Obtaining approval of Engineer, Manufacture, Supply, Erection at Pre-approved location of the Site and Maintenance during the entire period of Construction to the satisfaction of the Engineer.

9.8 Design of billboards for posting of GRM related information, Obtaining approval of Engineer, Manufacture, Supply, Erection at Pre approved public places and Maintenance during the entire period of Construction to the satisfaction of the Engineer.

9.9 Provision for receiving Daily grievance, Proper registration of complain and management, resolution of such grievances, selection, engagement and monitoring of the referral service providers (GO, NGO, Private) satisfying the provision of GBV/SEA/SH risk mitigation guidelines during the period of construction and submission of Report Quarterly satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.

Labor Influx Management

9

- 9.10 Daily recording of Labor Inflow and Out Flow satisfying the provision of Labor Influx Management and submission of Report Monthly satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.

Grievance Redress Mechanism (GRM)

- 9.11 Preparation of Grievance Redress Mechanism (GRM) and obtaining approval, Receiving of grievance, documentation of the same, resolution of such grievance satisfying the provision of GRM and submission of Report Quarterly satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.

Communication

- 9.12 Preparation of information brochures related to GBV/SEA/SH risk, mitigation measures, Design, Obtaining approval of Engineer, Manufacture, Supply Erection and Maintenance of billboards, dissemination of information to adjacent community through brochures/leaflets and community consultation during the period of construction satisfying the provision of Communication guidelines and submission of Report Monthly satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.

Occupational Health & Safety (OHS) including Covid-19 issue

- 9.13 **Supply, Commissioning, Operation & Maintenance of Occupational Health & Safety (OHS) including Covid-19 issues satisfying the provision of Contract, Engineer and covering the following:**
- Case Management comprising of COVID-19 tests, Quarantine/ isolation facilities, Emergency medical transport & Hospitalization/ treatment, etc.;
 - Manpower comprising of Cleaners, Public Health Specialist, etc.;
- and submission of Monthly Report satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.
- 9.14 **Manpower for ES-MSIP**
- (a) **Environment Health Safety Specialist** (2 man days for each quarter including baseline, 11X2=22 M-D)
 - (b) **Social Development Specialist** (2 man days for each quarter including baseline, 11X2=22 M-D)

Awareness training



- 9.15 Preparation of the Awareness **Training program** for the Contractors personnel, obtaining approval of the Engineer and performance of the training during the period of Construction satisfying the provision of Environment and environmental issue, OHS & COVID 19 issues and Social Issues including submission of Monthly Report satisfying the provision of Particular Condition Part D and obtaining approval from the Engineer.

9

Environmental and Social (ES) requirements

Introduction:

In preparing the specification for ES requirements, the WB ESF, ESMF, ESIA, ESMP, EHS guidelines, GIIP and relevant national laws have been consulted and followed. The ES requirements have been prepared in a manner that does not conflict with the relevant General Conditions of Contract and Particular Conditions of Contract. The contractor would be required to:

1. Follow all the instructions mentioned in this specification;
2. Prepare and submit ES Management Strategies and Implementation Plans (MSIPs) as mentioned in this specification;
3. Prepare and submit Contractor's ESMP as per the conditions of contract before commencement of the work to be reviewed and cleared by the procuring entity.
4. Monitor various environmental and social parameters mentioned in the monitoring plan described in this specification;
5. Ensure availability of required contact information in the working site to handle any emergency situation during implementation of the work;
6. Submit environmental and social compliance report as mentioned in this specification;
7. Appoint adequate number of dedicated Environment, Social, Health and Safety staff as mentioned in the TDS of the tender document;
8. Provide training to its workers for smooth implementation of ESMP;
9. Submit code of conduct for contractor's personnel (including subcontractors as relevant), a sample CoC is attached as annex 1 to this document;
10. Ensure that the quoted rates adequately cover all aspects of this ES specification.

In addition to the guidelines, specifications and recommendations in the relevant reports, frameworks and standards mentioned above, the following environmental and social (ES) issues are also requirements for the conditions of contract.

The following are the additional requirements to the relevant Conditions of Contract:

Clause No. 4.1 Contractor's General Obligation

As per the specific requirements of Security and Support Amenities (Protection wall/Fence, Surveillance) works, the contractor shall prepare the site-specific construction management plan considering IFC EHS guidelines for Construction and Decommissioning guidelines and update periodically as per the recommendations of the updated ESIA report. This site-specific construction management plan should be submitted to BEZA for approval prior to start the construction.



In case the contractor fails to address the ES due diligences then the Engineer can instruct the contractor to temporarily suspend the causative works until the Engineer is assured that proper mitigation measures taken and the ES management has been restored to the required levels as instructed.

The contractor shall exhibit experience in managing environmental pollution, ecological sensitivity, climate change, occupational health safety considerations in and around the embankment/waterbodies for the construction works and also manage risks of the public's potential exposure to operational accidents or natural hazards, including extreme weather events in coastal areas, applicable certification or approval requirements.

[Refer to ESS3, ESS4, ESS6 on requirements for construction and demolition works]

Clause No 4.6: Co-operation

An independent third-party Environmental and Social firm has been recruited by the employer who is updating the comprehensive Environmental and Social Impact Assessment (ESIA) for the BSMSN Development Project under the PRIDE project of World Bank based on the final design. The consultant will follow the existing Environmental and Social Management Plan (ESMP), Resettlement Policy Framework, Labor Management Procedure (LMP), Stakeholder Engagement Plan (SEP) and other related plans as necessary to update the ESIA. The contractor shall implement the updated ESMP both during the construction of Security and Support Amenities works in BSMSN. The ESIA, ESMP, LMP, SEP and other relevant plans, if required, shall adhere to various requirements stated under Applicable national Laws, and the World Bank's Environmental and Social Framework consisting of 10 standards. The contractor would require to go through WB ESF and relevant Acts and rules of Bangladesh Government and conduct a preliminary environmental and social risk assessment and management cost keeping in mind that some additional cost may incur once the ESIA is updated by a third-party firm. During conducting the Security and Support Amenities (Protection wall/Fence, Surveillance) works in BSMSN, the contractor will engage specialized third party accredited environmental monitoring firm/lab for any kind of testing and implementing the ESMP and other ES instruments. The cost of implementing environment and social management plan including monitoring of all parameters as mentioned in the monitoring plan shall be borne by the contractor as mentioned in the BoQ.

1.Occupational, Health and Safety Requirements

Clause No. 4.8:

Health and Safety Obligations

The Contractor shall submit to the Engineer for Review a health and safety manual which has been specifically prepared for the Works, the Site and other places (if any) where the Contractor intends

to execute the Works. The health and safety manual shall set out following health and safety requirements:

General OHS Requirements:

1. The Contractor shall observe and maintain standards of Health and Safety towards all of his employees not less than those laid down by the national standards or statutory regulations;
2. Where appropriate, to prevent workers falling from heights, the Contractor shall make sure that every temporary floor openings shall either have railing of at least 900 mm height or shall be constantly attended; every floor hole shall be guarded by either a railing or a hinged cover, or constantly attended; every stairway floor opening shall be guarded by railing at least 900 mm high on the exposed sides; every ladder way floor opening or platform shall be guarded by a guard railing; every open sided floor or platform 1.2 m or more above adjacent ground level shall be guarded by a railing on all open sides;
3. The Contractor shall provide all appropriate protective clothing and equipment for the work to be done and ensure its proper use. Where required, safety nets, belts, harnesses and lines shall be provided by the contractor. The "safety directives for work equipment" and "safety directives for protective gears" shall be prepared and disseminated to the workers by the contractor;
4. The Contractor shall provide and maintain in prominent and well-marked positions all necessary first-aid equipment, medical supplies and other related facilities. A sufficient number of trained personnel will be required to be available at all times to render first aid;
5. The Contractor must provide or ensure that appropriate safety and/or health signs are in place at their work sites where hazards cannot be avoided or reduced;
6. The contractor to arrange adequate fire prevention and fire-fighting provisions to deal with any fire hazard;
7. The Contractor shall report to the Engineer promptly and in writing particulars of any accident or unusual or unforeseen occurrences on the site, whether these are likely to affect progress of the work or not.

Managing Physical Hazards on Construction Sites: The Hierarchy of Control Methods:

- a. Elimination/ Substitution: Not practiced during construction unless applied in design phase
- b. Engineering controls: Second most effective means of protecting employees from hazards however, limited due to costs, resources and time constraints.
- c. Administrative and work practice controls: Most effective include most of the control measures
- d. PPE: - last resort; it is least effective.



Heavy Equipment: (Heavy Equipment includes but is not limited to: Backhoes, Bulldozers, Road Graders, Excavators, Scrapers Loaders, Dump Trucks, Earth Movers, Trucks 2 Tons GVW or Greater.)

- a. Operators should have: license, training, qualifications, certifications and medical fitness.
- b. Safeguard and Control Measures:
 - i. Heavy Equipment should be equipped with: back-up alarm, horn and seat belt.
 - ii. All Motorized Heavy Equipment should require Rollover Protective Structures (ROPS) with seat restraints.
 - iii. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
 - iv. Inspections Before use
 - v. Traffic Management Plan (TMP): TMP should be developed for project/ site to ensure safe interactions between work activities, equipment, people and environment.

Material Handling: Safeguard and Control Measures for Loading and Unloading Hazards;

- a. Use of mechanical lifting equipment e.g., Cranes, Forklifts and etc.
- b. Safe Work zone during loading/ unloading, inspection.

Fall from height:

- a. Choose the right access equipment for work at height (e.g., using mobile elevated work platform instead of a ladder)
- b. Provide edge protection such as using guard-rails and toe boards at open sides
- c. Install safety canopy or safety nets strong enough to retain individuals
- d. Provided workers personal fall arrest systems such as a harness with a short work restraint lanyard properly secured to a suitable anchorage point may be used.

Slips and trips:

- a. Ensure that all operatives are provided with obstruction-free access and egress to their working areas.
- b. Keep work and storage areas tidy and designate specific areas for waste collection
- c. Clean up all slippages immediately
- d. Signpost all slippery areas and providing sufficient illumination at the workplace
- e. Provide employees training, instruction and supervision for relevant work activities
- f. Use PPEs such as lifting straps, shoulder harness, slip resistant footwear to prevent slips, falls.

Hot Work – Welding, Brazing and Cutting: Safeguard and Control Measures include but not limited to:



- a. Fire prevention: Remove all combustible materials from the area
- b. Appropriate precautions must be taken when using hot work in the vicinity of flammable materials.
- c. Fire protection: Establish fire watch and install Fire extinguisher
- d. PPE:
 - i. Skin protection: fire resistant apron/ jacket and gloves, leather safety boots; welding helmet
 - ii. Eye protection: Welding helmet with UV protected shades and face shields for grinding
 - iii. Respiratory protection: Use filter respirators in ventilated areas and supplied air respirators (SARs) in confined spaces

Electrical Safety: Safeguard and Control Measures include but not limited to:

- a. Insulation - insulate electrical conductors with glass, rubber or plastic
- b. Electrical protective devices - interrupts current flow when it exceeds conductor capacity like fuses, circuit breakers & ground fault circuit interrupters (GFCI's)
- c. Only competent persons who are trained and qualified to work on electrical equipment
- d. PPE for electrical work includes: Hard hat, Safety glasses, Long sleeve cotton shirt and long non-melting pants
- e. Regularly check electrical equipment
- f. Give instruction to workers to report any electrical faults immediately and stop using the tool or cable as soon as any damage is seen.
- g. Where possible, eliminate risks by using battery powered or cordless tools or tools which operate from a 110V supply system

Measure for combating Pandemic and endemic diseases:

Contractor will comply with the Government Instruction regarding COVID-19 and other pandemic and endemic diseases to ensure safe working environment and labor conditions.

Clause 4.18: Protection of Environment

For protection of environment, the contractor would take appropriate mitigation measures to control air, water, noise, soil/sediment pollution as per the national Acts/Rules/Standards. In case of non-availability of such standards, the GIIP is to be followed.

The values for emissions, surface discharges, effluent and any other pollutants from the Contractor's activities that shall not be exceeded 20% of the GHG emission, especially Carbon Di-Oxide.

Clause No. 4.21: Security of the Site

The requirements for the security arrangements (ESS4 of the ESF states the principles of proportionality, GIIP as per ILO standard and as per applicable national law should be applicable).



The contractor will ensure life and livelihood to the adjacent area of the project site. The contractor shall ensure that the surrounding land or crops are not damaged during excavation/earth filling, especially by ensuring that saline water does not enter.

Clause No. 4.23 (c): Archeological and Geological Findings

Not Required

2. Labor Welfare

Clause No. 6.2: Rate of Wages and Conditions of Labour

As per requirements of ESS2 of ESF, the Contractor shall:


- a. The contractor will ensure minimum 10% local labor especially in the non-skilled jobs.
- b. Provide written agreement of contract to workers and payment slip
- c. Ensure discrimination on employment and payment of wages are avoided and local people are given preference over outside labors meeting the job description
- d. Pay wages as per current Labor Law and Government regulation
- e. Keep records of hours worked, remuneration and deductions (including overtime), collective bargaining agreements;
- f. Record incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (for example, revised job safety analysis, new or different equipment, skills training, and so forth)
- g. Ensure safe and healthy work and living conditions including maintaining of COVID-19 protocols, separate toilets for male and female, breast feeding corner for female employees, toilet cleanliness and hygiene maintenance.
- h. Establish a GRM to raise worker grievances
- i. Use of Child labor and forced labor is strictly prohibited.

Clause No. 6.5: Working Hours

Contractor to follow the Bangladesh Labour Act 2006 and ILO Rules for maximum working hours in a day which is restricted to 8 (eight) hours. Workers working over 8 (eight) hrs. will be entitled to extra allowance for overtime.

Clause 6.27: Training of Contractor's Personnel and Code of Conduct (CoC)

As per ESMP outlined in the ESIA the contractor to arrange training for the workers on the following issues:

- ESMP implementation and capacity building Training for site workers
 - SEA/SH (Sexual Exploitation and Abuse/ Sexual Harassment)
- 

- Health, safety and hygiene
- Awareness training about the communicable diseases like STDs, HIV/AIDS etc.
- Training on resource efficiency
- Waste management
- Community health and safety Training
- Occupational Health and Safety (OHS) Training including GRM, GBV, SEA
- Community health and safety Training
- Standard operating procedures (SOP) for construction works
- COVID-19/Pandemic/Endemic Protocol

Contractor will also indicate the duration, frequency and timing of these training.

Issues Relevant to SEA/SH/GBV

Contractors must address the risk of SEA/SH/GBV, through:

- a. Mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women;
- b. Informing workers about national laws that make SEA/SH a punishable offence which is prosecuted;
- c. Introducing and signing of a Worker Code of Conduct by all workers as part of the employment contract, and including sanctions for non-compliance (e.g., termination).
- d. Adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender- based violence. In this regard, the contractor shall strictly adhere to the provisions of the project's GBV/SEA/SH Action Plan.
- e. The contractor also shall manage a grievance mechanism on potential GBV/SEA/SH cases under the guidance of the Project PIU and shall take into account in submitting bid the provisions for service providers in case of potential GBV victims/cases.

Labor Camp:

- a. Build labor camp within close proximity of the site. Keep it clean and hygienic with proper ventilation, sanitation, sleeping arrangement in raised bed, dining facilities, electrification and lighting;
- b. No electrical wire should be left on the floor of camp or site. Proper system should be developed and entry to the site of electricity meter should be restricted and should be allowed for authorized personnel only;
- c. The construction camps should be at least 500 m distance from habitations from the nearest settlements to avoid conflicts and stress over the infrastructure facilities with the local community.

- d. Location for stockyards for construction materials will be identified at least 1 km from water sources;
- e. Store house for hazardous material like diesel should be at distance from construction labour camps;
- f. Construction camps shall be provided with sanitary latrines (1 per 25 pax), bathing facility and urinals. Provide separate toilets and washing facilities for men and women. Keep those facilities in a clean, accessible and hygienic condition;
- g. Supply safe drinking water to the site. The camp should be cleaned daily;
- h. Provide sufficient number of waste bins to store different categories of wastes. Provide a designated waste collection area for dumping wastes before disposal;
- i. Ensure adequate drainage arrangement inside the camp. All sites used for camps will be adequately drained. They will not be subject to periodic flooding, nor located within 300 feet of pools, sink holes or other surface collections of water unless such water surface can be subjected to mosquito control measures;
- j. The camps will be located such that the drainage from and through the camps will not endanger any domestic or public water supply. All sites will be graded, ditched and rendered free from depressions such that water may get stagnant and become a nuisance
- k. Sanitary latrines shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings;
- l. Adequate and suitable facilities for washing clothes and utensils shall be provided and maintained for the use of contract labour employed therein.
- m. Sewerage drains will be provided for the flow of used water outside the camp.
- n. Drains and ditches will be treated with bleaching powder on a regular basis.
- o. The sewage system for the camp will be properly designed, built and operated so that no health hazard occurs and no pollution to the air, ground or adjacent watercourses takes place.
- p. Crèche facility should be provided for children if female workers are employed;
- q. The living accommodation and ancillary facilities for labour shall be erected and maintained to standards and scales approved by the resident engineer

First Aid

Contractor shall ensure emergency requirements of first aid as below:

- a. First aid facilities should be made available at construction camp. First aid box should contain small, medium and large sized sterilized dressings, sterilized burns dressings, 2 % alcoholic solution of iodine, bottle containing salvolatile, snakebite lancet, bottle of potassium permanganate crystals, scissors, Ointment for burns & surgical antiseptic solution;

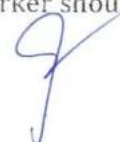


- b. 1 first aid box should be available per 50 labour;
- c. A person trained in first-aid treatment shall be made in charge who shall always be readily available during the working hours at the work place;
- d. A suitable motor four-wheeler transport shall be kept readily available to carry injured or ill person to the nearest hospital.

Grievance Mechanism for Workers

Contractors will establish a labor related GRM according to the following principles:

- a. Provision of Information: All workers should be informed about the grievance mechanism at the time they are hired, and details about how it operates should be easily available, for example, included in worker documentation or on noticeboards;
- b. Transparency of the Process: Workers must know to whom they can turn in the event of a grievance and the support and sources of advice that are available to them. All line and senior managers must be familiar with their organization's grievance procedure.
- c. Uptake Channel. A number of grievance uptake channels will be established (Phone, SMS, email, in person) which will receive grievances. This will be communicated to the workers. A log of grievances will also be maintained.
- d. Keeping it Up to Date: The process should be regularly reviewed and kept up to date, for example, by referencing any new statutory guidelines, changes in contracts or representation.
- e. Confidentiality: The process should ensure that a complaint is dealt with confidentially. While the procedures may specify that complaints should first be made to the workers' line manager, there should also be the option of raising a grievance first with an alternative manager, for example, a human resource (personnel) manager;
- f. Non-Retribution: Procedures should guarantee that any worker raising a complaint will not be subject to any reprisal;
- g. Reasonable Timescales: Procedures should allow for time to investigate grievances fully but should aim for swift resolutions. The longer a grievance is allowed to continue, the harder it can be for both sides to get back to normal afterwards. Time limits should be set for each stage of the process, for example, a maximum time between a grievance being raised and the setting up of a meeting to investigate it;
- h. Right of Appeal: A worker should have the right to appeal if he or she is not happy with the initial finding
- i. Right to be Accompanied: In any meetings or hearings, the worker should have the right to be accompanied by a colleague, friend or union representative



- j. Keeping Records: Written records should be kept at all stages. The initial complaint should be in writing, if possible, along with the response, notes of any meetings and the findings and the reasons for the findings;
- k. Relationship with Collective Agreements: Grievance procedures should be consistent with any collective agreements;
- l. Relationship with Regulation: Grievance processes should be compliant with the national employment code.

Code of Conduct (CoC)

Contractors will need to maintain a code of conduct (CoC) which will be in Bangla language and will be read and signed by all workers. The CoC commits all persons engaged by the contractor, including sub-contractors and suppliers, to acceptable standards of behavior. The CoC must include sanctions for non-compliance, including non-compliance with specific policies related to gender-based violence, sexual exploitation and sexual harassment (e.g., termination). The CoC should be written in plain language and signed by each worker indicating that they have:

- received a copy of the CoC as part of their contract;
- had the CoC explained to them as part of induction process;
- acknowledged that adherence to this CoC is a mandatory condition of employment;
- understood that violations of the CoC can result in serious consequences, up to and including dismissal, or referral to legal authorities.

A copy of the CoC shall be displayed in a location easily accessible to the community and project affected people.

The Contractor will follow the Labor Management Procedures of the PRIDE project (<https://www.beza.gov.bd/wp-content/uploads/2020/03/Labour-Management-Procedure-LMP-for-PRIDE-Project-of-BEZA.pdf>). A sample Code of Conduct in Bangla is attached.

In addition to the sub-clauses of the Conditions of Contract mentioned above contractor will also comply with following requirements:

3. Resource Efficiency and Pollution Prevention and Management Requirements

For Resource Efficiency, the contractor will identify feasible measures for efficient use of resources through:

- Use of energy
- Water usage and management to minimize water usage during construction, conservation measures to offset total construction water demand and maintain balance for demand of water resources

- Use of raw materials by exploring use of local materials, recycled aggregates, use of innovative technology so as to minimize project's foot prints on finite natural resources.

Control of Air Pollution:

Air pollution will occur due to site preparation, excavation, earth filling, stack yards and labour shed construction, grading and movement of vehicles and the mitigation measures are:


- a) Ensure that all vehicles and machines comply with technical and environmental safety regulations;
- b) Schedule the operation times for vehicles, machines working in the construction area to reduce air emissions;
- c) The contractor shall maintain an inventory of the number, type and location of all stationary emission sources within the boundary of the construction site during the period of construction;
- d) The Contractor shall undertake at all times to prevent dust nuisance and excessive exhaust emissions as a result of his activities;
- e) Before the commencement of any work, the Engineer may require the methods of working and equipment intended to be used on the site to be made available for inspection and approval to ensure that they are suitable for the project;
- f) The Contractor shall ensure that all Plant and Equipment to be used on site are properly maintained in good operating condition and that the Plant and Equipment does not give rise to excessive exhaust smoke emissions;
- g) In the process of material handling, any material which has the potential to create dust shall be treated with water or wetting agent sprays, especially when dusty materials are being loaded or unloaded;
- h) Any vehicle with an open load-carrying area used for moving materials, and having the potential to create dust, shall have properly fitting side and tail boards. Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300 mm over the edges of the side and tail boards;
- i) Stockpiles of dusty materials will be covered by polythene or tarpaulin;
- j) The Contractor shall frequently clean and water the any public road used by vehicles accessing the site to minimize the fugitive dust emissions;
- k) Regular watering and sprinkling for dust suppression are to be done properly;
- l) Compaction of prepared site to re-strain the fugitive emissions;
- m) The Contractor shall restrict all vehicles on the Site to a maximum speed of 15-20 km/hr km per hour and confine haulage and delivery vehicles to designated roadways inside the site.;



- n) Where inspection of the site by the Engineer or the monitoring indicates significant increase in dust level the contractor shall review the mitigation measures that will include but not limited to the following
- Checking of water spraying/dust suppression equipment;
 - Maintenance or replacement of any plant or equipment contributing to the impact;
 - Checking and maintenance of tarpaulin or enclosures used; to cover the aggregates generating dust.
- o) The contractor shall, as a result of the review, implement any further mitigation measures that may be required such that the dust levels are reduced.
- p) In the case that the contractor fails to implement the necessary mitigation measures or the increased dust level persists despite the mitigation measures then the Engineer can instruct the Contractor to temporarily suspend the causative works until the Engineer is assured that proper mitigation measures have been implemented;
- q) Air quality monitoring to be carried out during construction phase to check the pollutants level in the air.

Control of water pollution:

Surface and groundwater can be contaminated by sewage & wastewater from labour camp, dumping of moist soil for prolong period and effluent disposal and the mitigation measures are suggested below:

- a) The contractor shall design methods of working to minimize water pollution and to meet the appropriate environmental standards and shall provide experienced personnel with suitable training to ensure that these methods are implemented.
 - b) The contractor shall provide toilets with septic tanks system or sanitary pits of sufficient capacity for the number of workers on the site. No overflows from the storage tanks to the surface water drains will be permitted;
 - c) Water pollution may occur due to: diesel and oil, cement, glues. Paint, other toxic chemicals etc. All of these contaminants have the potential to end up in water bodies as a result of runoff from construction site in a number of ways, such as through drains, seeping into soil, or runoff directly into nearby water bodies. Remedial measures may include:
 - d) Keep materials such as sand or cement secure: Materials must be located where there isn't a risk of them being washed into waterways or drains.
 - e) Monitor and improve management and disposal of site waste: Contractor to ensure all waste is correctly dealt with to stop it from spreading.
 - f) Cover up all drains to prevent waste from ending up in the water.
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- g) Minimize land disturbance and leave maximum vegetation cover.
- h) Properly collect and treat any wastewater
- i) Regular monitoring of the water quality during the construction. If monitoring of the water quality of the Ichakhali canal and adjacent water bodies or connecting canals indicates any adverse impact on the surface water the contractor shall check whether this impact is due to any project activities and take appropriate mitigation measures to prevent such adverse impact from project activities;
- j) Ichkhakhali canal at site has been retained and no waste is disposed off in the canal;
- k) Temporary storm water drains have been provided for whole site. These drains are connected to Ichkhakhali canal. These drains have been provided with silt trap so as to arrest sediments from run-off before discharging into canal;
- l) Silts are removed periodically from these silt traps to avoid choking and overflow.

In case the contractor fails to implement the necessary mitigation measures or the water quality deterioration persists due to project activities then the Engineer can instruct the contractor to temporarily suspend the causative works until the Engineer is assured that proper mitigation measures have been implemented and the water quality has returned to acceptable levels.

Control of Soil Pollution:

Project site soil and sediment can be polluted due to disposal of solid and liquid waste of diversified construction works, operation of heavy equipment, oil spillage of construction vehicles etc.

Mitigation Measures:

- Clearing of vegetation will be limited and rootstock to be left in-situ if practically possible;
- Vulnerable or newly landfilled areas will be protected by appropriate erosion control;
- Re-vegetation of areas particularly exposed to erosion will be undertaken to minimize the mobilization of soil through wind;
- Topsoil removed during the excavation works of the pipeline trench to be stockpiled and backfilled once the pipeline has been installed. The location of the topsoil stockpiling should be defined before starting the construction activities;
- Avoid damage to the important topographic features identified along the route by controlling access to these areas by providing temporary fencing,
- Construction vehicles will avoid vacant areas and remain on compacted roads/right of way;
- The supply of gatch should be controlled and be from non-sensitive areas away from the pipeline route corridor.
- Fuel, lubricating oil, and used oil storage areas will be in the designated area;
- Contractor shall ensure daily collection and disposal of construction waste, debris, oil, fuel spillage, used oil etc;

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- To avoid soil compaction along the transportation routes, only identified haul roads would be used for transportation;
- Sedimentation tanks should be provided in line with storm water drains to trap the sediments from run-off. Sand bags can be used to trap sediments more effectively.


Control of Noise Pollution:

Noise pollution may occur because of: Operation of vehicles and equipment during the site preparation, earth work, stack yards and labour shed construction, transportation of construction materials, and mitigation measures are suggested below:

- Construction activities in day time and minimize night time working.
- Regulate the speed for traffic in and around the project areas.
- Regularly carry out maintenance and routine inspections on vehicles and construction machineries to ensure the technical standards.
- Ensure the construction equipment are with proper silencer and muffler, padding/noise isolator and select the least noisy machine.
- The personnel involved in high noise generating activities shall be provided with personal protective devices like ear plug, earmuffs etc.

Hazardous and non-hazardous Waste Management

The Project will generate both solid non-hazardous and hazardous wastes throughout the construction phase. The anticipated non-hazardous waste types include excavated material, broken aggregates, solid waste, earth filling materials, wastewater etc. While hazardous waste may include used oil, empty drums or replaced parts of the construction machinery, used battery etc. Mitigation Measures are given below:

- a) The Contractor shall provide sufficient containers on the site for the temporary storage of solid waste generated from project activities;
 - b) Separate containers shall be provided for hazardous and non-hazardous wastes, which will be clearly labeled;
 - c) The hazardous waste/e-waste to be collected in steel drums and stored in a segregated roofed area and periodically disposed at approved waste disposal facilities;
 - d) The camp site shall have separate bins for collecting the organic and inorganic waste;
 - e) The contractor shall provide appropriate facilities for temporary dumping of all types of wastes before their proper disposal;
 - f) The contractor shall not dispose any waste, rubbish or offensive matter in any place not approved by the Engineer or Statutory Authority having jurisdiction;
 - g) The contractor shall construct sanitary latrine or septic tank system or install portable cabin toilet for workers/ employees;
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h) In case the contractor fails to implement waste management measures then the Engineer can instruct the contractor to temporarily suspend the causative works until the Engineer is assured that proper mitigation measures have been implemented.

4.0 Community Health Safety Requirements

Security of the Site

The contractor shall provide necessary security arrangements as per requirements of ESS4 of the ESF (the principles of proportionality), BEZA building construction rules, BNBC, and GIIP as per ILO standard and as per applicable national law.

Dissemination of Information Regarding Construction Work

The contractor shall disseminate following information of the project through installation of signboards informing the local residents who live nearby the proposed project area.

- Location of construction work
- Notices of the construction work etc.

Installation of boundary fence

For the smooth and safety operation of traffics, the contractor shall install boundary fence (at least 2 m height) around the working area. Contractor shall be responsible for arranging of the barricades or fence and type of materials. The contractor will deploy security personnel to prevent unauthorized entry to the site. The contractor shall undertake at all times to maintain safety operation of traffics during construction works.

Safety Signs/ Markings

The contractor will provide safety signs/ markings around the site. Size and locations of signs will be as per the instruction of the engineer.

Reporting Requirement

If there is any public complaint reported, immediate action should be taken informing the engineer including the written report stating the details. The Contractor shall also report such incidences in the monthly and quarterly report, as set out in the ES monitoring plan.

Management and Safety of Hazardous Materials

Contractor will avoid or minimize community exposure to hazardous materials and substances that may be released by the project activities, project-related traffic and road safety risks, diseases and hazard due to use of vibratory equipment, construction debris handling and disposal etc. Contractor will ensure effective measures in place to address emergency events. Ensure that safeguarding of



personnel and property is carried out in a manner that avoids or minimizes risks to the project affected communities.

Emergency Contact:

To handle any emergency situation during construction following minimum information should be available at site: :

- Name & Address of Contractor
- Project Location
- Name, Designation & Contact Numbers of the organization, nearby hospitals, fire agencies, police offices etc. and key personnel including their assigned responsibilities in case of an emergency to be specified .
- Site Layout Diagram showing location of fire extinguishers, emergency collection area and fire alarm.

Traffic Management:

Materials carrying vehicles and construction vehicles (Excavator, pay loader, grader, dump-truck etc.) may damage environment in the construction area and may be a disturbance to nearby population. Without proper traffic management accidents may also occur. Consequence Mitigation Measures are suggested below:

- Defensive driving training of drivers and proper maintenance of vehicles.
- Establishing diversion roads during the construction;
- Place traffic sign/cautionary sign to avoid undue traffic congestion
- At night, the passage shall be delineated with lanterns/ suitable light source. As night traffic is significant in the adjacent areas, movement of construction vehicles to be planned during off-peak period.
- For regulation of traffic, the flagmen shall be equipped with red and green flags and illuminating vest at night especially near at intersection.

Development and implementation of traffic management plan.

Measure for combating Pandemic and endemic diseases

Contractor will comply with the Government Instruction regarding COVID-19 and other pandemic and endemic diseases for any kind of engagement at the community level.

5.0 Biodiversity Conservation & Sustainable Management of Living Natural Resource**Requirements:**

The contractor shall follow the mitigation measures as suggested below:

- a) Construction should not be carried out during breeding & spawning season of fishes (September to October);
- b) Construction should be halted in case of sighting of Rare Endangered Threatened (RET) species, if any;

c) Contractors should submit SOPs and action time chart with risk management plan prior to any construction work. Construction sub-contractor should follow the defined safety procedures to avoid accidents and spills, and BEZA should ensure that other road transports are provided with adequate information and instruction to avoid conflict with the traffic.

6.0 ES Monitoring, Reporting and Documentation Requirements

General instruction

- a) Implementation shall include monitoring and reporting on the results of the above measures. Monitoring reports shall be submitted on a monthly and quarterly basis as per the schedule of table 1.1.
- b) The Contractor shall accurately test and measure the ES parameters as approved by the Engineer. All tests to be conducted from government approved labs.
- c) Details of parameters to be monitored, locations (as guideline) and frequency of monitoring are shown in Table 1-2 of this document.

Reporting and Documentation Requirements

Reporting: As per the monitoring requirements, the contractor is required to prepare following reports and submit them to Engineer for approval.

Table 1-1: ES Monitoring Report Schedules.

Submission	Contents
Construction ESMP and Baseline Report (Within one month after signing the agreement and baseline report before Starting the Construction)	<ul style="list-style-type: none"> • Approach and Methodology for Implementing ES monitoring plan; • Key Project Concern, Activity Summary and ES Action Plan; • All applicable monitoring items specified in the table 1-1 of ES Monitoring plan including the test result shown from government approved/accredited lab as separate annex; • Consultation with stakeholders, Contractor's response and follow-up measures.
Monthly report 10 th of the next	<ul style="list-style-type: none"> • project activity summary; • Complaints by public or authorities and the Contractor's responses or action plans;

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Submission	Contents
month	<ul style="list-style-type: none"> • Summary of the daily site inspection records; • Accidents and incidences; • All applicable monitoring items specified in the table 1-1 of ES Monitoring plan including the test result shown from government approved lab as separate annex; • Mitigation measures undertaken in case the test result exceeding the allowable limit; • Compliances of the monitoring items and counter measures if it is applicable within next month. • Overall Labor engagement summary • GRM/ complaints updates
Quarterly report 15 th of the last quarterly month of each three-months.	<ul style="list-style-type: none"> • activity summary; • Complaints by public or authorities and the Contractor's responses or action plans (if any); • Quarterly summary of the monthly monitoring items; • All applicable monitoring items specified in the table 1-1 of ES Monitoring plan; • Summary of mitigation measures undertaken in case the test result exceeding the allowable limit; • Compliances of the monitoring items and counter measures if it is applicable within next quarter; • Outstanding ES issues so far;

- (1) Submission of Summary of Monitoring Report for Approval: Contractor to submit a summary of monitoring report after completion of the whole works summarizing the results of the environmental monitoring, highlighting problem areas, the cause thereof and the remedial measures/action taken, if any. All the data obtained from the monitoring shall be compiled in appropriate forms approved by the Engineer.
- (2) All data shall be submitted to the Engineer in Microsoft Excel or Word format, and printed copy provided according to the requirement of the engineer.
- (3) Latitudes, longitudes including photographs showing the sampling points and field measurement should be included in the monitoring report. All tests to be conducted from government approved institutions/organizations.



- (4) The Contractor shall submit the monitoring report as per the format agreed by the engineer.
- (5) Additionally daily site inspection and records will be conducted and preserved by contractor:
 - i. The contractor shall prepare its daily site inspection sheets as per the potential impacts by its activities;
 - ii. The Contractor shall submit the monthly report based on the daily inspections and their result records with photos and/or other factual information sheets/documents.

A handwritten signature in blue ink, consisting of a stylized 'J' or 'I' followed by a horizontal stroke.

Monitoring specifications**Table 1.1 Environmental and Social Monitoring Plan**

Affected Component	Environmental Issue	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility
Ambient Air Quality	Dust generation	SPM, PM _{2.5} , PM ₁₀ , CO, SO ₂ , NO _x .	At 04 Locations (At project site, nearest settlement/ Important Sensitive Receptors: as directed by engineer)	24-hour	Quarterly including the baseline condition. (before, during and after the construction) as per the instruction of engineer	Contractor
		General air quality (visibility)	- Project site	Visual Inspection	Daily	Contractor
Noise	Increase in ambient noise levels	Noise levels in Leq, Leq _{day} , Leq _{night} and hourly Leq	At 01 Locations (At project site, nearest settlement/ Important Sensitive Receptors: as directed by engineer)	24-hour	Monthly including the baseline, during and after the construction works.	Contractor

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Affected Component	Environmental Issue	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility
Water	Ground water quality for drinking	Drinking water quality parameters notably pH, Manganese, Iron, Arsenic, TC, FC, pH, DO, TDS, Turbidity, Chloride, Fluoride, Manganese, Arsenic, Iron, Total Coliform, Fecal Coliform, Electrical Conductivity (EC), Total Sulphate (T-S), Total Suspended Solid (TSS), Lead (Pb), Calcium (ca) and Total Phosphorus (T-P). etc.	04 locations (02 labour camp /site office/const ruction site)	Standard Analytical methods	Quarterly including baseline	Contractor
	Surface Water Quality	Water temperature, Total Dissolved Solid, Salinity, Turbidity, Total Suspended Solids (TSS), mg/l, pH value at ambient	01 location (Isakhali canal or nearby water bodies, canals as	Standard Analytical methods	Monthly including the baseline (before, during and after the constructio	Contractor

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Affected Component	Environmental Issue	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility
		temperature, Dissolved oxygen (DO), Biochemical Oxygen Demand (BOD5), Chemical Oxygen Demand (COD), Total nitrogen, (T-N), Total phosphorus (T-P), Oils and greases, Coliform bacteria, MPN/100 ml, Heavy Metals Such as As, Pb, Fl etc. as per Schedule 10 ECR 1997.	directed by engineer}		n) as per the instruction of engineer	
Occupational Health and Safety	Accidents or incidents	Near-misses, incidents, occupational diseases, dangerous occurrences	Project activity areas and construction workers camp	Incidents /accidents	Daily	Contractor
Infectious Diseases	Risk of HIV/AIDS	Ensuring that contractor's personnel and local community understand HIV-AIDS awareness campaign	Project site	Consultation with workers and community	Daily	Contractor/

Affected Component	Environmental Issue	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility
Community Health and Safety	Community disturbance and potential safety hazard due to road traffic	Accidents, incidents and complaints and traffic related issues: --Speed control of construction vehicles, -Timing/scheduling of construction vehicles, -Traffic control, -Site attention sign/traffic flag man etc. -SEA/SH Issues	Approach Road	Incidents, accidents and community complaints	Daily	Contractor

The provision of budget for capacity building of contractor's staff in ES related issues and other important requirements of ES must be kept as per ESMP of the project. The training will be coordinated by the ES team of the project. All the logistics and related support should be provided by the contractors.

Payment for ES Requirements

All the ES requirement related cost is included in the BOQ and additional cost (if any) for implementing the updated ESMP as per recommendations of the ESIA is included in the Specified Provisional Sum. Accordingly, Payments will be made based on the progress of the activities mentioned above.

Annexure to the Environmental and Social Requirements

9

Code of Conduct

যৌন নির্যাতন/ হয়রানি বিষয়ক আচরণবিধি ও নীতিমালা

ভূমিকা

এই কোম্পানি এমনভাবে কাজ করে যেন এলাকার পরিবেশ, এলাকা আর কর্মীদের উপর কোন খারাপ প্রভাব না পড়ে। সেখানে যৌন নির্যাতন এবং হয়রানির কোনও জায়গা নেই। কর্মী, ঠিকাদার, সরবরাহকারী, সহযোগী, এবং প্রতিনিধি যারা কাজ করবেন তাদের এমন আচরণ সহ্য করা হবে না। এই নীতিমালা গুলো হল:

১. যৌন নির্যাতন এবং হয়রানি সম্পর্কে একটি ধারণা তৈরি করা।
২. কোম্পানির কর্মীদের যৌন নির্যাতন এবং হয়রানির বিরুদ্ধে রিপোর্ট করার গাইডলাইন তৈরি করা এবং
৩. এই আচরণবিধি যারা ভাঙবেন তাদের শাস্তিগুলো সম্পর্কে জানানো।

সংজ্ঞা

যৌন শোষণ ও নির্যাতন

কারো দুর্বলতা বা বিশ্বাসের সুবিধা নেওয়া এবং তা যৌন উদ্দেশ্যে ব্যবহার করা। অন্যের উপর যৌন শোষণ করা আর আর্থিক, সামাজিক বা রাজনৈতিক ভাবে লাভবান হওয়া।

যৌন হয়রানি:

অযথা যৌন সুবিধার জন্য অনুরোধ এবং যেকোন বাজে মৌখিক বা শারীরিক আচরণ করা।

যৌন হয়রানি বলাম যৌন শোষণ ও নির্যাতন

যৌন শোষণ ও নির্যাতন যেকোন ব্যক্তির বিরুদ্ধে ঘটতে পারে। যৌন হয়রানি কোম্পানির যেকোন কর্মীর মধ্যে ঘটতে পারে এবং সেটা যেকোন ধরনের যৌন আচরণ হতে পারে। এই দুইটি বিষয়ের মধ্যে পার্থক্য করা জানতে হবে, যেন কর্মীরা প্রশিক্ষণে সেগুলো শিখতে পারে।

একজন ব্যক্তির মনের ইচ্ছায় কোন কিছু করাকে সম্মতি বলা হয়। যেকোন কাজ করার আগে সবার নিজের নিজের সম্মতি থাকতে হবে, মন না চাইলে নিজের ইচ্ছায় তা মানাও করা যাবে। যদি হুমকি, মিথ্যা, জবরদস্তি বা শক্তি ব্যবহার করা হয়, তবে তা সম্মতি নয়। এই আচরণবিধিতে ১৮ বছরের কম বয়সী কেউ সম্মতি জানাতে পারবেন না, বেশিরভাগ ব্যক্তির বয়স কম হলেও তা মানা হবে না। বয়স গিয়ে ভুল করার কোন সুযোগ নেই।

নিচের যেকোন উপায়ে নেওয়া হলে তাকে সম্মতি বলা হবে না:

- হুমকি, শক্তি বা জবরদস্তি, অপহরণ, অগ্নিসজ্জা, প্রতারণা বা ভুল ব্যবহার করা
- যার অধিকার তাকে না দেওয়া এবং হুমকি দেওয়া, বা
- বিনিময়ে কোনো সুবিধার আশা দেওয়া।

কোন এলাকার ব্যক্তি বা সহকর্মীর বিরুদ্ধে কোন অন্যায় তো করা যাবেই না, যেকোন ধরনের যৌন নির্যাতনের প্রতিবোধ এবং রিপোর্ট করতে হবে:

(১) যৌন শোষণ এবং অপব্যবহারের কিছু উদাহরণঃ

- একজন প্রজেক্ট কর্মী এলাকার মহিলাদের বলেন যে তিনি যৌনতার বিনিময়ে তাঁদেরকে সাইটের (রাষ্ট্রাবাপ্তা এবং পরিষ্কার করা) চাকরি দিতে পারবেন।
- একজন কর্মী যিনি বাসাবাড়িতে বিদ্যুতের লাইনের কাজ করেন এবং বলেন যে তিনি যৌনতার বিনিময়ে বিদ্যুতের লাইন দিতে পারবেন।
- একজন প্রজেক্ট কর্মী বেতন পেয়ে মাতাল হয়ে স্থানীয় মহিলাকে ধর্ষণ করেন।
- একজন প্রজেক্ট কর্মী সাইটের ভিতর দিয়ে যাওয়া একজন মহিলাকে বাধা দেন যতক্ষণ না পর্যন্ত ওই মহিলার কাছ থেকে যৌন কর্মের আশ্বাস না পান।
- একজন ম্যানেজার কোনও মহিলা চাকরির জন্য আবেদন করলে বলেন যে উনি কেবল যৌনমিলনের বিনিময়ে চাকরি দিবেন।
- প্রজেক্টের কাজ চলছে এমন রাস্তা দিয়ে যাওয়া ১৭ বছর বয়সী এক কিশোরীকে এক কর্মী প্রেমের প্রস্তাব দেন এবং যৌন কর্ম করেন।

(২) কর্মক্ষেত্রে যৌন হয়রানির কিছু উদাহরণঃ

- পুরুষ কর্মীরা মহিলা কর্মীদের সামনে যৌন বাসনা নিয়ে (ভাল আর খারাপ দুইরকমই) মন্তব্য করেন।
- একজন মহিলা কর্মী উনার পোশাক-আশাক নিয়ে মন্তব্য করা আরেক পুরুষ কর্মীর বিরুদ্ধে অভিযোগ করেন, তখন মহিলাকে বলা হয় "আপনারই দোষ।"
- একজন পুরুষ ম্যানেজার একজন মহিলা স্টাফের পাশ দিয়ে যাওয়ার সময় উনাকে স্পর্শ করেন। তা দেখে একজন পুরুষ স্টাফ বলেন যে ম্যানেজারকে নগ্ন ছবি পাঠালে উনার বেতন বেড়ে যাবে।

ব্যক্তিগত স্বাক্ষরিত অঙ্গীকারঃ

আমি, _____ মানি যে সব ধরনের যৌন শোষণ এবং নির্যাতন এবং যৌন হয়রানি নিষিদ্ধ। একজন (সাব-কন্ট্রাক্ট এজেন্সি) এর (কর্মচারী / ঠিকাদার) হিসাবে, আমি মানি যে কাজের জায়গায়, কর্মীদের ক্যাম্প বা আশেপাশের এলাকার উপর যৌন শোষণ অথবা যৌন হয়রানি করলে এই আচরণবিধি ভাঙা হবে। আমি বুঝি, যৌন শোষণ অথবা যৌন হয়রানির জন্য আমার কাজে নিষেধ, জরিমানা বা চাকরি হারানোর সম্ভাবনা রয়েছে। যারা যৌন শোষণ অথবা যৌন হয়রানি করেন তাদের নামে উপযুক্ত মামলা করা হতে পারে।

আমি সন্মতি দিচ্ছি যে প্রজেক্টে কাজ করার সময় আমিঃ

- লিঙ্গ, বর্ণ, জাত, ভাষা, ধর্ম, রাজনৈতিক, জাতীয়তা, জাতিগত, অক্ষম, জন্মসূত্র এবং অন্যান্য সকল পরিচয়ের শিশু (১৮ বছরের কম বয়সী) সহ সকল ব্যক্তির সাথে শ্রদ্ধার সাথে আচরণ করবো।
- এমন পরিবেশ তৈরি করবো যা যৌন শোষণ অথবা যৌন হয়রানিকে বাধা দেয় এবং এই আচরণবিধি মেনে চলে। আমি সেই নিয়মগুলো মেনে চলবো যা এই পরিবেশ বজায় রাখে।
- কোন যৌন শোষণ অথবা যৌন হয়রানির কাজে অংশ নিব না যা এই আচরণবিধি ও দেশের আইনে মানা করা আছে।
- মহিলা, শিশু বা পুরুষদের প্রতি হয়রানি, খারাপ ও অশ্লীল আচরণ করব না।
- কোন যৌন কর্মে শিশুদের কাছ থেকে সন্মতিও নেওয়ার চেষ্টা করবো না।
- কোন কিছুই বিনিময়ে যৌন কর্ম করবো না, যা উপরে বলা হয়েছে।

আমি প্রতিশ্রুতিবদ্ধঃ

- প্রজেক্টের সাইটে এবং বাইরে সব ক্ষেত্রেই এই নিয়মগুলো মেনে চলবো।
- যৌন শোষণ অথবা যৌন হয়রানি প্রতিরোধের ট্রেনিং কোর্সে ভালোভাবে অংশগ্রহণ করবো।

আমি যদি প্রজেক্টের সাইটে বা আশেপাশের এলাকায় যৌন শোষণ অথবা যৌন হয়রানি দেখি বা সন্দেহ করি, সেটার খবর আমার ম্যানেজারকে জানাবো। খবরটা জানানোর আগে যে ব্যক্তি নির্যাতনের শিকার হয়েছে তার সম্মতি নিতে হবে আর উনার সুরক্ষার কথা চিন্তা করতে হবে। সুরক্ষার জন্য আমি ঘটনার চূড়ান্ত গোপনীয়তা রাখবো।

নিষেধাজ্ঞাঃ আমি যদি এই ব্যক্তিগত আচরণবিধি না মানি তবে আমার নিয়োগকর্তা শাস্তিমূলক ব্যবস্থা নেবেন, যার মধ্যে থাকতে পারেঃ

- সতর্ক করে দেওয়া
- অতিরিক্ত প্রশিক্ষণ নেওয়া
- বেতন কমানো
- চাকরি স্থগিত (বেতন পরিশোধ করে বা ছাড়াই)
- চাকরী ছাটাই
- পুলিশ বা অন্যান্য কর্তৃপক্ষকে রিপোর্ট

এই আচরণবিধি মেনে চলা আমার দায়িত্ব। আমি এমন কাজ বা আচরণ করবো না যা যৌন শোষণ অথবা যৌন হয়রানি হতে পারে। আমি এটা পড়েছি, এর নিয়মগুলো মেনে চলতে চাই এবং যৌন শোষণ অথবা যৌন হয়রানির সমস্যাগুলি খামানো এবং রিপোর্ট করার জন্য আমার দায়িত্ব। আমি বুঝি যে এই ব্যক্তিগত আচরণবিধি না মানলে শাস্তিদায়ক ব্যবস্থার নেয়া হতে পারে এবং আমার কাজে সমস্যা হতে পারে।

স্বাক্ষর : _____

নাম : _____

শিরোনাম : _____

তারিখ : _____



The following is a non-exhaustive list of Sub-Clauses of the Conditions of Contract that make reference to ES matters stated in the Specification.]

Sub- Clause/Clause No.	Sub-Clause/Clause		Remarks
4.1	<i>Contractor's General Obligations</i>		<p><i>If the Contract specifies that the Contractor shall design any part of the Permanent Works, state any applicable technical standards and requirements including to address:</i></p> <ul style="list-style-type: none"> <i>• climate change considerations,</i> <i>• universal access,</i> <i>• risks of the public's potential exposure to operational accidents or natural hazards, including extreme weather events, applicable certification or approval requirements</i> <i>[Refer to ESS4 on requirements for design]</i>
4.6	<i>Co-operation</i>		<i>Indicate specific aspects (if any) that require contractor's cooperation such as to conduct environmental and social assessment.</i>
4.8	<i>Health and Safety Obligations</i>		<p><i>Indicate if there would be a health service provider.</i></p> <p><i>Indicate if access to or provision of services that</i></p>

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Sub-Clause/Clause No.	Sub-Clause/Clause		Remarks
			<p>accommodate physical, social, and cultural needs of Contractor's Personnel is required.</p> <p>Indicate any additional requirements for the health and safety manual</p>
4.18	Protection of the Environment		<p>Specify any values for emissions, surface discharges, effluent and any other pollutants from the Contractor's activities that shall not be exceeded. The Contractor's MSIP/CESMP shall set out the measures the Contractor will take to ensure compliance with these limit values.</p>
4.21	Security of the Site		<p>State any additional requirements for the security arrangements (ESS4 of the ESF states the principles of proportionality, GIIP and applicable Laws.) Include any other requirement set out in the ESCP.</p>
4.23 (c)	Archeological and Geological Findings		<p>Specify other requirements if any in accordance with the ESF – ESS8</p>
6.2	Rate of Wages and Conditions of Labour		<p>State applicable requirements in accordance with the labour management procedure.</p>

Sub-Clause/Clause No.	Sub-Clause/Clause		Remarks
6.5	Working Hours		State applicable requirements in accordance with the labour management procedure.
6.27	Training of Contractor's Personnel		As set out in the ESCP, specify, details of any training to relevant Contractor's Personnel to be provided by the Employer's Personnel on environmental and social aspects. (whom, what, when, where, how long etc.)

In addition to provisions in the above table, the Employer shall specify the following as applicable.

Management and Safety of Hazardous Materials

As applicable, specify requirements for the management and safety of hazardous materials (see ESF - ESS4 para. 17 and 18 and relevant guidance notes).

Resource Efficiency and Pollution Prevention and Management

As applicable specify Resource Efficiency and Pollution Prevention and Management measures (see ESF -ESS3 and relevant guidance notes).

- **Resource efficiency**

The Employer shall specify, as applicable, measures for improving efficient consumption of energy, water, and raw materials, as well as other resources.

- **Energy:** When the Works have been assessed to involve a potentially significant use of energy, specify any applicable measures to optimize energy usage.
- **Water:** When the Works have been assessed to involve a potentially significant use of water or will have potentially significant impacts on water quality, specify any applicable measures that avoid or minimize water usage so that the Works' water use does not have significant adverse impacts on communities, other users, and the environment.

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- **Raw material:** *When the Works have been assessed to involve a potentially significant use of raw materials, specify any applicable measures to support efficient use of raw materials.*
- **Pollution prevention and management**
 - **Management of air pollution:** *specify any measure to avoid or minimize Works related air pollution. See also Sub-Clause 4.18 of the Special Provisions and the table above on Conditions of Contract that make reference to ES matters in the Specification.*
 - **Management of hazardous and nonhazardous wastes:** *specify any applicable measures to minimize the generation of waste, and reuse, recycle and recover waste in a manner that is safe for human health and the environment including storage, transportation, and disposal of hazardous wastes. See also Sub-Clauses 4.8 and 4.18 of the Special Provisions and the table above on Conditions of Contract that make reference to ES matters in the Specification.*
 - **Management of chemicals and hazardous materials:** *specify any applicable measures to minimize and control the release and use of hazardous materials for Works activities including the production, transportation, handling, and storage of the materials. See also Sub-Clauses 4.8 and 4.18 of the Special Provisions and the table above on Conditions of Contract that make reference to ES matters in the Specification.*
- **Biodiversity Conservation and Sustainable Management of Living Natural Resources**

The Employer shall specify, as applicable, Biodiversity Conservation and Sustainable Management of Living Natural Resources (see ESF - ESS6 and relevant guidance notes). This includes, as applicable:

- *invasive alien species: managing the risk of invasive alien species during the execution of the Works;*
- *sustainable management of living natural resources; and*
- *certification and verification requirements for the supply of natural resource materials where there is a risk of significant conversion or significant degradation of natural or critical habitats.*

See also Sub-Clause 4.18 of the Special Provisions and the table above on Conditions of Contract that make reference to ES matters in the Specification.

- **Road Safety**
 - *State any specific traffic and road safety requirement, as applicable. See also Sub-Clause 4.15 of the Special Provisions. For details, refer to the Guidance Note on Road safety.*

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Payment for ES Requirements

The Employer's ES and procurement specialists should consider how the Contractor will cost the delivery of the ES requirements. In the majority of cases, the payment for the delivery of ES requirements shall be a subsidiary obligation of the Contractor covered under the prices quoted for other Bill of Quantity items. For example, normally the cost of implementing workplace safe systems of work, including the measures necessary for ensuring traffic and road safety, shall be covered by the Bidder's rates for the relevant works. Alternatively, provisional sums could be set aside for discrete activities for example for HIV counselling service, and SEA and SH awareness and sensitization or to encourage the contractor to deliver additional ES outcomes beyond the requirement of the Contract.

A handwritten signature in blue ink, consisting of a stylized 'J' followed by a checkmark-like flourish.

Contractor's Representative and Key Personnel

Contractor's Representative and Key Personnel

Sl. No.	Position	Numbers	Minimum Relevant academic qualifications	Minimum Total Works Experience (years)	Minimum Similar Work Experience (years)
1	Construction Project Manager	1	BSc. in Civil Engineering	Min. 15 years.	10 years
2	Field Engineer	2	BSc. in Civil Engineering	Min. 08 years.	5 years
3	Quality Control/ Material Engineer	1	BSc. in Civil Engineering	Min. 08 years.	5 years
4	Operations Engineer	1	BSc. in Mechanical/Electrical Engineering	Min. 10 years.	5 years
5	Site Engineer	3	Diploma in Civil Engineering	Min. 10 years.	5 years
6	Surveyor	2	Certificated in Surveying	Min. 08 years.	5 years
7	Field Work Supervisor	6	High School Certificate	Min. 08 years.	5 years
8	Accountant	1	Bachelor in Business Studies	Min. 08 years.	5 years
9	Site Manager	1	Bachelor Degree	Min. 10 years.	5 years

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Contractor's Representative and Key Personnel (ES)

Item No.	Position/specialization	Relevant academic qualifications	Minimum years of relevant work experience
1	Environmental, Health and Safety Expert	<i>Master's degree in Environmental Engineering/Science or relevant qualification. S/he needs to be familiar with the country's environmental laws as well as ESHS requirements of WB. Ability to clearly communicate in English language (listening speaking and writing) is also a minimum requirement.</i>	<i>Minimum of 5 years of relevant professional experience in similar works since graduation in environmental field. S/he shall have experience in preparing environmental assessments /Environmental Management Plans for any development projects.</i>
2	<i>Social and Gender Expert</i>	<i>Master's degree in Social Science and or other related disciplines. Ability to clearly communicate in English language (listening speaking and writing) is also a minimum requirement.</i>	<i>Minimum of 5 years of relevant professional experience in monitoring, managing and assessment of risks related to social, labor and gender-based violence in similar works.</i>
3	<i>Safety Supervisor</i>	<i>Diploma in Civil/Environmental Engineering</i>	<i>Minimum of 3 years of relevant professional experience</i>

Drawings

Attached as Annex-1

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Supplementary Information

1. TENDER DRAWINGS

- 1.1 All the drawing of works is enclosed in separate Volume as listed in the Section 9 of the Tender Documents. Final drawings may be delivered to the Contractor prior to the commencement of the works before "Work Program be submitted".

2. FINAL DRAWINGS

- 2.1 Drawings attached to the Tender Documents (hereinafter referred to as "Tender Drawings") accompany and form part of the Contract Documents. In addition to the Tender Drawings, Final Drawings may also be delivered by the Engineer to the Contractor for execution of work and such drawings shall thereupon become part of the Contract.
- 2.2 During the progress of the work, Drawings that will be issued by the Engineer prior to commencement of the Works and as necessity arises to supplement and/or supersede the Tender Drawings.
- 2.3 The Contractor shall scrutinize such drawings as issued from time to time to the Contractor. If any ambiguity, discrepancy or mistake is found in the drawings, the same shall be referred to the Engineer before proceeding with the works, and the Engineer's decision on resolving such ambiguity, discrepancy or mistake shall be final, conclusive and binding.

3. DRAWINGS AND CALCULATIONS TO BE FURNISHED BY THE CONTRACTOR

- 3.1 The Contractor shall at his own expense prepare detailed Construction Drawings of the individual works (hereinafter referred to as "Construction Drawings") based on the Tender Drawings and the Final Drawings as needed for performance of the works. All Construction Drawings prepared by the Contractor shall be submitted to the Engineer for his approval. The drawings submitted by the Contractor shall be clear and complete. In addition to the above, the Contractor shall at his own expense prepare reinforcement



drawings as needed for the performance of the works and shall be submitted to the Engineer for approval.

- 3.2 Fabrication, manufacture or construction of any part of the works shall not commence until the drawings have been approved and no change shall be made to any drawings so approved. If any changes needed during construction shall be informed by sending another set of revised drawing.

4. RIGHT TO CHANGE DESIGN AND DRAWINGS

- 4.1 When additional information regarding foundation conditions become available as a result of excavation work and further testing, and if found desirable to make changes in the alignment, cross-sections, dimensions or design to conform to such conditions, the Employer/Engineer reserves the right to make the necessary or desirable changes to the opinion of the Engineer.

5. "AS-BUILT" DRAWINGS

- 5.1 The Contractor shall submit whole sets of as-built drawings of the completed works, one set comprising one negative drawings of high quality reproducible polyester transparent "Mylar" film (or similar material) from which clear copy can be made and three clearly printed drawings, to the owner before the expiration of period of Maintenance.
- 5.2 The "As-Built" Drawings shall clearly show the lines and dimensions of the permanent construction actually made based on the original design and/or change of design from time to time ordered by the Engineer or proposed by the Contractor and approved by the Engineer.

6. MEASUREMENT AND PAYMENT

- 6.1 All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor to provide and submit "As-Built" Drawings shall be deemed to be included in the provisional sum of.

7. SETTING-OUT AND SURVEY OF THE WORKS

- 7.1 The Contractor shall re-survey the Base Lines, Traverse Points, Bench Marks and confirm the co-ordinates and levels of the Stations before using them for

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setting out the Works. The Contractor shall immediately notify the Engineer of any discrepancies and shall agree with the Engineer any amended values to be used in the Contract, including replacement of any Stations missing from the original location.

- 7.2 The Contractor shall employ well-qualified and experienced surveyors for the execution of survey and setting-outworks.
- 7.3 The Contractor shall be responsible for the setting-out centre-lines, longitudinal and cross sections of the ground, and position of the structures in accordance with the drawings. Before commencing the works for Cross Bars, protective works etc, the Contractor shall carry out topo- survey / bathymetric survey of all works and take levels for longitudinal profile and cross sections along the routes/locations in which the works are to be executed out at his own expenses. The Contractor shall use benchmarks approved by the Engineer for such survey works.
- 7.4 Along structures, embankments, or combination thereof, the Contractor shall install temporary benchmarks at intervals of 500m or as per instruction of E-I-C. Ground levels shall be taken jointly by the contractor and the Engineer's representative both prior to commencing and after completion of earth works.
- 7.5 The Contractor shall carry out engineering survey and draw the plan and cross section for all protective works as below:
 - (A) Longitudinal section
 - (B) Cross-sections at an interval not exceeding 50 m or as specified by the Engineer before and after the execution of the Works. The formation level shall be taken as reference while cross-sections shall cover at least a width as necessary for the Works to be constructed, including related earth works.
- 7.6 All field-books, calculations, maps, etc. of the survey activities shall be handed over to the Engineer, immediately after the completion of the survey. All field data, derived from the survey activities, entered in the field-books, shall also

be entered into EXCEL spreadsheet or a compatible spreadsheet in a format approved by the Engineer. The data shall be submitted on a CD.

8. LAYOUTS AND SCHEDULES PROVISIONAL

8.1 The locations, levels and dimensions as shown on the Drawings or given in the design data or structure schedules are subject to amendment. The Contractor will be required to undertake surveys for confirmation of alignment and levels of embankments, cross bar, bank protection works as detailed in this Section of the Document. Details of any such amendment or confirmation of the original design will be given by the Engineer or the Engineer's Representative during the course of construction.

9. SUPPLIERS OF MATERIALS

9.1 Before ordering a material for any description intended for the Works, the Contractor shall submit the name of the maker or supplier proposed and details of the place of origin and specification of the material to the Engineer for approval. If requested by Engineer, the Contractor shall supply a copy of any such order place. The Contractor shall make necessary arrangements (e.g. jetty) at the construction side where needed for loading & unloading of his equipment, materials etc.

10. NATURAL MATERIALS

10.1 The Contractor shall make all arrangements for locating, selecting and processing natural materials to comply with the Specification and shall submit to the Engineer for approval with full information regarding the proposed location well in advance of commencement of working of the materials. Approval of a source does not imply that all material in that source is approved.

11. DISRUPTION OF LOCAL COMMUNITIES

11.1 The Contractor shall take all measures necessary to avoid nuisance and disruption to local communities. In particular the Contractor shall ensure no damage is done to existing road, standing crops, pasture or woodland.

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Trees etc. and that the Contractor's operations do not cause flooding or pollution hazards.

12. DELAY AND INCREASED COSTS DUE TO FLOODS, WASH-OUT OF ROADS OR IMPASSABLE ROADS

12.1 Notwithstanding Clause 45.1 of the General Conditions of Contract no extension of time or increase in the Contract Rates shall be granted to the Contractor if he is delayed or impeded in the completion of the Works or involved in additional costs by flood, cyclone, high river water levels, wash-out of roads or tracks or impassable roads.

13. TEMPORARY WORKS

13.1 Not less than fourteen days before commencing any portion of the Works, the Contractor, if ordered, shall submit to the Engineer for his approval complete drawings of all Temporary Works the Contractor may require for the construction of that part of the Works.

13.2 Notwithstanding approval by the Engineer of any design for the Temporary Works the Contractor shall be entirely responsible for their efficiency, security and maintenance and for all obligations and risks in regard to such temporary Works which are specified or implied in the Contract

14. NOTICE OF OPERATION

14.1 The Contractor shall give full and complete written notice of all important operations, including setting out, to the Engineer sufficiently in advance to enable the Engineer to make such arrangements as the Engineer may consider necessary for inspection and for any other purpose. The Contractor shall not start any important operation without the written approval of the Engineer/Project Director.

15. SUPPLY OF FUEL/LUBRICANT

15.1 The Contractor shall be responsible for arranging and ensuring that adequate supplies of High Speed Diesel (HSD), motor spirits, kerosene, lubricants and other petroleum produces are available at all times to meet his requirements for the purposes of or in connection with the contract; the

Contractor's particular attention is drawn to this requirements as from time to time shortages and interruptions in the supply of fuel oils, etc occur in the region.

16.ENGINEER'S REQUIREMENTS

16.1 The Contractor shall be responsible for construct and maintenance of site office for the employer and engineers including all necessary facilities during execution of the work.

16.2 Notwithstanding any provision made in this Clause or elsewhere in the Tender Document, the Contractor shall provide suitable following vehicles :

Double Cabin Pickup-01 nos.

Type of Body : Doble Cabin Pickup (Toyota Hilux)
Year of Manufacturing : 2022 & Later
Engine CC : 2400-2600

Motorcycles: 02 nos.

Year of Manufacturing : 2023
Engine CC : 125
Brand : Honda

with all facilities as according to instruction provided by the Engineer for exclusive and full-time use of the Project officials through the duration of contract. The Contractor shall provide, maintain the driver, maintain, clean and fuel the vehicle. All costs for providing and maintaining the vehicle to the Project Officials are deemed to be covered by the rates and prices of the overall items of works entered in the BOQ

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under the contract. No extra cost will be paid or no separate items of works for these works/ services are provided in the BOQ. After Completion of the work the vehicles will be property of the contractor.

The Contractor shall be responsible for arranging and ensuring that adequate supplies of High-Speed Diesel (HSD), motor spirits, kerosene, lubricants and other petroleum produces are available at all times to meet his requirements for the purposes of or in connection with the contract; the Contractor's particular attention is drawn to these requirements as from time to time shortages and interruptions in the supply of fuel oils, etc. occur in the region.

16.3 All costs including Contractor's margin, overhead, taxes etc., incurred by the Contractor to provide, construct, supply, fabricate, erect, install in accordance with the specifications mentioned elsewhere, shall be deemed to be included in the rates/price quoted in the Bill of Quantities of the respective items. All facilities shall be ready for occupation by the Engineer within one month after receiving the instruction.

16.4 If the Contractor fails to provide this service the Engineer shall be entitled to withhold the issue of Payment Certificate until the service is resumed.

17. ASSISTANCE TO ENGINEER'S STAFF

17.1 The Contractor shall render all necessary assistance to the Engineer's staff and shall provide for checking the Contractor's setting-out and the measurement of the Works.

17.2 The Contractor shall provide such full time or part time surveyors as may be required. The cost of all laborers, surveyors, survey equipment and tools, for checking the setting-out and the measurement of the Works shall be covered by the Contractor's expense and no separate payment shall be made thereof.

18. CONSTRUCTION PROGRAMME

18.1 Within fifteen (15) days from the date of signing the Contract Agreement, the Contractor shall submit to the Engineer for approval a complete and



practicable construction programme showing the orderly performance of the Works. The Construction Programme shall show in detail the proposed method of operations, including purchase and delivery of materials and equipment, as well as the construction. The Construction Programme shall show in a bar chart each major item of the Works on separate horizontal lines, sequence of operation and the period required for the completion of each activity. The Construction Programme shall when approved by the Engineer become a part of the Contract.

18.2 The construction programmes shall include the followings:

- (A) Statement giving the numbers and categories of supervisory and technical staff and skilled/unskilled labor to be employed on the Works;
- (B) List and type/details of Contractor's Equipment (including vehicles) which the Contractor proposes to employ on the Works stating whether they are to be acquired from inside or outside Bangladesh including schedule dates for order and delivery;
- (C) List detailing the purchase and delivery of materials and Plant from both inside and outside Bangladesh;
- (D) Details of the Contractor's methods of working for all operations including construction by sequence. The programme shall also indicate the proposed temporary flow diversions illustrating the sequence of various critical stages of construction;
- (E) Statement and outline layout giving the proposals for location or locations and sizes of constructional camps, accommodation, offices, workshops and stores at the Site; and details of the programme for the construction of the works from the date of receipt of the Notice to Commence, including a complete resource allocation showing the number of units and allotted times for each unit of Contractor's Equipment, Plant, materials and labor allocated for each part of the works.

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- (F) The construction programme shall be reviewed and revised if necessary at intervals mentioned in this document.

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- 19.1 No separate payment shall be made to the Contractor for complying with this Sub-Clause.

20. REPORTS, MEETINGS AND DATA OF THE WORKS

- 20.1 **Monthly Report.** The Contractor shall furnish Monthly Report to the Engineer, at the Contractor's own costs, at regular monthly interval and in a form and number of copies determined by the Engineer, with the followings:

- (A) Physical progress for the preceding month and estimated progress for the reporting month;
- (B) Completion schedules (target and actual) based on the approved Construction Programme;
- (C) At a bulation of construction equipment, listing the major items and pieces of equipment which were 535tilized for performance of the Works during the preceding month;
- (D) Tabulation of employees, showing the supervisory staff and the numbers of several classes of labourers employed by the Contractor in the preceding month; report covering the Plant and materials furnished by the Contractor for the Works; and
- (E) **Any report which may be specifically asked for by the Employer and/or the Engineer.**

- 20.2 Site/Work Meetings. The Contractor shall attend all the Site/Work Meetings whenever called by the Engineer.

- 20.3 Photographs and Videos. The Contractor shall make all arrangements to provide photographs in albums, but not pasted, showing the work progress and shall promptly supply one electronic copy and four printed copies of such photographs of 4R size, of such portions of the works in progress and/or completed as may be directed by the Engineer. Each print shall contain on its back the date and title of the view taken. The Contractor

shall also take Videos of work sequences time to time and supply the same in a CD.

20.4 AUDITS BY THE EMPLOYER

- (A) The Contractor shall note that the Employer shall be entitled at its discretion to conduct audits in respect to:
 - (1) Costs incurred in the event of termination; and any other costs that the Contractor claims from the Employer which are not specifically covered by the terms of the Contract.
- (B) The Contractor shall be obliged to keep accurate up-to-date accounts with records concerning the above items.

20.5 Measurement and Payment.

- (A) No separate payment shall be made for preparation of all documents, correspondence, returns and reports etc., to be prepared by the Contractor and submitted to the Engineer and/or the Employer in accordance with the provisions of the Contract.
- (B) All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor shall be deemed to be included in the unit rate of the Bill of Quantities.

21. SAFETY MEASURES AND PUBLIC CONVENIENCE

- 21.1 The Contractor shall provide necessary protection for all persons and properties at all times. The Contractor shall comply with the stipulations of the safe construction methods specified in the "Safety Manual", to the extent that such provisions do not conflict with the applicable laws of Bangladesh. The Contractor shall take all necessary measures to protect the work and prevent accidents during the construction. He shall provide and maintain sufficient night-lights, barricades, guards, temporary sidewalks, temporary bridges, danger signals, watchmen and necessary alliances and safeguards to properly protect life and property. He shall also protect all excavations, equipment and materials so that the public are not be endangered.



- 21.2 No separate payment shall be made to the Contractor in complying with the provisions of this Sub-Clause.

22. PRECAUTIONS

- 22.1 The Contractor is to execute the Works in such a manner that he does not damage or interfere with existing services which are located in proximity to the Site. The Contractor shall be responsible for any damage or interference which may be caused to these services due to execution of the Works and shall carry out all necessary repairs at his own expense and to the satisfaction of the Engineer.
- 22.2 No excavating machines shall be used in the immediate surroundings of cables and/or pipe- lines, unless approved by the Engineer.
- 22.3 Temporary Works which have to be made in the surroundings of the system during the execution of works, shall be maintained by the Contractor and shall be removed as soon as practicable.

23. INTERFERENCE WITH EXISTING WORKS

- 23.1 The Contractor shall not interfere in any way with any existing works whether they are the property of the Employer or of a third party and whether the position of such works is indicated to the Contractor by the Engineer or not, except where such interference is specifically described as part of the Works either in the Contract or in the Engineer's instructions.
- 23.2 The Contractor shall at his own expense provide and erect to the approval of the Engineer such supports as may be required to protect efficiently all structures or works which may be endangered by the execution of the Works and he shall remove such supports on completion of the Works or otherwise take such permanent measures as may be required by the Engineer to protect the structures or works.

24. SIGNBOARD

- 24.1 The Contractor shall erect a Signboard at work site. The signboard shall be erected at a suitable place prior to the commencement of the work and to be maintained in good condition during the whole contract period. All



information on the Sign board will be written in English and Bengali. Each Sign board shall show the following:

- (A) **The name of the Project**
- (B) The name of the Employer
- (C) All other details of the Contract or as directed by the EngineerNo separate payment shall be made for the provision of the Signboard.

25. CLEAN UP THE SITE

- 25.1 Prior to the issue of the latest Defect Liability Certificate by the Employer the Contractor shall remove from the Site all plant and equipment, tools, rubbish, concrete forms, boulders, bricks and other materials not incorporated in the permanent works.
- 25.2 No separate payment shall be made to the Contractor for complying with the provisions of this Sub-Clause.

26. CONTRACTOR'S OFFICES, WORKSHOPS, ACCOMMODATIONS, LABORATORY ETC.

- 26.1 The Contractor shall be responsible for the land he deems necessary for his offices, stores, warehouse, motor pool, laboratory, workshops, pre-cast concrete factory, staff quarters and labour camp. Separate accommodation and toilet facilities to be kept for male and female workers. The Contractor shall be also responsible for construction, maintenance, operation of such temporary facilities as his office, stores, warehouse, motor pool, laboratory, workshops, pre-cast concrete factory, staff quarters and labourer camps including feeding and accommodation. These facilities shall be equipped with adequate electricity and potable water supplies. Bangladesh labour law would be strictly followed in administering the workers (labours). The Contractor shall also keep sufficient first aid kit and preventive medicines of viral and water borne diseases.
- 26.2 The Contractor shall submit for approval of the Engineer within fourteen (14) days from the date of the Notice to Commence his detailed plan and/or construction drawings of his offices, stores, warehouse, motor pool, workshops, pre-cast concrete factory, staff quarters, labourer camps and field

laboratory that he proposes to construct or rent, including his proposals for water and power supply and sewage facilities and Inspection Sheds. All buildings and facilities shall conform to the Employer's standards.

26.3 Beyond the space as mentioned above, arranging of land that deemed necessary in fulfilment the obligations under this Clause shall be the full responsibilities of the Contractor.

26.4 All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor in complying with requirements of this Clause shall be deemed to be included in the lump sum price of Contractor's facilities of the Bill of Quantities (Item No.1.02). Payment for this item shall be made on pro-rata basis depending upon the total progress accomplished.

27. QUALITY ASSURANCE PLAN

27.1 The Contractor shall within twenty-eight (28) days from the date of the Notice to Commence submit a Quality Assurance Plan. The plan shall include testing schedules, list of material sources, quality control procedures and other items as required by the Engineer. The Contractor shall implement the quality control procedures in compliance with the approved Quality Assurance Plan.

27.2 The Contractor shall also provide testing equipment and apparatus and furnish all testing staff, labours and consumable necessary for carrying out his testing. All the costs incurred in operation of testing shall also be borne by the Contractor.

27.3 The Contractor shall when requested by the Engineer or the Engineer's Representative carry out any test.

28. STANDARDS AND SUPPLEMENTAL SPECIFICATIONS

28.1 Unless otherwise stated in the Contract, all workmanship, materials, and equipment shall comply with the relevant American, British and Bangladesh Standard viz. AASHTO, ACI, AISC, ASTM, AWSA WWA, BSI, DIN, DNA, ISO, and SSPC, U.S. Fed. Spec and USBR

28.2 Wherever reference is made in the Contract to specific standards and codes to be met by the materials, Plant, and other supplies to be furnished, and work performed or tested, the provisions of the latest current edition or revision of



the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the contract.


29. SANITATION

29.1 The Contractor is to arrange for a high standard of sanitation to be maintained through out the Camp and the Work sites. He shall construct and maintain at his own cost a system of surface drainage and waste disposal. Sanitary conveniences for the use of persons employed in the works shall be provided and maintained by the Contractor in accordance with the appropriate laws and regulations in force in Bangladesh to the extent and in such a manner and at such places as may be approved by the Engineer, and all persons connected with the works shall be obliged to use them.

30. MEDICAL ARRANGEMENTS AND FIRST-AID FACILITIES

- 30.1 The Contractor shall make arrangements according to the regulations in force in Bangladesh for treatment on the site of casualties and sick persons. The Contractor shall make his own arrangements for treatment of casualties on the Site in such first-aid units as may be thought necessary.
- 30.2 In addition, the Contractor shall manage and operate appropriate ambulances for the transportation of injured or sick employees to nearby hospitals. This facility shall be available for the Employer's, Engineer's, Subcontractors' and Contractor's personnel and workmen.
- 30.3 No separate payment shall be made for this provision.

31. CONSTRUCTION AND MAINTENANCE OF TEMPORARY ACCESS ROAD

- 31.1 The Contractor shall construct and maintain the temporary access roads including temporary access bridges necessary for construction of the Works and transportation of the materials. The Contractor shall also pay compensation to the owner(s) if he constructs the temporary access roads on a privately owned land.
- 31.2 The public and village roads may also be used as temporary access road. The Contractor shall maintain and repair them to the satisfaction of the authorities concerned.
- 

- 31.2 The Contractor shall facilitate the use of such roads for other contractors of the Project and public in a friendly co-operative manner without maintenance of the roads required by them.

32. ENVIRONMENTAL MITIGATION WORKS

- 32.1 The Environment is defined to mean surrounding area including human and natural resources to be affected by execution and completion of Works.
- 32.2 The Contractor shall take all precautions for safeguarding the environment during the course of the construction of the Works. The Contractor shall fully comply with the environmental protection mitigation measures specified in the related EIA Guidelines published by the Ministry of Environment and Forests, of Government of Bangladesh.
- 32.3 The Contractor shall prohibit employees from unauthorized use of explosives, poaching wildlife and cutting trees. The Contractor shall be responsible for the action of his employees. The Contractor shall plan his works in such a way that there is no spillage of petroleum products to the surface or sub-surface water. The Contractor shall provide requisite devices in all his equipment and machineries to diminish carbon dioxide coming out during operation of the equipment and machineries.

33. PERMITS, LICENSES OR APPROVALS:

- 33.1 The Contractor shall, in performing the Contract, comply with the applicable Laws of Bangladesh. The Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the applicable Laws in relation to the execution and completion of the Works and the remedying of any defects.
- 33.2 Contractor shall be allowed to re-export, out of Bangladesh, his equipment, including essential spare parts therefore, and any material imported by the Contractor for the sole purpose of executing the Contract, on completion of the contract. If the Contractor wishes to dispose them of locally, subject to the local laws, BEZA shall be given first preference to purchase at the negotiated price. Import and re-export of equipment, including essential spare parts will be subject to applicable laws of National Board of Revenue (NBR).



34. ENGINEER'S SITE FACILITIES

34.1 The Contractor shall be responsible for the provision, maintenance and operation of the following facilities and services for Engineer.

In addition to the office space required for his own use, the Contractor shall provide and maintain Field Office with toilet facilities, furniture and office equipment for the use of the Engineer and his staff.

Access road to the Field Office, sufficient parking accommodation and hard standing sheds for vehicles along with boundary fencing shall be constructed by the Contractor.

The Contractor shall provide, for each office, one office table and four chairs of standard, approved by the Engineer. Safety helmets in adequate numbers be always made available for use of the staff and the visitors.

Offices shall be maintained watertight and shall be provided with ventilation. All doors shall be fitted with approved locks. Windows shall be provided with separate screens and blinds and shall have interior locking devices too.

All offices, complete with furnishings, fittings, access roads and hard standings, shall be ready, for occupation by the Engineer within four weeks of the date when the Contractor first occupies the Site.

All offices shall be regularly and properly cleaned as long as they are in use.

All access roads and hard standings shall be maintained in a convenient trafficable condition throughout the Contract period.

The general location of the Field Office shall be decided by the Engineer in consideration of the Contractor's Work Plans. The Field Office shall be situated at locations that shall be free from flooding.

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The Contractor shall submit for the approval of the Engineer, along with the Tender, Plans and Drawings showing the details for the building including plans and designs for foundations, access roads, sheds, etc. Plans shall also be submitted showing architectural and structural details and the proposed layout of electrical and running water supply, roads and hard standings thereto. The Engineer may require revision of the said plan prior to the approval for construction.

Prior to the occupation of the office, the Engineer may specify to the Contractor the defects in the work whereupon he may occupy the office and withhold payment for the work in this item until the Contractor remedies and makes good the said defects to the satisfaction of the Engineer.

On completion of the Contract the Field Office including furnishings shall become the property of the Employer.

Office equipment and stationary articles

The Contractor shall require to purchase and supply the following Office equipment and consumables to the Engineer:

- (i) One Computer (English) of approved brand with printer and Auto CAD facilities
- (ii) One Photocopy Machine (A3 size)
- (iii) Minor items of field office equipment such as file trays, punches, staplers etc. in reasonable number/quantities as requested by the Engineer.

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- (iv) Consumables such as papers, pens, files etc. in reasonable number/quantities as requested from time to time by the Engineer.

Upon completion of the Contract, the office equipment listed above shall remain the property of the Employer.

Survey equipment

As per requirement of the program, survey equipment shall be provided on each contract Site for use by the staff of the Contractor and the Engineer. A tentative list of such survey equipment is given below:

Optical square	1 no
Spirit level (metal 1m long)	1 no.
Steel measuring tape 25m long	1 no.
Steel measuring tape 5m long	1 no.
Leveling staff 3m long	1 no.
Ranging poles	5 nos.
Surveyor's plumb bob	1 no.
Wild T-1A Theodolite with tripod (or equivalent)	1 no.
Wild NA-2 Automatic level with tripod (or equivalent)	1 no.
Traversing targets with tripods	1 no.
Magnetic Compass	1 no.

Miscellaneous tools and minor items of survey equipment such as umbrellas, hammers, knives etc. shall be made available at Site in reasonable numbers at all times for use by the staff of the Contractor and the Engineer.

Consumables such as pegs, stakes, string lines, paint, marking crayons, etc., shall be made available at Site in reasonable numbers and quantities at all times for use by the staff of the Contractor and the Engineer.

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Upon completion of the Contract, the survey equipment listed above shall remain the property of the Contractor.

Offices and equipment

The Contractor shall provide and maintain an inventory of all furnishings and equipment and shall replace any equipment, which is lost or irreparably damaged subject to the condition that the Engineer shall ensure his staff to take all reasonable precautions in the handling, operation and transportation of such equipment.

The Contractor shall pay all expenses in respect of water, electricity (where available), garbage cleaning etc. necessary for running the Office and maintaining conducive environment.

The Contractor shall place all necessary support staff such as office boys, cleaners, messengers, road-men, chain-men etc. in required number to the Engineer and his personnel in smooth performing of his responsibilities.

Signboards

The Contractor shall supply, erect and maintain in good condition at least two Identification Signboards of sizes to be specified by the Engineer to be fixed one at each end of the Work at a place clearly visible to the public. The Signboards shall be mounted on steel pipe frames with the required sizes at a height 2m above the ground and shall be sufficiently strong to withstand the wind forces. The board shall be fabricated from steel angle and plates and painted with suitable colours and written in English and/or Bengali as per direction of the Engineer.

Each board shall display:



- The name of the Project
- The name of the Work
- The name of the Employer
- Contract value
- Date of commencement of work
- Date of completion of work
- Other particulars, which will be asked by the Engineer.

Progress in photographs and videos

Photographs and videos showing the progress of works and special photographs showing particular features or other matters of interest in connection with the Work or their surroundings shall be taken every month by an approved qualified photographer/cameraman to the choice of the Engineer. Number of photographs/video clips will not exceed 10 (ten) per month.

Four colour un-mounted prints of a size 250mm on approved photographic paper of every such photograph inscribed with its serial number, date of shooting and a short title shall be furnished to the Engineer every month.

All negatives and video clips shall be numbered, filed and retained at the Site. On completion of the Contract, those shall become the properties of the Employer and shall be handed over to the Employer by the Contractor.

6 (six) complete sets of colour prints of the finished permanent Work, not exceeding 20 (twenty) photographs in number, shall be taken when and as directed by the Engineer prior to finally granting the Contractor the Certificate of Completion and shall be suitably mounted, titled and supplied to the Engineer.

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Measurement and payment

Provisions for Office space and facilities for the Engineer shall not be measured.

Payment for all the items as stated below shall be for the full period of the Contract including any extension, if allowed.

Payment for all equipment, signboards, photographs, video clips, services etc. of the Field Office detailed in this Sub-section shall be made as described below, where price and payment shall be the full compensation for complying with this Section of the Specification and the Conditions of the Contract.

Payment of rates for the pay items shall be the full compensation for supplying, erecting and maintaining the Field Office for the Engineer including all furniture, fixtures and fittings, access roads, office equipment, signboards, photographs, video clips etc. all in full compliance with the requirements of this Section.

No separate payment shall be made to the Contractor for providing the requisite tools, minor items and the consumables. Compensation for these items shall be deemed to be included in the other pay items of the BOQ.

35. CONTRACTOR'S SITE FACILITIES

35. The Contractor shall be responsible for the provision, maintenance and operation facilities and services on site at his own expenses.



36. CONTRACTOR'S RESPONSIBILITY FOR TESTING

- 36.1 Contractor shall bear all Contingency and Laboratory testing charge as may be required for materials from BUET/CUET or any other recognized Laboratory as will be selected by the Engineer.
- 36.2 The Contractor when requested by the Engineer or his Representative to carry out any test in the presence of the Engineer or his Representative, shall provide all necessary assistances in carrying out the tests providing concerned Material Engineer, Laboratory Assistants and labors required to the Engineer free of charge. The Contractor shall ensure that the Engineer and his staff have unrestricted access to these facilities free of charge
- 36.3 Testing equipment and apparatus as are needed for the performance of the above tests as specified in the Technical Specifications for the materials and construction of earthworks, concrete, gravels etc. are to be supplied by the Contractor.
- 36.4 All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor in complying with requirements of this sub-clause shall be deemed to be included in the lump sum price of Contractor's site facilities of the Bill of Quantities. Payment for this item shall be made on pro-rata basis depending upon the total progress accomplished. Prior approval from the Engineer will be required for utilization of this sum.



PART 3 – Conditions of Contract and Contract Forms

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Section VIII - General Conditions (GC)

Red Book:

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The Conditions of Contract are the “General Conditions” which form part of the “Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer (“Red book”) Second edition 2017, reprinted 2022 with amendments” published by the Federation Internationale Des Ingenieurs – Conseils (FIDIC) and the following “Particular Conditions” which comprise of the World Bank’s COPA and the amendments and additions to such General Conditions.

An original copy of the above FIDIC publication i.e., “Conditions of Contract for Building and Engineering Works Designed by the Employer” must be obtained from FIDIC.

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Section IX - Particular Conditions

The following Particular Conditions shall supplement the General Conditions. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions.

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Part A – Contract Data

Conditions	Sub-Clause	Data
Where the Contract allows for Cost Plus Profit, percentage profit to be added to the Cost	1.1.20	Not Applicable
Employer's name and address	1.1.31	Abdullah Al Mahmud Faruk Project Director Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project Bangladesh-PRIDE (P170688) Bangladesh Economic Zones Authority (BEZA) Biniyog Bhaban (9th floor) E-6/B, Agargaon, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh
Engineer's name and address	1.1.35	Design and Supervision Consultant to be appointed by the Employer
Bank's name	1.1.89	The World Bank/IDA
Borrower's name	1.1.90	Government of the Peoples Republic of Bangladesh represented by the Project Director, Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project Bangladesh-PRIDE (P170688) Bangladesh Economic Zones Authority (BEZA)
Time for Completion	1.1.84	30(Thirty) Months
Defects Notification Period	1.1.27	365 days (one year)
Sections	1.1.73	Not Applicable

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Conditions	Sub-Clause	Data
Electronic transmission system	1.3 (a) (ii)	Not Applicable
Address of Employer for communications:	1.3(d)	<p>Abdullah Al Mahmud Faruk</p> <p>Project Director</p> <p>Bangabandhu Sheikh Mujib Shilpa Nagar</p> <p>(BSMSN) Development Project</p> <p>Bangladesh-PRIDE (P170688)</p> <p>Bangladesh Economic Zones Authority (BEZA)</p> <p>Biniyog Bhaban (9th floor), E-6/B, Agargaon,</p> <p>Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh</p> <p>Tel: +880 2-44826009</p> <p>E-mail: pd.pride.beza@bsmsn.gov.bd</p> <p>https://www.beza.gov.bd</p>
Address of Engineer for communications:	1.3(d)	To be mentioned during Contract signing
Address of Contractor for communications:	1.3(d)	To be mentioned during Contract signing
Governing Law	1.4	Law of the Country (People's Republic of Bangladesh)
Ruling language	1.4	English
Language for communications	1.4	English
Time for the Parties to sign a Contract Agreement	1.6	28 days after receipt of the Letter of Acceptance
Number of additional paper copies of Contractor's Documents	1.8	2 (Two)

Conditions	Sub-Clause	Data
Total liability of the Contractor to the Employer under or in connection with the Contract	1.15	100% of Contract Price
Site	1.1 74	Along sea side adjacent to Super dyke of Bangabandhu Sheikh Mujib Shilpa Nagar, Mirsarai, Chattogram
Time for access to the Site	2.1	No later than the Commencement Day.
Engineer's Duties and Authority	3.2	Variations resulting in an increase of the Accepted Contract Amount in excess of <u>0 (Zero)</u> % shall require written consent of the Employer.
Cyber security- Contractor's obligations	4.1	N/A
Performance Security	4.2	The Performance Security will be in the form of a " <i>demand guarantee</i> " in the amount(s) of 5% (Five0 percent of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount.
Environmental and Social (ES) Performance Security	4.2	The ES Performance Security will be in the form of a " <i>demand guarantee</i> " in the amount(s) of 1% (<i>One</i>) of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount.
Period for notification of errors in the items of reference	4.7.2 (a)	28 Days

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Conditions	Sub-Clause	Data
Period of payment for temporary utilities	4.19	None
Number of additional paper copies of progress reports	4.20	05 (Five)
Cyber security	4.20	N/A
Cyber security-immediate reporting	4.20	N/A
Maximum allowable accumulated value of work subcontracted (as a percentage of the Accepted Contract Amount)	5.1(a)	15 (Fifteen) percent
Parts of the Works for which subcontracting is not permitted	5.1(b)	None
Normal working hours	6.5	8 hours
Number of additional paper copies of program	8.3	05 (Five)
Delay damages payable for each day of delay	8.8	0.05% of the Accepted Contract Amount, less provisional sum, for DAAB.
Maximum amount of delay damages	8.8	10% of the Accepted Contract Amount less provisional sum for DAAB.
Method of measurement	12.2	As per specification
Percentage profit	12.3	N/A
Cyber security- Variation	13.3.1 (a)	N/A



Conditions	Sub-Clause	Data
Percentage rate to be applied to Provisional Sums for overhead charges and profit	13.4 (b)(ii)	20 (Twenty) percent including Taxes
Total advance payment	14.2	10% (Ten) Percentage of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable
Repayment of Advance payment	14.2.3	(a) minimum amount of certified interim payments to commence repayment of the Advance Payment, as a percentage of the Accepted Contract Amount payable in that currency less Provisional Sums 20 % (b) percentage deductions for the repayment of the Advance Payment 20%
Period of payment	14.3	
Number of additional paper copies of Statements	14.3(b)	3 (Three)
Percentage of retention	14.3(iii)	5 (Five) %
Limit of Retention Money (as a percentage of Accepted Contract Amount)	14.3(iii)	5 (Five) %
Plant and Materials	14.5(b)(i)	If Sub-Clause 14.5 applies: Plant and Materials for payment when shipped: N/A

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Conditions	Sub-Clause	Data
	14.5(c)(i)	Plant and Materials for payment when delivered to the Site N/A
Minimum Amount of Interim Payment Certificates	14.6.2	03 (Three) % of the Accepted Contract Amount.
Cyber security-withholding payments	14.6.2	N/A
Period of payment of Advance Payment to the Contractor	14.7(a)	28 days
Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.6 (interim Payment)	14.7b(i)	56 days
Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment)	14.7b(ii)	28 days
Period for the Employer to make final payment to the Contractor	14.7(c)	56 days

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Conditions	Sub-Clause	Data
financing charges for delayed payment (percentage points above the average bank short-term lending rate as referred to under subparagraph (a))	14.8	Euribor (6 th months) plus 1% fixed rate
Number of additional paper copies of draft Final Statement	14.11.1(b)	05 (Five)
Forces of nature, the risks of which are allocated to the Contractor	17.2(d)	



Permitted deductible limits	19.1	<p>insurance required for the Works: 110% of the value of works, plant and materials.</p> <p>the maximum deductible for insurance of the Works is 5-10 % of the sum insured.</p> <p>insurance required for Goods: 110% of the replacement value of the Goods/Equipment.</p> <p>the maximum deductible for insurance of the Goods is: 5-10 % of the sum insured.</p> <p>insurance required for liability for breach of professional duty: 100% value of the Contract Price.</p> <p>the maximum deductible for insurance of the breach of professional duty is: 5-10 % of the sum insured.</p> <p>insurance required against liability for fitness for purpose (if any is required): 10 (Ten) percent of Contract Amount.</p> <p>the maximum deductible for insurance against liability for fitness for purpose is: 5-10 % of the sum insured.</p> <p>insurance required for injury to persons and</p>
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Conditions	Sub-Clause	Data
		<p>damage to property: 10 (Ten) percent of Contract Amount.</p> <p>the maximum deductible for insurance injury to persons and damage to property is: 5-10 % of the sum insured.</p> <p>insurance required for injury to employees: 10% of Contract Amount</p> <p>the maximum deductible for injury to employees is: 5-10 % of the sum insured.</p> <p>other insurances required by Laws and by local practice: Bangladesh Law.</p>
Additional amount to be insured (as a percentage of the replacement value, if less or more than 15%)	19.2.1(b)	
List of risks arising from Exceptional Events which shall not be excluded from the insurance cover for the Works	19.2.1(iv)	Damaged by unpredicted events.
Extent of insurance required for Goods	19.2.2	List of Equipment proposed by the contractor for construction of the works.

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Conditions	Sub-Clause	Data
Amount of insurance required for Goods		110% of the replacement value of the Goods
amount of insurance required for liability for breach of professional duty	19.2.3(a)	N/A
Insurance required against liability for fitness for purpose	19.2.3(b)	No
Period of insurance required for liability for breach of professional duty	19.2.3	N/A
Amount of insurance required for injury to persons and damage to property	19.2.4	10 (Ten) percent of Contract Price.
Other insurances required by Laws and by local practice (give details)		As per the law and common practice in Bangladesh
Time for appointment of DAAB member (s)	21.1	42 days after signature by both parties of the Contract Agreement
The DAAB shall be comprised of	21.1	Three Members

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Conditions	Sub-Clause	Data
List of proposed members of DAAB	21.1	<p>Proposed by Employer <i>[Attach CVs to the bidding document and the Contract]</i></p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>Proposed by Contractor <i>[Attach CVs to the Contract]</i></p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p>
Rules of arbitration	21.6(a)	<p>Sub-Clause 21.6(a) of PART B – Special Provisions “<i>shall</i>” apply.</p> <p>For Foreign Contractor:</p> <p>The dispute shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce</p> <p>For Domestic Contractor:</p> <p>The arbitration shall be conducted in accordance with the Arbitration Act (Act No 1 of 2001) of Bangladesh as at present in force and in the place Biniyog Bhaban, Bangladesh Economic Zones Authority (BEZA), Agargaon, Dhaka</p>
	21.6 (b)	<p>Sub-Clause 21.6(b) of PART B – Special Provisions “<i>shall</i>” apply.</p>



Conditions	Sub-Clause	Data
Place of arbitration	21.6(a)	For Foreign Contractor: London, United Kingdom



Table: Summary of Sections (if any)

Description of parts of the Works that shall be designated a Section for the purposes of the Contract (Sub-Clause 1.1.73)	Value: Percentage* of Accepted Contract Amount (Sub-Clause 14.9)	Time for Completion (Sub-Clause 1.1.84)	Delay Damages (Sub-Clause 8.8)

*These percentages shall also be applied to each half of the Retention Money under Sub-Clause 14.9

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Part B - Special Provisions

Sub-Clause 1.1.49

The Sub-Clause is replaced with:

Laws

"Laws" means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority."

Sub-Clause 1.1.74

The Sub-Clause is replaced with:

Site

"Site" means the places where the Permanent Works are to be executed, including storage, and working area, and to which Plant and Materials are to be delivered, and any other places specified in the Contract as forming part of the Site."

Sub-Clause 1.1.89 to 1.1.92 are added after Sub-Clause 1.1.88

Sub-Clause 1.1.89 Bank

"Bank" means the financing institution (if any) named in the Contract Data.

Sub-Clause 1.1.90

Borrower

"Borrower" means the person (if any) named as the borrower in the Contract Data.

Sub-Clause 1.1.91

ES

"ES" means Environmental and Social (including Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH)).

Sub-Clause 1.1.92

Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH)

"Sexual Exploitation and Abuse" "(SEA)" means the following:

Sexual Exploitation is defined as any actual or attempted abuse of position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to,



profiting monetarily, socially, or politically
from the sexual exploitation of another;

Sexual Abuse is defined as the actual or
threatened physical intrusion of a sexual nature,
whether by force or under unequal or coercive
conditions; and

"Sexual Harassment" "(SH)" is defined as
unwelcome sexual advances, requests for sexual
favors, and other verbal or physical conduct of a
sexual nature by the Contractor's Personnel with
other Contractor's or Employer's Personnel.

Sub-Clause 1.2

Interpretation

Sub-paragraph (a) is replaced with the following:

(a) "Words indicating one gender include all genders;

"he/she" is replaced with: "it";

"him/her" is replaced with "it";

"his" and "his/her" are replaced with: "its";

"himself/herself" are replaced with: "itself".

Further, "and" is deleted from the end of sub-paragraph
(i) and added at the end of sub-paragraph (j).

sub-paragraph (k) is added:

(k) "The word "tender" is synonymous with "bid" or
"proposal", the word tenderer with "bidder" or
"proposer" and the words "tender documents" with
"request for bids documents" or "request for
proposal documents", as applicable."



Sub-Clause 1.5**Priority of Documents**

The following documents are added in the list of Priority Documents after (e):

- (f) “ the Particular Conditions Part C- Fraud and Corruption;
- (g) the Particular Conditions Part D- Environmental and Social (ES) Metrics for Progress Reports;
- (h) Particular Conditions- Part E- Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration for Subcontractors;”

and the list renumbered accordingly.

Sub-Clause 1.6**Contract Agreement**

The last paragraph is replaced with:

“If the Contractor comprises a JV, the authorised representative of the JV shall sign the Contract Agreement in accordance with Sub-Clause 1.14 *[Joint and Several Liability.]*”

Sub-Clause 1.12**Confidentiality**

The following is added at the end of the second paragraph: “The Contractor shall be permitted to disclose information required to establish its qualifications to compete for other projects.”

“or” at the end of (b) is deleted.

“or” at the end of (c) is added.

The following is then added as (d): “is being provided to the Bank .”

Sub-Clause 1.17

The following Sub-Clause is added after Sub-Clause 1.16:



Inspections & Audit by the Bank

"Pursuant to paragraph 2.2 e. of Particular Conditions - Part C- Fraud and Corruption, the Contractor shall permit and shall cause its agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and personnel, to permit, the Bank and/or persons appointed by the Bank to inspect the site and/or the accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have such accounts, records and other documents audited by auditors appointed by the Bank. The Contractor's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 15.8 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures)."

Sub-Clause 2.4**Employer's Financial Arrangements**

The first paragraph is replaced with:

"The Employer shall submit, before the Commencement Date, reasonable evidence that financial arrangements have been made for financing the Employer's obligations under the Contract."

The following sub-paragraph is added at the end of Sub-Clause 2.4:

"In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such

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suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in its notice of the extent to which such funds will be available."

Sub-Clause 2.6

**Employer-Supplied
Materials and Employer's
Equipment**

[If Employer-Supplied Materials are listed in the Works' Requirements for the Contractor's use in the execution of Works, the following provisions may be added]:

The following is added after the last paragraph of Sub-Clause 2.6:

"The Employer shall supply to the Contractor the Employer-Supplied Materials listed in the Specification, at the time(s) stated in the Specification (if not stated, within the times that shall be required to enable the Contractor to proceed with execution of the Works in accordance with the Programme).

When made available by the Employer, the Contractor shall visually inspect the Employer-Supplied Materials and shall promptly give a Notice to the Engineer of any shortage, defect, or default in them. Thereafter, the Contractor shall rectify such shortage, defect or default to the extent instructed by the Engineer. Such instruction shall be deemed to have been given under Sub-Clause 13.3.1 *[Variation by Instruction]*.

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After this visual inspection, the Employer-Supplied Materials shall come under the care, custody, and control of the Contractor. The Contractor's obligations of inspection, care, custody, and control shall not relieve the Employer of liability of any shortage, defect, or default not apparent from a visual inspection."

[If Employer's Equipment are listed in the Specification for the Contractor's use in the execution of Works, the following provisions may be added]:

The following is added after the last paragraph of Sub-Clause 2.6:

"The Employer shall make the Employer's Equipment listed in the Specification available to the Contractor at the time(s) stated in the Specification (if not stated, within the times that shall be required to enable the Contractor to proceed with execution of the Works in accordance with the Programme).

Unless expressly stated otherwise in the Specification, the Employer's Equipment shall be provided for the exclusive use of the Contractor.

When made available by the Employer, the Contractor shall visually inspect the Employer's Equipment and shall promptly give a Notice to the Engineer of any shortage, defect, or default in them. Thereafter, the Contractor shall rectify such shortage, defect or default to the extent instructed by the Engineer. Such instruction shall be deemed to have been given under Sub-Clause 13.3.1 *[Variation by Instruction]*.

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The Contractor shall be responsible for the Employer's Equipment while it is under the Contractor's control and/or any of the Contractor's Personnel is operating it, driving it, directing it, using it, or in control of it.

The Contractor shall not remove from the Site any items of the Employer's Equipment without the consent of the Employer. However, consent shall not be required for vehicles transporting Goods or Contractor's personnel to or from the Site."

Sub-Clause 3.1**The Engineer**

The following is added at the end of the first sub-paragraph:

"The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties."

Sub-Clause 3.2**Engineer's Duties and Authority**

The Engineer shall obtain the consent in writing of the Employer before taking action under the following Sub-Clauses of these Conditions:

(a) Sub-Clause 13.1: Right to vary - instructing a variation, except;

- (i) in an emergency situation as determined by the Engineer; or
- (ii) (if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.

(b) Sub-Clause 13.2 (Value Engineering): stating consent or otherwise to a value engineering



proposal submitted by the Contractor in accordance with Sub-Clause 13.2.

Notwithstanding the obligation, as set out above, to obtain consent in writing, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, it may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of consent of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, and EOT if any, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

Sub-Clause 3.3

The following is added at the end of Sub-Clause 3.3:

Engineer's Representative

"The Engineer shall obtain the consent of the Employer before appointing or replacing an Engineer's Representative."

Sub-Clause 3.4

Delegation by the Engineer

The following is added at the end of the second paragraph:

"If any assistants are not fluent in this language, the Engineer shall make competent interpreters available during all working hours, in a number sufficient for those assistants to properly perform their assigned duties and/or exercise their delegated authority."

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Sub-Clause 3.6**Replacement of the****Engineer**

In the first paragraph, "42 days" is replaced with: "21 days";

In the third paragraph, "shall" is replaced with: "should".

Sub-Clause 4.1**Contractor's General****Obligations**

The following is inserted after the paragraph "The Contractor shall provide the Plant (and spare parts, if any) ...":

"All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank."

The following is inserted after the paragraph "The Contractor shall, whenever required by the Engineer...":

"The Contractor shall not carry out mobilization to Site (e.g. limited clearance for haul roads, site accesses and work site establishment, geotechnical investigations or investigations to select ancillary features such as quarries and borrow pits) unless the Engineer gives a Notice of No-objection to the Contractor, a Notice that shall not be unreasonably delayed, to the measures the Contractor proposes to manage the environmental and social risks and impacts, which at a minimum shall include applying the Management Strategies and Implementation Plans (MSIPs) and Code of Conduct for Contractor's Personnel submitted as part of the Bid and agreed as part of the Contract.

The Contractor shall submit to the Engineer for Review any additional MSIPs as are necessary to manage the ES risks and impacts of ongoing Works (e.g., excavation,



earth works, bridge and structure works, stream, and road diversions, quarrying or extraction of materials, concrete batching, and asphalt manufacture). These MSIPs collectively comprise the Contractor's Environmental and Social Management Plan (C-ESMP). The Contractor shall review the C-ESMP, periodically (but not less than every six (6) months), and update it as required to ensure that it contains measures appropriate to the Works. The updated C-ESMP shall be submitted to the Engineer for Review.

The C-ESMP shall be part of the Contractor's Documents. The procedures for Review of the C-ESMP and its updates shall be as described in Sub-Clause 4.4.1 *[Preparation and Review]*."

The following is added as (g); (g) and (h) of the Sub-Clause are then renumbered as (h) and (i) respectively. "if so stated in the Specification, the Contractor shall:

- (i) design structural elements of the Works taking into account climate change considerations;
- (ii) apply the concept of universal access (the concept of universal access means unimpeded access for people of all ages and abilities in different situations and under various circumstances;
- (iii) consider the incremental risks of the public's potential exposure to operational accidents or natural hazards, including extreme weather events; and

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(iv) any other requirement stated in the Specification."

The following is added at the end of the Sub-Clause:

"The Contractor shall provide relevant contract-related information, as the Employer and/or Engineer may reasonably request to conduct Stakeholder engagements. "Stakeholder" refers to individuals or groups who:

(i) are affected or likely to be affected by the Contract; and

(ii) may have an interest in the Contract.

The Contractor shall also directly participate in Stakeholder engagements, as the Employer and/or Engineer may reasonably request.

Pursuant to the Contract Data, the Contractor, including its Subcontractors/ suppliers/ manufacturers shall take all technical and organizational measures necessary to protect the information technology systems and data used in connection with the Contract. Without limiting the foregoing, the Contractor, including its Subcontractors/ suppliers/ manufacturers, shall use all reasonable efforts to establish, maintain, implement and comply with, reasonable information technology, information security, cyber security and data protection controls, policies and procedures, including oversight, access controls, encryption, technological and physical safeguards and business continuity/disaster recovery and security plans that

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are designed to protect against and prevent breach, destruction, loss, unauthorized distribution, use, access, disablement, misappropriation or modification, or other compromise or misuse of or relating to any information technology system or data used in connection with the Contract.”

Sub-Clause 4.2

The first paragraph is replaced with:

**Performance Security and
ES Performance Security**

“The Contractor shall obtain (at its cost) a Performance Security for proper performance and, if applicable, an Environmental and Social (ES) Performance Security for compliance with the Contractor’s ES obligations, in the amounts stated in the Contract Data and denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer. If amounts are not stated in the Contract Data, this Sub-Clause shall not apply.”

In the following Sub-Clauses of the General Conditions, the term “Performance Security” is replaced with:

“Performance Security and, if applicable, an Environmental and Social (ES) Performance Security”:

2.1- Right of Access to the Site;

14.2- Advance Payment;

14.6- Issue of IPC;

14.12- Discharge;

14.13- Issue of FPC;

14.14 Cessation of Employer’s Liability;

15.2- Termination for Contractor’s Default;

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15.5- Termination for Employer's Convenience.**Sub-Clause 4.2.1****Contractor's
obligations**

The first paragraph is replaced with:

"The Contractor shall deliver the Performance Security and, if applicable, an ES Performance Security to the Employer within 28 days after receiving the Letter of Acceptance and shall send a copy to the Engineer. The Performance Security and, if applicable, the ES Performance Security, shall be issued by a reputable bank or financial institution selected by the Contractor. The Performance Security shall be, as stipulated in the Contract Data, and shall be in accordance with the form included in the request for bidding documents for the subject contract or in another form agreed by the Employer."

Thereafter, throughout Sub-Clause 4.2 "Performance Security" is replaced with: "Performance Security and, if applicable, ES Performance Security."

Sub-Clause 4.2.2**Claims under the
Performance Security**

The first paragraph is replaced in its entirety with: "The Employer shall not make a claim under the Performance Security, except for amounts for which the Employer is entitled under the Contract."

Sub-Clause 4.2.3**Return of Performance
Security**

In sub-paragraph (a) "21 days" is replaced with: "28 days".

Sub-Clause 4.3**Contractor's
Representative**

The following is added at the end of the last paragraph:

"If any of these persons is not fluent in this language, the Contractor shall make competent interpreters available



during all working hours in a number deemed sufficient by the Engineer.”

Sub-Clause 4.6

The following is added after the first paragraph:

Co-operation

“The Contractor shall also, as stated in the Specification or as instructed by the Engineer, cooperate with and allow appropriate opportunities for the Employer’s Personnel to conduct any environmental and social assessment.”

Sub-Clause 4.8

Health and Safety

Obligations

The following are included after deleting “and” at the end of (f) and replacing “.” with “;” at the end of (g):

“

- (h) provide health and safety training of Contractor’s Personnel as appropriate and maintain training records;
- (i) actively engage the Contractor’s Personnel in promoting understanding, and methods for, implementation of health and safety requirements, as well as in providing information to Contractor’s Personnel, and provision of personal protective equipment without expense to the Contractor’s Personnel;
- (j) put in place workplace processes for Contractor’s Personnel to report work situations that they believe are not safe or healthy, and to remove themselves from a work situation which they have reasonable justification to believe

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presents an imminent and serious danger to their life or health;

- (k) Contractor's Personnel who remove themselves from such work situations shall not be required to return to work until necessary remedial action to correct the situation has been taken. Contractor's Personnel shall not be retaliated against or otherwise subject to reprisal or negative action for such reporting or removal;
- (l) subject to Sub-Clause 4.6, collaborate with the entities and Personnel under paragraph (a) , (b) and (c) of Sub-Clause 4.6, in applying the health and safety requirements. This is without prejudice to the responsibility of the relevant entities for the health and safety of their own personnel; and
- (m) establish and implement a system for regular (not less than six-monthly) review of health and safety performance and the working environment."

The second and third paragraphs are replaced with the following:

"Subject to Sub-Clause 4.1, the Contractor shall submit to the Engineer for Review a health and safety manual which has been specifically prepared for the Works, the Site, and other places (if any) where the Contractor intends to execute the Works. The procedures for Review of the health and safety manual and its updates



shall be as described in Sub-Clause 4.4.1 [*Preparation and Review*].

The health and safety manual shall be in addition to any other similar document required under applicable health and safety regulations and Laws.

The health and safety manual shall set out all the health and safety requirements under the Contract,

(a) which shall include at a minimum:

- (i) the procedures to establish and maintain a safe working environment without risk to health at all workplaces, machinery, equipment, and processes under the control of the Contractor, including control measures for chemical, physical and biological substances, and agents;
- (ii) details of the training to be provided, records to be kept;
- (iii) the procedures for prevention, preparedness, and response activities to be implemented in the case of an emergency event (i.e., an unanticipated incident, arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks, or spills, which may occur for a variety of different reasons including failure to implement operating procedures that are designed to prevent their occurrence, extreme weather, or lack of early warning);

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- (iv) the measures to be taken to avoid or minimize the potential for community exposure to water-borne, water-based, water-related, and vector-borne diseases,
 - (v) the measures to be implemented to avoid or minimize the spread of communicable diseases (including transfer of Sexually Transmitted Diseases or Infections (STDs), such as HIV virus) and non-communicable diseases associated with the execution of the Works, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups. This includes taking measures to avoid or minimize the transmission of communicable diseases that may be associated with the influx of temporary or permanent Contract-related labour;
 - (vi) the policies and procedures on the management and quality of accommodation and welfare facilities if such accommodation and welfare facilities are provided by the Contractor in accordance with Sub-Clause 6.6; and
- (b) any other requirements stated in the Specification.

The paragraph starting with: "In addition to the reporting requirement of..." is deleted and replaced with

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the addition to GC Sub-Clause 4.20 in Sub-Clause 4.20 of the Special Provisions.

Sub-Clause 4.15

The following is added at the end of Sub-Clause 4.15:

Access Route

“The Contractor shall take all necessary safety measures to avoid the occurrence of incidents and injuries to any third party, associated with the use of, if any, Contractor's Equipment on public roads or other public infrastructure.

The Contractor shall monitor road safety incidents and accidents to identify negative safety issues and establish and implement necessary measures to resolve them.”

Sub-Clause 4.18

Sub-Clause 4.18 Protection of the Environment is replaced with:

Protection of the Environment

“The Contractor shall take all necessary measures to:

- (a) protect the environment (both on and off the Site); and
- (b) limit damage and nuisance to people and property resulting from pollution, noise, and other results of the Contractor's operations and/or activities.

The Contractor shall ensure that emissions, surface discharges, effluent and any other pollutants from the Contractor's activities shall exceed neither the values indicated in the Specification, nor those prescribed by applicable Laws.

In the event of damage to the environment, property and/or nuisance to people, on or off Site as a result of



the Contractor's operations, the Contractor shall agree with the Engineer the appropriate actions and time scale to remedy, as practicable, the damaged environment to its former condition. The Contractor shall implement such remedies at its cost to the satisfaction of the Engineer."

Sub-Clause 4.20**Progress Reports**

Replace "4.20 (g) with: "the Environmental and Social (ES) metrics set out in Particular Conditions - Part D".

The following paragraph is added prior to the paragraph starting with: "However, nothing stated...":
"Unless otherwise stated in the Contract Data, progress reports shall include status of compliance to cyber security risks management, and any foreseeable cyber security risk and mitigation."

The following is added at the end of the Sub-Clause:

"In addition to the reporting requirement of this subparagraph (g) of Sub-Clause 4.20 [*Progress Reports*] the Contractor shall inform the Engineer immediately of any allegation, incident, or accident, which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Employer's Personnel or Contractor's Personnel. This includes, but is not limited to, any incident or accident causing fatality or serious injury; significant adverse effects or damage to private property; any cyber security incidents as specified in the Contract Data; or any allegation of SEA and/or SH. In case of SEA and/or SH, while maintaining confidentiality as appropriate, the type of allegation (sexual exploitation, sexual abuse, or sexual



harassment), gender and age of the person who experienced the alleged incident should be included in the information.

The Contractor, upon becoming aware of the allegation, incident, or accident, shall also immediately inform the Engineer of any such incident or accident on the Subcontractors' or suppliers' premises relating to the Works which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Employer's Personnel or Contractor's, its Subcontractors', and suppliers' personnel. The notification shall provide sufficient detail regarding such incidents or accidents. The Contractor shall provide full details of such incidents or accidents to the Engineer within the timeframe agreed with the Engineer.

The Contractor shall require its Subcontractors and suppliers (other than Subcontractors) to immediately notify the Contractor of any incidents or accidents referred to in this Subclause."

Sub-Clause 4.21

Security of the Site

Sub-Clause 4.21 Security of the Site is replaced with:

"Sub-Clause 4.21 Security of the Site

The Contractor shall be responsible for the security of the Site, and:

- (a) for keeping unauthorised persons off the Site;
- (b) authorised persons shall be limited to the Contractor's Personnel, the Employer's Personnel, and to any other personnel identified as authorised personnel (including the



Employer's other contractors on the Site), by a Notice from the Employer or the Engineer to the Contractor.

Subject to Sub-Clause 4.1, the Contractor shall submit for the Engineer's No-objection a security management plan that sets out the security arrangements for the Site.

The Contractor shall (i) conduct appropriate background checks on any personnel retained to provide security; (ii) train the security personnel adequately (or determine that they are properly trained) in the use of force (and where applicable, firearms), and appropriate conduct towards Contractor's Personnel, Employer's Personnel and affected communities; and (iii) require the security personnel to act within the applicable Laws and any requirements set out in the Specification.

The Contractor shall not permit any use of force by security personnel in providing security except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.

In making security arrangements, the Contractor shall also comply with any additional requirements stated in the Specification."

Sub-Clause 4.23

**Archaeological and
Geological Findings**

The first paragraph is replaced with the following:

"All fossils, coins, articles of value or antiquity, structures, groups of structures, and other remains or items of geological, archaeological, paleontological, historical, architectural, or religious interest found on



the Site shall be placed under the care and custody of the Employer. The Contractor shall:

- (a) take all reasonable precautions, including fencing-off the area or site of the finding, to avoid further disturbance and prevent Contractor's Personnel or other persons from removing or damaging any of these findings;
- (b) train relevant Contractor's Personnel on appropriate actions to be taken in the event of such findings; and
- (c) implement any other action consistent with the requirements of the Specification and relevant Laws."

Sub-Clause 4.24

**Suppliers (other than
Subcontractors)**

4.24.1 Forced Labour

The Contractor shall take measures to require its suppliers (other than Subcontractors) not to employ or engage forced labour including trafficked persons as described in Sub-Clause 6.21. If forced labour/trafficking cases are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.

4.24.2 Child labour

The Contractor shall take measures to require its suppliers (other than Subcontractors) not to employ or engage child labour as described in Sub-Clause 6.22. If



child labour cases are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.

4.24.3 Serious Safety Issues

The Contractor, including its Subcontractors, shall comply with all applicable safety obligations, including as stated in Sub-Clauses 4.8, 5.1 and 6.7. The Contractor shall also take measures to require its suppliers (other than Subcontractors) to adopt procedures and mitigation measures adequate to address safety issues related to their personnel. If serious safety issues are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.

4.24.4 Obtaining natural resource materials in relation to supplier

The Contractor shall obtain natural resource materials from suppliers that can demonstrate, through compliance with the applicable verification and/ or certification requirements, that obtaining such materials is not contributing to the risk of significant conversion or significant degradation of natural or critical habitats



such as unsustainably harvested wood products, gravel or sand extraction from riverbeds or beaches.

If a supplier cannot continue to demonstrate that obtaining such materials is not contributing to the risk of significant conversion or significant degradation of natural or critical habitats, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to demonstrate that they are not significantly adversely impacting the habitats.

Sub-Clause 4.25

Code of Conduct

The Contractor shall have a Code of Conduct for the Contractor's Personnel.

The Contractor shall take all necessary measures to ensure that each Contractor's Personnel is made aware of the Code of Conduct including specific behaviors that are prohibited and understands the consequences of engaging in such prohibited behaviors.

These measures include providing instructions and documentation that can be understood by the Contractor's Personnel and seeking to obtain that person's signature acknowledging receipt of such instructions and/or documentation, as appropriate.

The Contractor shall also ensure that the Code of Conduct is visibly displayed in multiple locations on the Site and any other place where the Works will be carried out, as well as in areas outside the Site accessible to the local community and project affected people. The posted Code of Conduct shall be provided in languages



comprehensible to Contractor's Personnel, Employer's Personnel, and the local community.

The Contractor's Management Strategy and Implementation Plans shall include appropriate processes for the Contractor to verify compliance with these obligations.

Sub-Clause 5.1

Subcontractors

The following is added at the beginning of the second paragraph.

"The Contractor shall require in all subcontracts relating to the Works that Subcontractors execute the Works in accordance with the Contract, including complying with the relevant ES requirements and the obligations set out in Sub-Clause 4.25 above."

The following is added after the first sentence of the fourth paragraph: "The Contractor's submission to the Engineer shall also include such a Subcontractor's declaration in accordance with the Particular Conditions- Part E- Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration for Subcontractors."

The following is added at the end of the last paragraph of Sub-Clause 5.1:

"All subcontracts relating to the Works shall include provisions which entitle the Employer to require the subcontract to be assigned to the Employer under subparagraph (a) of Sub-Clause 15.2.3 [*After Termination*].

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Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors."

Sub-Clause 5.2.2

In sub-paragraph (c):

Objection to Nomination

"and" is deleted from the end of (i);

"." at the end of (ii) is replaced with: ", and".

The following is then added as (iii):

"(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 5.2.3 [*Payment to nominated Subcontractors*]."

Sub-Clause 6.1

**Engagement of Staff and
Labour**

The following paragraphs are added at the end of the Sub-Clause:

"The Contractor shall provide the Contractor's Personnel information and documentation that are clear and understandable regarding their terms and conditions of employment. The information and documentation shall set out their rights under relevant labour Laws applicable to the Contractor's Personnel (which will include any applicable collective agreements), including their rights related to hours of work, wages, overtime, compensation, and benefits, as well as those arising from any requirements in the Specification. The Contractor's Personnel shall be informed when any material changes to their terms or conditions of employment occur.

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with



appropriate qualifications and experience from sources within the Country."

Sub-Clause 6.2

**Rates of Wages and
Conditions of Labour**

The following paragraphs are added at the end of the Sub-Clause:

"The Contractor shall inform the Contractor's Personnel about:

- (a) any deduction to their payment and the conditions of such deductions in accordance with the applicable Laws or as stated in the Specification; and
- (b) their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances, and any benefits as are subject to tax under the Laws of the Country for the time being in force.

The Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

Where required by applicable Laws or as stated in the Specification, the Contractor shall provide the Contractor's Personnel written notice of termination of employment and details of severance payments in a timely manner. The Contractor shall have paid the Contractor's Personnel (either directly or where appropriate for their benefit) all due wages and entitlements including, as applicable, social security benefits and pension contributions, on or before the end of their engagement/ employment."



Sub-Clause 6.5 Working Hours

The following is inserted at the end of the Sub-Clause:

"The Contractor shall provide the Contractor's Personnel annual holiday and sick, maternity and family leave, as required by applicable Laws or as stated in the Specification."

Sub-Clause 6.6 Facilities for Staff and Labour

The following is added as the last paragraph:

"If stated in the Specification, the Contractor shall give access to or provide services that accommodate the physical, social, and cultural needs of the Contractor's Personnel. The Contractor shall also provide similar facilities for the Employer's Personnel as stated in the Specification."

Sub-Clause 6.7 Health and Safety of Personnel

In the second paragraph, "The Contractor" is replaced with:

"Except as otherwise stated in the Specification, the Contractor..."

Sub-Clause 6.9 Contractor's Personnel

The Sub-Clause is replaced with:

"The Contractor's Personnel (including Key Personnel, if any) shall be appropriately qualified, skilled, experienced, and competent in their respective trades or occupations.

The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative and Key Personnel (if any), who:

(a) persists in any misconduct or lack of care;



- (b) carries out duties incompetently or negligently;
- (c) fails to comply with any provision of the Contract;
- (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment;
- (e) based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the execution of the Works;
- (f) has been recruited from the Employer's Personnel in breach of Sub-Clause 6.3 [Recruitment of Persons];
- (g) undertakes behaviour which breaches the Code of Conduct for Contractor's Personnel (ES).

If appropriate, the Contractor shall then promptly appoint (or cause to be appointed) a suitable replacement with equivalent skills and experience. In the case of replacement of the Contractor's Representative, Sub-Clause 4.3 [*Contractor's Representative*] shall apply. In the case of replacement of Key Personnel (if any), Sub-Clause 6.12 [*Key Personnel*] shall apply.

Subject to the requirements in Sub-Clause 4.3 [*Contractor's Representative*] and 6.12 [*Key Personnel*], and notwithstanding any requirement from the Engineer to remove or cause to remove any person, the Contractor shall take immediate action as appropriate in response to any violation of (a) through (g) above. Such immediate action shall include removing (or causing to be removed) from the Site or other places where the Works are being carried out, any Contractor's Personnel



who engages in (a), (b), (c), (d), (e) or (g) above or has been recruited as stated in (f) above.”

Sub-Clause 6.12

Key Personnel

The following is inserted at the end of the last paragraph:

“If any of the Key Personnel are not fluent in this language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.”

The following Sub-Clauses 6.13 to 6.27 are added after sub-clause 6.12

Sub-Clause 6.13

Foreign Personnel

The Contractor may bring into the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use its best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.

The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

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- Sub-Clause 6.14**
Supply of Foodstuffs
- The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.
- Sub-Clause 6.15**
Supply of Water
- The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.
- Sub-Clause 6.16**
Measures against Insect and Pest Nuisance
- The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.
- Sub-Clause 6.17**
Alcoholic Liquor or Drugs
- The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter, or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter, or disposal thereto by Contractor's Personnel.
- Sub-Clause 6.18**
Arms and Ammunition
- The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.
- Sub-Clause 6.19**
Festivals and Religious Customs
- The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.



Sub-Clause 6.20**Funeral Arrangements**

The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of its local employees who may die while engaged upon the Works.

Sub-Clause 6.21**Forced Labour**

The Contractor, including its Subcontractors, shall not employ or engage forced labour. Forced labour consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour, or similar labour-contracting arrangements.

No persons shall be employed or engaged who have been subject to trafficking. Trafficking in persons is defined as the recruitment, transportation, transfer, harbouring or receipt of persons by means of the threat or use of force or other forms of coercion, abduction, fraud, deception, abuse of power, or of a position of vulnerability, or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purposes of exploitation.

Sub-Clause 6.22**Child Labour**

The Contractor, including its Subcontractors, shall not employ or engage a child under the age of 14 unless the national law specifies a higher age (the minimum age).

The Contractor, including its Subcontractors, shall not employ or engage a child between the minimum age and the age of 18 in a manner that is likely to be hazardous, or to interfere with, the child's education, or to be



harmful to the child's health or physical, mental, spiritual, moral, or social development.

The Contractor including its Subcontractors, shall only employ or engage children between the minimum age and the age of 18 after an appropriate risk assessment has been conducted by the Contractor with the Engineer's consent. The Contractor shall be subject to regular monitoring by the Engineer that includes monitoring of health, working conditions and hours of work.

Work considered hazardous for children is work that, by its nature or the circumstances in which it is carried out, is likely to jeopardize the health, safety, or morals of children. Such work activities prohibited for children include work:

- (a) with exposure to physical, psychological, or sexual abuse;
- (b) underground, underwater, working at heights or in confined spaces;
- (c) with dangerous machinery, equipment, or tools, or involving handling or transport of heavy loads;
- (d) in unhealthy environments exposing children to hazardous substances, agents, or processes, or to temperatures, noise or vibration damaging to health; or
- (e) under difficult conditions such as work for long hours, during the night or in confinement on the premises of the employer.



Sub-Clause 6.23**Employment Records of
Workers**

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked, and wages paid to all workers. These records shall be summarised on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].

Sub-Clause 6.24**Workers' Organisations**

In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing and to bargain collectively without interference, the Contractor shall comply with such laws. In such circumstances, the role of legally established workers' organizations and legitimate workers' representatives will be respected, and they will be provided with information needed for meaningful negotiation in a timely manner. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. The Contractor shall not seek to influence or control these alternative means. The Contractor shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and collective bargaining or alternative mechanisms. Workers'

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organisations are expected to fairly represent the workers in the workforce.

Sub-Clause 6.25

**Non-Discrimination and
Equal Opportunity**

The Contractor shall not make decisions relating to the employment or treatment of Contractor's Personnel on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment of Contractor's Personnel on the principle of equal opportunity and fair treatment and shall not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices.

Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination. The Contractor shall provide protection and assistance as necessary to ensure non-discrimination and equal opportunity, including for specific groups such as women, people with disabilities, migrant workers, and children (of working age in accordance with Sub-Clause 6.22).

Sub-Clause 6.26

**Contractor's Personnel
Grievance Mechanism**

The Contractor shall have a grievance mechanism for Contractor's Personnel, and where relevant the workers' organizations stated in Sub-Clause 6.24, to raise workplace concerns. The grievance mechanism shall be proportionate to the nature, scale, risks, and impacts of the Contract. The mechanism shall address concerns



promptly, using an understandable and transparent process that provides timely feedback to those concerned in a language they understand, without any retribution, and shall operate in an independent and objective manner.

The Contractor's Personnel shall be informed of the grievance mechanism at the time of engagement for the Contract, and the measures put in place to protect them against any reprisal for its use. Measures will be put in place to make the grievance mechanism easily accessible to all Contractor's Personnel.

The grievance mechanism shall not impede access to other judicial or administrative remedies that might be available, or substitute for grievance mechanisms provided through collective agreements.

The grievance mechanism may utilize existing grievance mechanisms, providing that they are properly designed and implemented, address concerns promptly, and are readily accessible to Contractor's Personnel. Existing grievance mechanisms may be supplemented as needed with Contract-specific arrangements.

Sub-Clause 6.27

Training of Contractor's Personnel

The Contractor shall provide appropriate training to relevant Contractor's Personnel on ES aspects of the Contract, including appropriate sensitization on prohibition of SEA and SH, and health and safety training referred to in Sub-Clause 4.8

As stated in the Specification or as instructed by the Engineer, the Contractor shall also allow appropriate opportunities for the relevant Contractor's Personnel to

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be trained on ES aspects of the Contract by the Employer's Personnel.

The Contractor shall provide training on SEA and SH, including its prevention, to any of its personnel who has a role to supervise other Contractor's Personnel.

Sub-Clause 7.3 Inspection

The following is added in the first paragraph after "Employer's Personnel" "(including the Bank staff or consultants acting on the Bank's behalf, stakeholders and third parties, such as independent experts, local communities, or non-governmental organizations)"

The following is added as (b) (iv):

"(iv) carryout environmental and social audit, and"

Sub-Clause 7.7

The following is added before the first paragraph:

Ownership of Plant and Materials

"Except as otherwise provided in the Contract,"

Sub-Clause 8.1

The Sub- Clause is replaced in its entirety with the following:

Commencement of Work

"The Engineer shall give a Notice to the Contractor stating the Commencement Date, not less than 14 days before the Commencement Date.

The Notice shall be issued promptly after the Engineer determines the fulfilment of the following conditions:

- (a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;



- (b) delivery to the Contractor of reasonable evidence of the Employer's financial arrangements (under Sub-Clause 2.4 [Employer's Financial Arrangements]);
- (c) except if otherwise specified in the Contract Data, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works;
- (d) receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor;
- (e) constitution of the DAAB in accordance with Sub-Clause 21.1 and Sub-Clause 21.2 as applicable.

Subject to Sub-Clause 4.1 on the Management Strategies and Implementation Plans and the C-ESMP and Sub-Clause 4.8 on the health and safety manual, the Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date and shall then proceed with the Works with due expedition and without delay."

Sub-Clause 11.7

**Right of Access after
Taking Over**

In the second paragraph, "Whenever the Contractor intends to access any part of the Works during the relevant DNP:" is replaced with:

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“Whenever, until the date 28 days after issue of the Performance Certificate, the Contractor intends to access any part of the Works:”

Sub-Clause 13.3.1

Variation by Instruction

Subparagraph 13.3.1 (a) is replaced with: “a description of the varied work performed or to be performed, including details of the resources and methods adopted or to be adopted by the Contractor, and sufficient ES information to enable an evaluation of ES risks and impacts; and sufficient information to enable assessment of cyber security risks as specified in the Contract Data.”

Sub-Clause 13.4

Provisional Sums

The following is inserted as the penultimate paragraph:

“The Provisional Sum shall be used to cover the Employer’s share of the DAAB members’ fees and expenses, in accordance with Clause 21. No prior instruction of the Engineer shall be required with respect to the work of the DAAB. The Contractor shall submit the DAAB members’ invoices and satisfactory evidence of having paid 100% of such invoices as part of the substantiation of those Statements submitted under Sub-Clause 14.3.”

Sub-Clause 13.6

**Adjustments for Changes
in Laws**

The following paragraph is added at the end of the Sub-Clause:

“Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of



any inputs to the Table of Adjustment Data in accordance with the provisions of Sub-Clause 13.7 [Adjustments for Changes in Cost].”

Sub-Clause 14.1

The Contract Price

[Note to the Employer: include one of the following two alternative texts as applicable]

The following is added at the end of the Sub-Clause:

[Alternative 1]

“Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.”

[Alternative 2]

“Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefore, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry an approved export bond or bank guarantee, valid until the Time for Completion plus six months, in an amount equal to the full import duties and taxes which would be payable on the assessed imported value of such Contractor's Equipment and spare parts, and callable in the event the Contractor's Equipment is not exported from the Country on completion of the Contract. A copy of the bond or bank guarantee endorsed by the customs authorities shall be



provided by the Contractor to the Employer upon the importation of individual items of Contractor's Equipment and spare parts. Upon export of individual items of Contractor's Equipment or spare parts, or upon the completion of the Contract, the Contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the Contractor's Equipment and spare part to be exported, based on the depreciation scale (s and other criteria used by the customs authorities for such purposes under the provisions of the applicable Laws. Import duties and taxes shall be due and payable to the customs authorities by the Contractor on (a) the difference between the initial imported value and the residual value of the Contractor's Equipment and spare parts to exported; and (b) on the initial imported value of the Contractor's Equipment and spare parts remaining in the Country after completion of the Contract. Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise, the security shall be called in the full amount remaining."

Sub-Clause 14.2.1**Advance Payment
Guarantee**

The first paragraph is replaced with:

"The Contractor shall obtain (at the Contractor's cost) an Advance Payment Guarantee in amounts and currencies equal to the advance payment and shall submit it to the Employer with a copy to the Engineer. This guarantee shall be issued by reputable bank or financial institution selected by the Contractor and shall be in accordance with the form included in the request for bidding



documents for the subject contract or in another form acceptable to the Employer.”

Sub-Clause 14.3

**Application for Interim
Payment**

The following is inserted at the end of (vi) after:

[Agreement or Determination]: “any reimbursement due to the Contractor under the DAAB Agreement. (Appendix General Conditions of DAAB Agreement).”

Sub-Clause 14.6.2

**Withholding (amounts in)
an IPC**

“and/or” from subparagraph (b) is deleted.

The following is then added as subparagraph (c) and sub-paragraph (c) of the Sub-Clause is renumbered as (d):

“(c) if the Contractor was, or is, failing to perform any ES obligations or work under the Contract, the value of this work or obligation, as determined by the Engineer, may be withheld until the work or obligation has been performed, and/or the cost of rectification or replacement, as determined by the Engineer, may be withheld until rectification or replacement has been completed. Failure to perform includes, but is not limited to the following:

- (i) failure to comply with any ES obligations or work described in the Works’ Requirements which may include: working outside site boundaries, excessive dust, damage to offsite vegetation, pollution of water courses from oils or sedimentation, contamination of land e.g., from oils, human waste, damage to archaeology or cultural heritage features, air

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pollution as a result of unauthorized and/or inefficient combustion;

- (ii) failure to regularly review C-ESMP and/or update it in a timely manner to address emerging ES issues, or anticipated risks or impacts;
- (iii) failure to implement the C-ESMP e.g., failure to provide required training or sensitization;
- (iv) failing to have appropriate consents/permits prior to undertaking Works or related activities;
- (v) failure to submit ES report/s (as described in Particular Conditions - Part D), or failure to submit such reports in a timely manner;
- (vi) failure to implement remediation as instructed by the Engineer within the specified timeframe (e.g., remediation addressing non-compliance/s)."

The following is added as penultimate paragraph: "As specified in the Contract Data, if the Contractor fails to perform its cyber security obligations under the Contract, an assessed amount, as determined by the Engineer, may be withheld until the obligation has been performed."

Sub-Clause 14.7

Payment

At the end of sub-paragraph (b): "and" is replaced with "or" and the following inserted as (iii):

"(iii) at a time when the Bank's loan or credit (from which part of the payments to the Contractor is



being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and"

At the end of sub-paragraph (c): "." is replaced with ";" and the following inserted:

"or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 [Termination by Contractor]."

Sub-Clause 14.9

**Release of Retention
Money**

The following is added at the end of Sub-Clause 14.9:

"Unless otherwise stated in the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security and, if applicable, an ES Performance Security

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in Sub-Clause 4.2. On receipt by the Employer of the required guarantee, the Engineer shall certify, and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release after the latest of the expiry dates of the Defects Notification Periods. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security and, if applicable, an ES Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under them when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security and, if applicable, an ES Performance Security, when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if applicable, an ES Performance Security."

Sub-Clause 14.15
Currencies of Payment

Throughout Sub-Clause 14.15, "Contract Data" is replaced with: "Schedule of Payment Currencies".

Sub-Clause 15.1
Notice to Correct

"and" is deleted from (b) and
"." is replaced by: "; and" in (c).

The following is then added as (d)

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“(d) specify the time within which the Contractor shall respond to the Notice to Correct.”

In the third para., “shall immediately respond” is replaced with: “shall respond within the time specified in (d)”. Further, in the third para., “to comply with the time specified in the Notice to Correct.” is replaced with: “to comply with the time specified in (c).”

Sub-Clause 15.2.1

Notice

Sub-paragraph (h) is replaced with: “based on reasonable evidence, has engaged in Fraud and Corruption as defined in paragraph 2.2 of the Particular Conditions - Part C- Fraud and Corruption, in competing for or in executing the Contract.”

Sub-Clause 15.8

Fraud and Corruption

The following new Sub-Clause is added:

“ 15.8.1 The Bank requires compliance with the Bank’s Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the Bank’s Sanctions Framework, as set forth in Particular Conditions - Part C- Fraud and Corruption.

15.8.2 The Employer requires the Contractor to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity, or fee.”

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Sub-Clause 16.1**Suspension by Contractor**

The following paragraph is inserted after the first paragraph:

"Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [Employer's Financial Arrangements], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days after the Borrower having received the suspension notification from the Bank."

Sub-Clause 16.2.1**Notice**

Sub-paragraph (j) is deleted in its entirety.

At the end of sub-paragraph (i): "; or" is replaced with:
"

sub-paragraph (f) is replaced with:

"(f) the Contractor does not receive a Notice of the Commencement Date under Sub-Clause 8.1 [Commencement of Works] within 180 days after receiving the Letter of Acceptance, for reasons not attributable to the Contractor."

Sub-Clause 16.2.2**Termination**

The following is added at the end of Sub-Clause 16.2.2:

"In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim

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Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice."

Sub-Clause 16.3
Contractor's Obligations
After Termination

[If the Employer has made available any Employer-Supplied Materials and/or Employer's Equipment in accordance with Sub-Clause 2.6, include the following:]

"and" is deleted from the end of sub-paragraph (b), sub-paragraph (c) deleted and the following added:

"

- (c) deliver to the Engineer all Employer- Supplied Materials and/or Employer's Equipment made available to the Contractor in accordance with Sub-Clause 2.6 *[Employer-Supplied materials and Employer's Equipment]*; and
- (d) remove all other Goods from the Site, except as necessary for safety, and leave the Site."

Sub-Clause 17.1
Responsibility for Care of
the Works

[If Employer- Supplied Materials are listed in the Specification for the Contractor's use in the execution of Works, include the following provision. See also Sub-Clause 2.6 [Employer-Supplied Materials and Employer's Equipment]]

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After the two instances of "Goods" in the last paragraph, the following is added: "Employer- Supplied Materials".

[If Employer's Equipment are listed in the Works' Requirements for the Contractor's use in the execution of Works, include the following provision. See also Sub-Clause 2.6 [Employer-Supplied Materials and Employer's Equipment]]

After the two instances of "Goods" in the last paragraph, the following is added: ", Employer's Equipment,".

Sub-Clause 17.7

The following Sub-Clause is added as 17.7:

Use of Employer's

Accommodation/Facilities

"The Contractor shall take full responsibility for the care of the Employer-provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works)

If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at its own cost, rectify the loss or damage to the satisfaction of the Engineer."

Sub-Clause 18.1

Sub-paragraph (c) is substituted with:

Exceptional Events

"(c) riot, commotion, disorder, or sabotage by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors;"

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- Sub-Clause 18.4**
Consequences of an
Exceptional Event
- The following is added at the end of sub-paragraph (b) after deleting the “.”:
- “, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Exceptional Events, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 19.2 [Insurance to be provided by the Contractor].”
- Sub-Clause 18.5**
Optional Termination
- In sub-paragraph (c), “and necessarily” is inserted after ““was reasonably”.
- Sub-Clause 19.1**
General Requirements
- The following paragraphs are added after the first:
- “Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with terms (if any) agreed by both Parties before the date of the Letter of Acceptance.
- This agreement of terms shall take precedence over the provisions of this Clause.”
- Sub-Clause 19.2**
insurance to be provided
by the Contractor
- The following is inserted as the first sentence in Sub-Clause 19.2:
- “The Contractor shall be entitled to place all insurances relating to the Contract (including, but not limited to the insurance referred to Clause 19) with insurers from any eligible source country.”
- Sub-Clause 19.2.5**
Injury to employees
- The second paragraph is replaced with:
- “The Employer and the Engineer shall also be indemnified under the policy of insurance, against

liability for claims, damages, losses, and expenses (including legal fees and expenses) arising from injury, sickness, disease, or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel."

Sub-Clause 20.1**Claims**

In a): "any additional payment" is replaced with "payment".

Sub-Clause 20.2**Claims for Payment
and/or EOT**

The first paragraph is replaced with:

"If either Party considers that it is entitled to claim under 20.1 (a) or (b), the following claim procedure shall apply:"

Sub-Clause 21.1**Constitution of the DAAB**

In the second paragraph, at the end of the first sentence after deleting: ".", the following is added: ", each of whom shall meet the criteria set forth in Sub-Clause 3.3 of Appendix- General Conditions of DAAB Agreement."

After the second paragraph insert the following paragraph: "If the Contract is with a foreign Contractor, the DAAB members shall not have the same nationality as the Employer or the Contractor."

Sub-Clause 21.2**Failure to Appoint DAAB
Member (s)**

For both (a) and (b): "by the date stated in the first paragraph of Sub-Clause 21.1 [*Constitution of the DAAB*]" is replaced with: "within 42 days from the date the Contract is signed by both Parties"



Sub-Clause 21.6**Arbitration**

In the first paragraph, “unless otherwise agreed by both Parties:” is deleted and replaced with: “The Parties agree:”

Sub-Clause 21.6**Arbitration**

In the first paragraph, delete starting from: “international arbitration” up to the end of (c), and replace with the following:

“arbitration. Arbitration shall be conducted as follows:

(a) if the contract is with foreign contractors, unless otherwise specified in the Contract Data; the dispute shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce; by one or three arbitrators appointed in accordance with these Rules. The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the ruling language defined in Sub-Clause 1.4 [Law and Language].

(b) If the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer’s country.”

Appendix- General Conditions of DAAB Agreement**1. Definitions**

In Sub-Clause 1.8 a(i): “authorised representative of the contractor or of the Employer” is replaced with: “Contractor’s Representative or authorised representative of the Employer”.

2. General Provisions

Sub-Clause 2.2 is deleted in its entirety.

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3. Warranties

Sub-Clause 3.3 is deleted and replaced with the following:

"When appointing the DAAB Member, each Party relies on the DAAB Member's representations, that he/she:

- a) has at least a bachelor's degree in relevant disciplines such as law, engineering, construction management or contract management;
- b) has at least ten years of experience in contract administration/management and dispute resolution, out of which at least five years of experience as an arbitrator or adjudicator in construction-related disputes;
- c) has received formal training as an adjudicator from an internationally recognized organization;
- d) has experience and/or is knowledgeable in the type of work which the Contractor is to carry out under the Contract;
- e) has experience in the interpretation of construction and/or engineering contract documents;
- f) has familiarity with the forms of contract published by FIDIC since 1999, and an understanding of the dispute resolution procedures contained therein; and
- g) is fluent in the language for communications stated in the Contract Data (or the language as agreed between the Parties and the DAAB)."

7. Confidentiality

In Sub-Clause 7.3: "or" is deleted after sub-paragraph (b),



and the following added:

“or (d) is being provided to the Bank.”

9. Fees and Expenses

In Sub-Clause 9.1 (c): “business class or equivalent” is replaced with: “in less than first class”.

In Sub-Clause 9.4: “and air fares” and “other” are deleted from the first and second sentences respectively.

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Particular Conditions

Part C- Fraud and Corruption

(Text in this Particular Conditions - Part C shall not be modified)

1. **Purpose**

- 1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

2. **Requirements**

- 2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders, consultants, contractors, and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

- a. Defines, for the purposes of this provision, the terms set forth below as follows:

- i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;

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- iii. “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- iv. “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- v. “obstructive practice” is:
 - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harass or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - (b) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 2.2 e. below.
- b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the



- procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- d. Pursuant to the Bank's Anti-Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner¹; (ii) to be a nominated ² sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
- e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders, consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents, personnel, permit the Bank to inspect ³ all accounts, records and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank.

¹ For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

² A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

³ Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

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Particular Conditions

Part D- Environmental and Social (ES)


Metrics for Progress Reports

[Note to Employer: the following metrics may be amended to reflect the specifics of the Contract. The Employer shall ensure that the metrics provided are appropriate for the Works and impacts/key issues identified in the environmental and social assessment.]

Metrics for regular reporting:

- a. *environmental incidents or non-compliances with contract requirements, including contamination, pollution, or damage to ground or water supplies;*
- b. *health and safety incidents, accidents, injuries that require treatment and all fatalities;*
- c. *interactions with regulators: identify agency, dates, subjects, outcomes (report the negative if none);*
- d. *status of all permits and agreements:*
 - (i) *work permits: number required, number received, actions taken for those not received;*
 - (ii) *status of permits and consents:*
 - *list areas/facilities with permits required (quarries, asphalt & batch plants), dates of application, dates issued (actions to follow up if not issued), dates submitted to resident engineer (or equivalent), status of area (waiting for permits, working, abandoned without reclamation, decommissioning plan being implemented, etc.);*
 - *list areas with landowner agreements required (borrow and spoil areas, camp sites), dates of agreements, dates submitted to resident engineer (or equivalent);*

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- identify major activities undertaken in each area in the reporting period and highlights of environmental and social protection (land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation);
 - for quarries: status of relocation and compensation (completed, or details of activities and current status in the reporting period).
- e. *health and safety supervision:*
- (i) safety officer: number days worked, number of full inspections & partial inspections, reports to construction/project management;
 - (ii) number of workers, work hours, metric of PPE use (percentage of workers with full personal protection equipment (PPE), partial, etc.), worker violations observed (by type of violation, PPE or otherwise), warnings given, repeat warnings given, follow-up actions taken (if any);
- f. *worker accommodations:*
- (i) number of expats housed in accommodations, number of locals;
 - (ii) date of last inspection, and highlights of inspection including status of accommodations' compliance with national and local law and good practice, including sanitation, space, etc.;
 - (iii) actions taken to recommend/require improved conditions, or to improve conditions.
- g. *Health services: provider of health services, information and/or training, location of clinic, number of non-safety disease or illness treatments and diagnoses (no names to be provided);*
- h. *gender (for expats and locals separately): number of female workers, percentage of workforce, gender issues raised and dealt with (cross-reference grievances or other sections as needed);*
- i. *training:*
- (i) number of new workers, number receiving induction training, dates of induction training;
- 

- (ii) number and dates of toolbox talks, number of workers receiving Occupational Health and Safety (OHS), environmental and social training;
 - (iii) number and dates of communicable diseases (including STDs) sensitization and/or training, no. workers receiving training (in the reporting period and in the past); same questions for gender sensitization, flag person training.
 - (iv) number and date of SEA and SH prevention sensitization and/or training events, including number of workers receiving training on Code of Conduct for Contractor's Personnel (in the reporting period and in the past), etc.
- j. *environmental and social supervision:*
- (i) environmentalist: days worked, areas inspected and numbers of inspections of each (road section, work camp, accommodations, quarries, borrow areas, spoil areas, swamps, forest crossings, etc.), highlights of activities/findings (including violations of environmental and/or social best practices, actions taken), reports to environmental and/or social specialist/construction/site management;
 - (ii) sociologist: days worked, number of partial and full site inspections (by area: road section, work camp, accommodations, quarries, borrow areas, spoil areas, clinic, HIV/AIDS center, community centers, etc.), highlights of activities (including violations of environmental and/or social requirements observed, actions taken), reports to environmental and/or social specialist/construction/site management; and
 - (iii) community liaison person(s): days worked (hours community center open), number of people met, highlights of activities (issues raised, etc.), reports to environmental and/or social specialist /construction/site management.
- k. *Grievances: list new grievances (e.g., number of allegations of SEA and SH) received in the reporting period and number of unresolved past grievances by date received, complainant's age and sex, how received, to whom referred to for action, resolution, and date (if completed), data resolution reported to complainant, any required follow-up (Cross-reference other sections as needed):*
- (i) Worker grievances;
 - (ii) Community grievances



l. Traffic, road safety and vehicles/equipment:

- (i) traffic and road safety incidents and accidents involving project vehicles & equipment: provide date, location, damage, cause, follow-up;
- (ii) traffic and road safety incidents and accidents involving non-project vehicles or property (also reported under immediate metrics): provide date, location, damage, cause, follow-up;
- (iii) overall condition of vehicles/equipment (subjective judgment by environmentalist); non-routine repairs and maintenance needed to improve safety and/or environmental performance (to control smoke, etc.).

m. Environmental mitigations and issues (what has been done):

- (i) dust: number of working bowsers, number of waterings/day, number of complaints, warnings given by environmentalist, actions taken to resolve; highlights of quarry dust control (covers, sprays, operational status); % of rock/ spoil lorries with covers, actions taken for uncovered vehicles;
- (ii) erosion control: controls implemented by location, status of water crossings, environmentalist inspections and results, actions taken to resolve issues, emergency repairs needed to control erosion/sedimentation;
- (iii) quarries, borrow areas, spoil areas, asphalt plants, batch plants: identify major activities undertaken in the reporting period at each, and highlights of environmental and social protection: land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation;
- (iv) blasting: number of blasts (and locations), status of implementation of blasting plan (including notices, evacuations, etc.), incidents of off-site damage or complaints (cross-reference other sections as needed);
- (v) spill clean-ups, if any: material spilled, location, amount, actions taken, material disposal (report all spills that result in water or soil contamination);
- (vi) waste management: types and quantities generated and managed, including amount taken offsite (and by whom) or reused/recycled/disposed on-site;
- (vii) details of tree plantings and other mitigations required undertaken in the reporting period;

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- (viii) details of water and swamp protection mitigations required undertaken in the reporting period.

n. compliance:

- (i) compliance status for conditions of all relevant consents/permits, for the Work, including quarries, etc.): statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance;
- (ii) compliance status of C-ESMP/ESIP requirements: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
- (iii) compliance status of SEA and SH prevention and response action plan: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
- (iv) compliance status of Health and Safety Management Plan re: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
- (v) other unresolved issues from previous reporting periods related to environmental and social: continued violations, continued failure of equipment, continued lack of vehicle covers, spills not dealt with, continued compensation or blasting issues, etc. Cross-reference other sections as needed.

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Particular Conditions

Part E- Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration for Subcontractors

[The following table shall be filled in by each subcontractor proposed by the Contractor, that was not named in the Contract]

Subcontractor's Name: *[insert full name]*

Date: *[insert day, month, year]*

Contract reference *[insert contract reference]*

Page *[insert page number]* of *[insert total number]* pages

SEA and/or SH Declaration

We:

- " (a) have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.
- " (b) are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.
- " (c) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.
An arbitral award on the disqualification case has been made in our favor.
- " (d) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have subsequently demonstrated that we have adequate capacity and commitment to comply with SEA /SH obligations.

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" (e) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have attached specific evidence demonstrating that we have adequate capacity and commitment to comply with SEA and SH obligations.

[If (c) above is applicable, attach evidence of an arbitral award reversing the findings on the issues underlying the disqualification.]

[If (d) or (e) above are applicable, provide the following information:]

Period of disqualification: From: _____ To: _____

If previously provided on another Bank financed works contract, details of evidence that demonstrated adequate capacity and commitment to comply with SEA/SH obligations **(as per (d) above)**

Name of Employer: _____

Name of Project: _____

Contract description: _____

Brief summary of evidence provided: _____

Contact Information: (Tel, email, name of contact person): _____

As an alternative to the evidence under (d), other evidence demonstrating adequate capacity and commitment to comply with SEA/SH obligations **(as per (e) above))** *[attach details as appropriate].*

Name of the Subcontractor _____

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Name of the person duly authorized to sign on behalf of the Subcontractor_____

Title of the person signing on behalf of the Subcontractor_____

Signature of the person named above_____

Date signed _____ day of _____, _____

Countersignature of authorized representative of the Contractor:

Signature: _____

Date signed _____ day of _____, _____



Section X - Contract Forms

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Notification of Intention to Award

[This Notification of Intention to Award shall be sent to each Bidder that submitted a Bid unless the Bidder has previously received notice of exclusion from the process at an interim stage of the procurement process.]

[Send this Notification to the Bidder's Authorized Representative named in the Bidder Information Form]

For the attention of Bidder's Authorized Representative

Name: *[insert Authorized Representative's name]*

Address: *[insert Authorized Representative's Address]*

Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]*

Email Address: *[insert Authorized Representative's email address]*

[IMPORTANT: insert the date that this Notification is transmitted to all participating Bidders. The Notification must be sent to all Bidders simultaneously. This means on the same date and as close to the same time as possible.]

DATE OF TRANSMISSION: This Notification is sent by: *[email/fax]* on *[date]* (local time)

Notification of Intention to Award

Employer: *[insert the name of the Employer]*

Project: *[insert name of project]*

Contract title: *[insert the name of the contract]*

Country: *[insert country where RFB is issued]*

Loan No. /Credit No. / Grant No.: *[insert reference number for loan/credit/grant]*

RFB No: *[insert RFB reference number from Procurement Plan]*

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This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period you may:

- a) request a debriefing in relation to the evaluation of your Bid, and/or
- b) submit a Procurement-related Complaint in relation to the decision to award the contract.

1. The successful Bidder

Name:	<i>[insert name of successful Bidder]</i>
Address:	<i>[insert address of the successful Bidder]</i>
Contract price:	<i>[insert contract price of the successful Bidder]</i>
Total combined score:	<i>[insert the total combined score of the successful Bidder]</i>

2. Other Bidders *[INSTRUCTIONS: insert names of all Bidders that submitted a Bid, Bid price as read out and evaluated, technical and combined scores.]*

Name of Bidder	Technical Score	Bid price	Evaluated Bid Cost	Combined Score
<i>[insert name]</i>	<i>[insert Technical score]</i>	<i>[insert Bid price]</i>	<i>[insert evaluated cost]</i>	<i>[insert combined score]</i>
<i>[insert name]</i>	<i>[insert Technical score]</i>	<i>[insert Bid price]</i>	<i>[insert evaluated cost]</i>	<i>[insert combined score]</i>

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[insert name]	[insert Technical score]	[insert Bid price]	[insert evaluated cost]	[insert combined score]
[insert name]	[insert Technical score]	[insert Bid price]	[insert evaluated cost]	[insert combined score]
[insert name]	[insert Technical score]	[insert Bid price]	[insert evaluated cost]	[insert combined score]

3. Reason/s why your Bid was unsuccessful [Delete if the combined score already reveals the reason]

[INSTRUCTIONS: State the reason/s why this Bidder's Bid was unsuccessful. Do NOT include: (a) a point by point comparison with another Bidder's Bid or (b) information that is marked confidential by the Bidder in its Bid.]

4. How to request a debriefing

DEADLINE: The deadline to request a debriefing expires at midnight on **[insert date]** (local time).

You may request a debriefing in relation to the results of the evaluation of your Bid. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award.

Provide the contract name, reference number, name of the Bidder, contact details; and address the request for debriefing as follows:

Attention: [insert full name of person, if applicable]

Title/position: [insert title/position]

Agency: [insert name of Employer]

Email address: [insert email address]

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Fax number: *[insert fax number]* **delete if not used**

If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.

The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

5. How to make a complaint

DEADLINE: The deadline for submitting a Procurement-related Complaint challenging the decision to award the contract expires on midnight, *[insert date]* (local time).

Provide the contract name, reference number, name of the Bidder, contact details; and address the Procurement-related Complaint as follows:

Attention: *[insert full name of person, if applicable]*

Title/position: *[insert title/position]*

Agency: *[insert name of Employer]*

Email address: *[insert email address]*

Fax number: *[insert fax number]* **delete if not used**

At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint

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must be submitted within the Standstill Period and received by us before the Standstill Period ends.

Further information:

For more information see the Procurement Regulations for IPF Borrowers (Procurement Regulations) (Annex III). You should read these provisions before preparing and submitting your complaint. In addition, the World Bank's Guidance "How to make a Procurement-related Complaint" provides a useful explanation of the process, as well as a sample letter of complaint.

In summary, there are four essential requirements:

1. You must be an 'interested party'. In this case, that means a Bidder who submitted a Bid in this bidding process and is the recipient of a Notification of Intention to Award.
2. The complaint can only challenge the decision to award the contract.
3. You must submit the complaint within the period stated above.
4. You must include, in your complaint, all of the information required by the Procurement Regulations (as described in Annex III).

6. Standstill Period

DEADLINE: The Standstill Period is due to end at midnight on [insert date] (local time).

The Standstill Period lasts ten (10) Business Days after the date of transmission of this Notification of Intention to Award.

The Standstill Period may be extended. This may happen where we are unable to provide a debriefing within the five (5) Business Day deadline. If this happens, we will notify you of the extension.

If you have any questions regarding this Notification, please do not hesitate to contact us.

On behalf of the Employer:



Signature: _____

Name: _____

Title/position: _____

Telephone: _____

Email: _____

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Beneficial Ownership Disclosure Form

INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM

This Beneficial Ownership Disclosure Form ("Form") is to be completed by the successful Bidder. In case of joint venture, the Bidder must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Bidder is any natural person who ultimately owns or controls the Bidder by meeting one or more of the following conditions:

- *directly or indirectly holding 25% or more of the shares*
- *directly or indirectly holding 25% or more of the voting rights*
- *directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder*

RFB No.: [insert number of RFB process]

Request for Bid No.: [insert identification]

To: [insert complete name of Employer]

In response to your request in the Letter of Acceptance dated [insert date of letter of Acceptance] to furnish additional information on beneficial ownership: [select one option as applicable and delete the options that are not applicable]

(i) we hereby provide the following beneficial ownership information.

Details of beneficial ownership

Identity of Beneficial Owner	Directly or indirectly holding 25% or more of the shares (Yes / No)	Directly or indirectly holding 25 % or more of the Voting Rights (Yes / No)	Directly or indirectly having the right to appoint a majority of the board of the directors or an

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			equivalent governing body of the Bidder (Yes / No)
<i>[include full name (last, middle, first), nationality, country of residence]</i>			

OR

(ii) *We declare that there is no Beneficial Owner meeting one or more of the following conditions:*

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder

OR

(iii) *We declare that we are unable to identify any Beneficial Owner meeting one or more of the following conditions. [If this option is selected, the Bidder shall provide explanation on why it is unable to identify any Beneficial Owner]*

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder]

Name of the Bidder: **[insert complete name of the Bidder]* _____

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Name of the person duly authorized to sign the Bid on behalf of the Bidder: ******[insert complete name of person duly authorized to sign the Bid]

Title of the person signing the Bid: [insert complete title of the person signing the Bid]

Signature of the person named above: [insert signature of person whose name and capacity are shown above]

Date signed [insert date of signing] **day of** [insert month], [insert year]

* In the case of the Bid submitted by a Joint Venture specify the name of the Joint Venture as Bidder. In the event that the Bidder is a joint venture, each reference to "Bidder" in the Beneficial Ownership Disclosure Form (including this Introduction thereto) shall be read to refer to the joint venture member.

** Person signing the Bid shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Bid Schedules.



Letter of Acceptance

[letterhead paper of the Employer]

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Bid dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by our Agency.

You are requested to furnish (i) the Performance Security and an Environmental and Social Performance Security ***[Delete ES Performance Security if it is not required under the contract]*** within 28 days in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms and the ES Performance Security Form, ***[Delete reference to the ES Performance Security Form if it is not required under the contract]*** and (ii) the additional information on beneficial ownership in accordance with ITB 48.1, within eight (8) Business days using the Beneficial Ownership Disclosure Form, included in Section X, Contract Forms, of the bidding document.

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Agency: _____



Attachment: Contract Agreement

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Contract Agreement

THIS AGREEMENT made the _____ day of _____, _____, between _____ of _____ (hereinafter "the Employer"), of the one part, and _____ of _____ (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as _____ should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - (a) the Letter of Acceptance;
 - (b) the Letter of Bid;
 - (c) the addenda Nos _____ (if any);
 - (d) the Particular Conditions;
 - (e) the General Conditions;
 - (f) the Specification;
 - (g) the Drawings; and
 - (h) the completed Schedules and any other documents forming part of the contract, including, but not limited to:
 - vi. the ES Management Strategies and Implementation Plans; and

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vii. Code of Conduct for Contractor's Personnel (ES).

3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy 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 in accordance with the laws of _____ on the day, month and year specified above.

Signed by _____ (for the Employer)

Signed by _____ (for the Contractor)



Performance Security Option 1: Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Employer]*

Date: _____ *[Insert date of issue]*

PERFORMANCE GUARANTEE No.: _____

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

¹ The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

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This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

² Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."



Performance Security Option 2: Performance Bond

By this Bond _____ as Principal (hereinafter called "the Contractor") and _____] as Surety (hereinafter called "the Surety"), are held and firmly bound unto _____] as Obligee (hereinafter called "the Employer") in the amount of _____, for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a written Agreement with the Employer dated the _____ day of _____, 20____, for _____ in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Employer to be, in default under the Contract, the Employer having performed the Employer's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a Bid or Bids from qualified Bidders for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive Bidder, arrange for a Contract between such Bidder and Employer and make available as



work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by Employer to Contractor under the Contract, less the amount properly paid by Employer to Contractor; or

- (3) pay the Employer the amount required by Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors, and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its legal representative, this _____ day of _____ 20 ____.

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____



In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

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Environmental and Social (ES) Performance Security

ES Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Employer]*

Date: *_[Insert date of issue]*

ES PERFORMANCE GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its Environmental and/or Social (ES) obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

¹ The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency (cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

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This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

² Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

Advance Payment Security

-Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ *[Insert name and Address of Employer]*

Date: _____ *[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (_____) is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) ¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's

¹ The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

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statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
- (b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number _____ at _____..

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the ___ day of ___, 2___,² whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

² Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

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[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

9

Retention Money Security

Demand Guarantee

_____ [Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ [Insert name and Address of Employer]

Date: _____ [Insert date of issue]

RETENTION MONEY GUARANTEE No.: [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that _____ [insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture] (hereinafter called "the Applicant") has entered into Contract No. _____ [insert reference number of the contract] dated _____ with the Beneficiary, for the execution of _____ [insert name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of [insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if required, the ES Performance Security] is to be made against a Retention Money guarantee.

9

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ [insert amount in figures] (_____) [amount in words]¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Applicant on its account number _____ at _____ [insert name and address of Applicant's bank].

This guarantee shall expire no later than the Day of, 2...², and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

[signature(s)]

¹ The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.

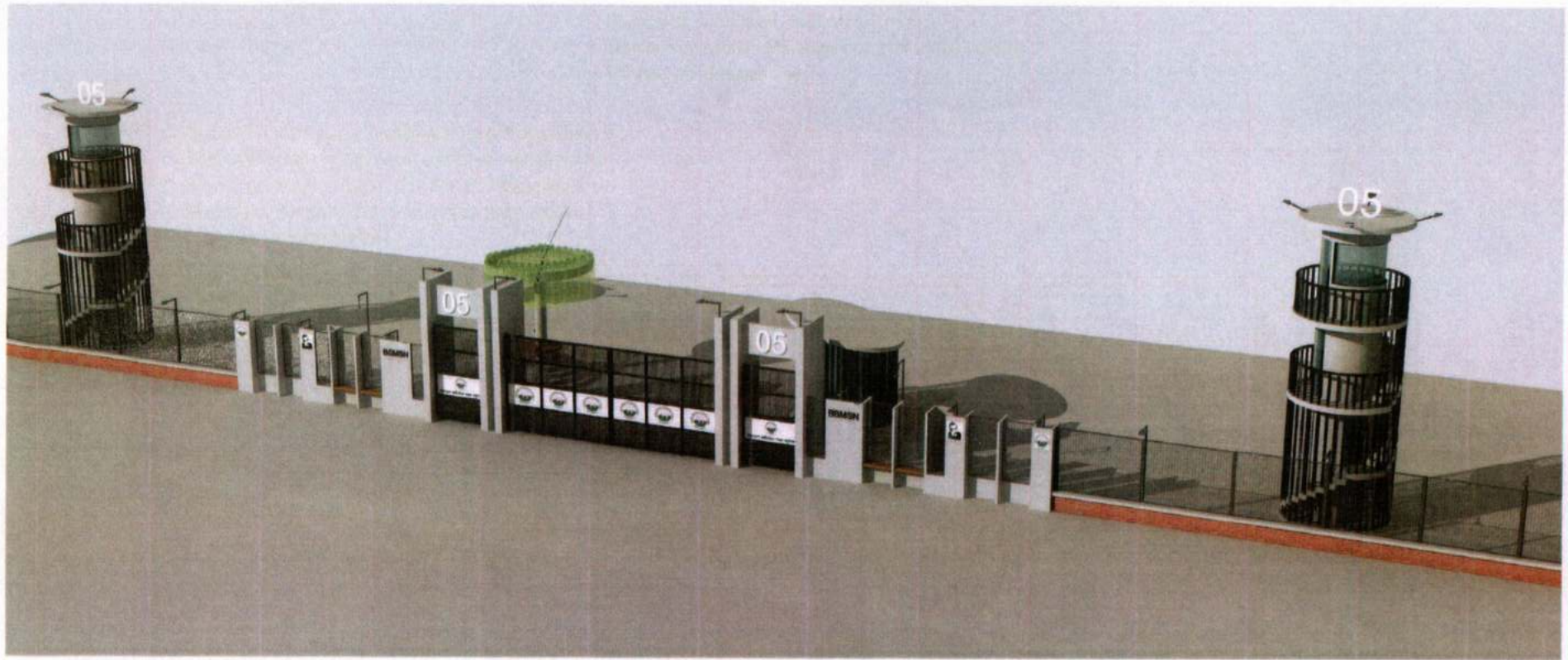
² Insert the same expiry date as set forth in the performance security, representing the date twenty-eight days after the completion date described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

9

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

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Annex-1: Drawing



NAME OF THE PROJECT:

BOUNDARY WALL,GATEHOUSE AND ENTRY GATE,WATCH TOWER FOR BANGABANDHU SHEIKH MUJIB SHILPA NAGAR (BSMSN)DEVELOPMENT PROJECT

PROVISIONAL LAYOUT AND WORKING DRAWINGS

PROJECT NAME:			DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	RECOMMENDED BY:	APPROVED BY:	SHEET NO/NAME:	
Securities and Support Amenities(Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA											
CLIENT:			TAWIN AHMED DRAFTSMAN Bangabandhu Sheikh Mujib Shilpanagar(BSMSN) Development Project.	ANIN AHMED ARIF (MABA-183) Jr. Consultant Architect Bangabandhu Sheikh Mujib Shilpanagar(BSMSN) Development Project.	ASHIK VASKOR MANNAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S Consultant	Dr. Eng. GAZI MOHAMMAD, MOHSIN PENG, DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	Aye TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	MOHAMMAD IBRAHIM MIAH Executive Engineer Bangabandhu Sheikh Mujib Shilpanagar(BSMSN) Development Project.			
BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)									REVISION	DATE	SCALE
										DECEMBER 2023	

Ms Grill Fencing as per design with outer frames having 38mmx38mmx6mm MS angle and inner member made of 6mm dia Ms Rod placed 110mm C/C Horizontal and 38 mm C/C Vertical direction with each point welded finished with Enamel Paint.

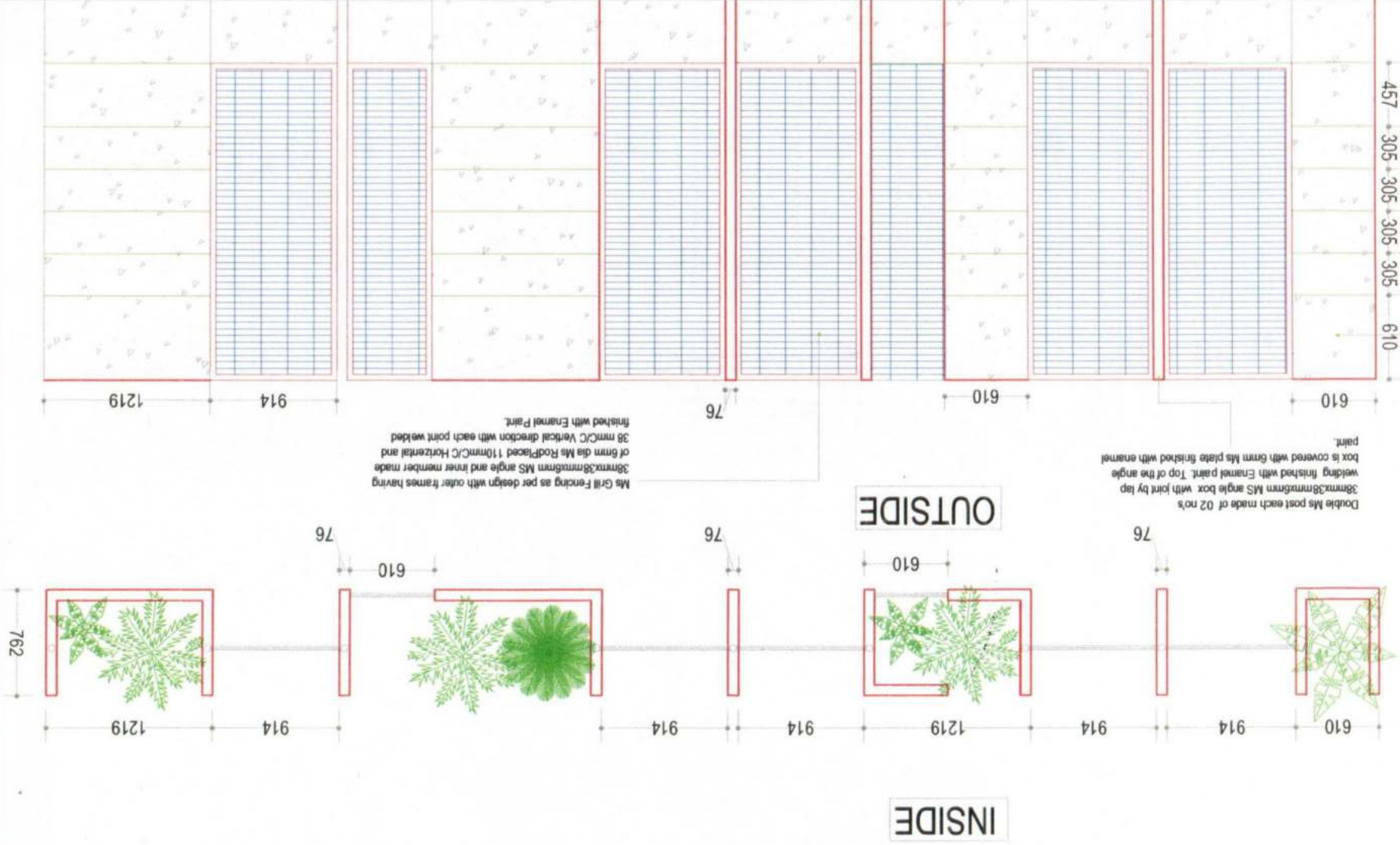
75mmx286mm Wide
RCC Copping.

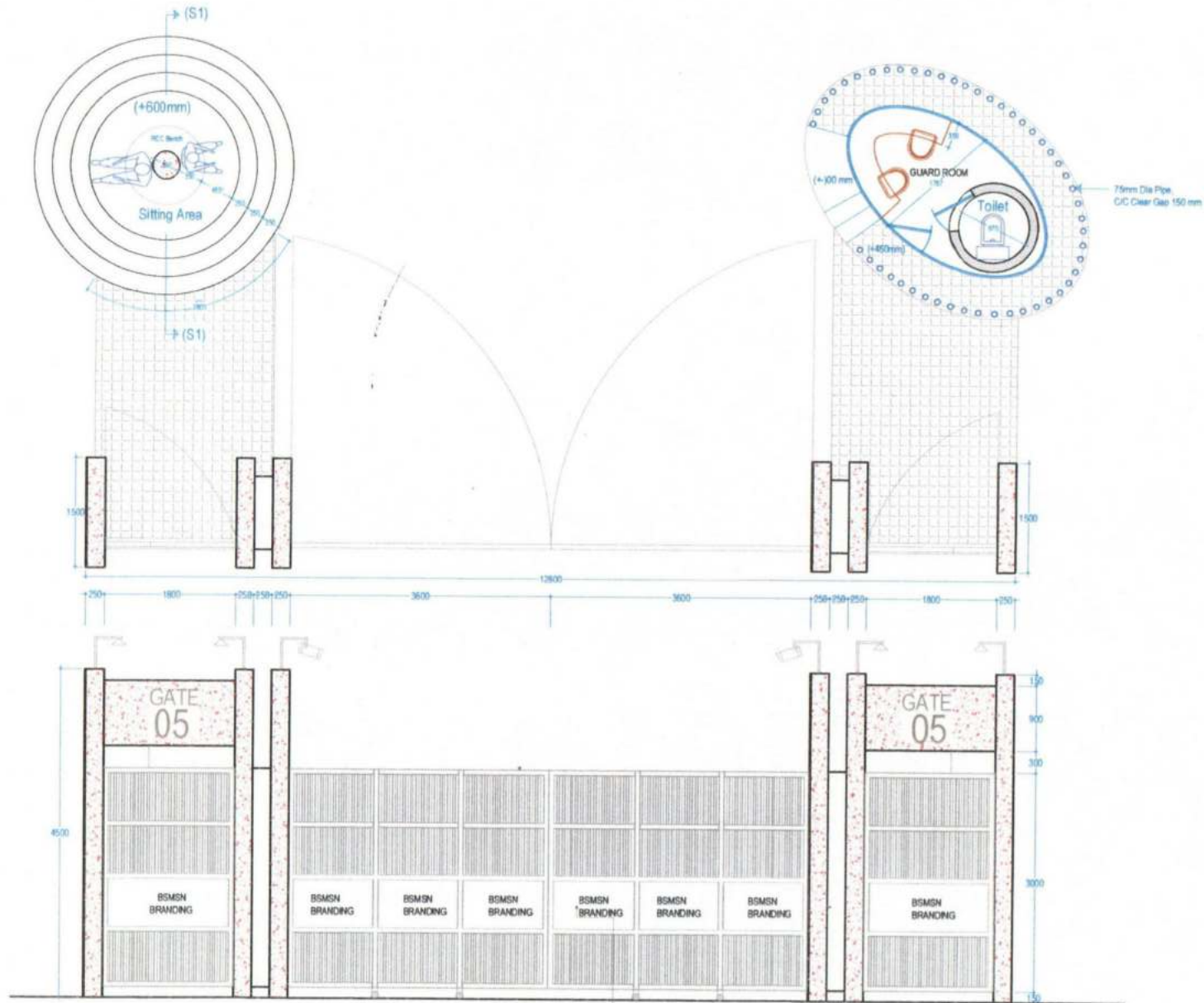
250 mm wide 10 hole ceramic brick work with 5mm groove pointing.

TYPICAL FENCING GRILL DETAILS

PROJECT NAME:			DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	RECOMMENDED BY:	APPROVED BY:	SHEET NO/NAM:	
Securities and Support Amenities(Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA)										A-01	
CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)			TANIN AHMED DRAFTSMAN Bangabandhu Sheikh Mujib Shilponagar(BSMSN) Development Project.	AMIN AHMED ARIF (MBA)-A-138 Jr. Consultant Architect Bangabandhu Sheikh Mujib Shilponagar(BSMSN) Development Project.	ASHIK VASKOR MANNAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S Consultant	Dr. Eng. GAZI MOHAMMAD MOHSIN Peng. DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	 TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	MOHAMMAD IBRAHIM MIAH Executive Engineer Bangabandhu Sheikh Mujib Shilponagar(BSMSN) Development Project.	REVISION	DATE	SCALE
										DECEMBER 2023	

RCC Wall only on bothside
of Gate with 18mm x 18mm
groove as per drawing.





General note:
Please Keep Electrical Line on each shear wall from top to bottom for lighting and CC camera protection.

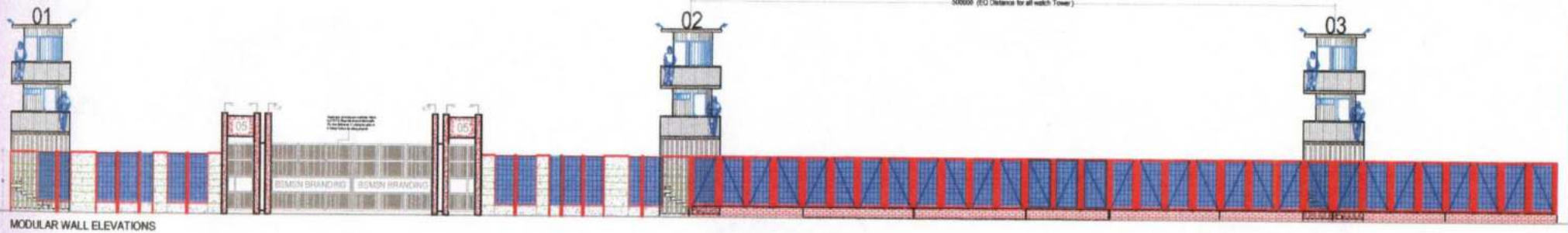
This part is filled with 3mm Metal sheet on both side. Purpose of this solid part is for Branding purpose of the project.

TYPICAL GUARD HOUSE ELEVATION AND PLAN

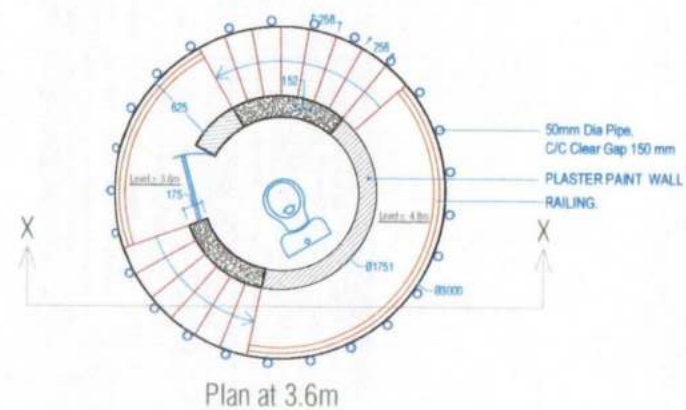
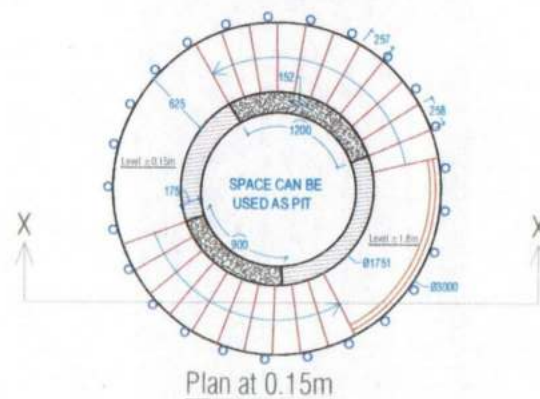
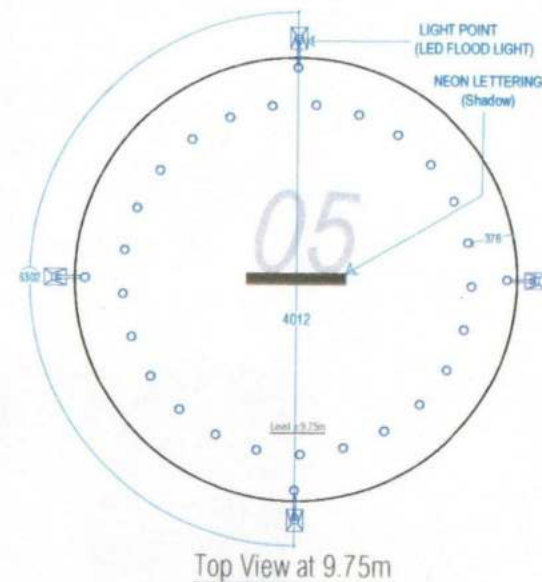
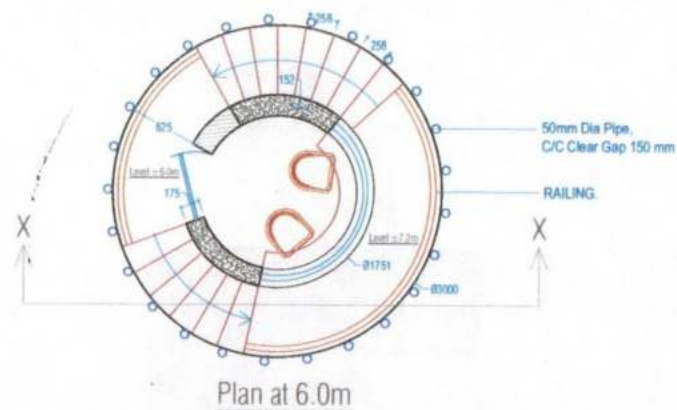
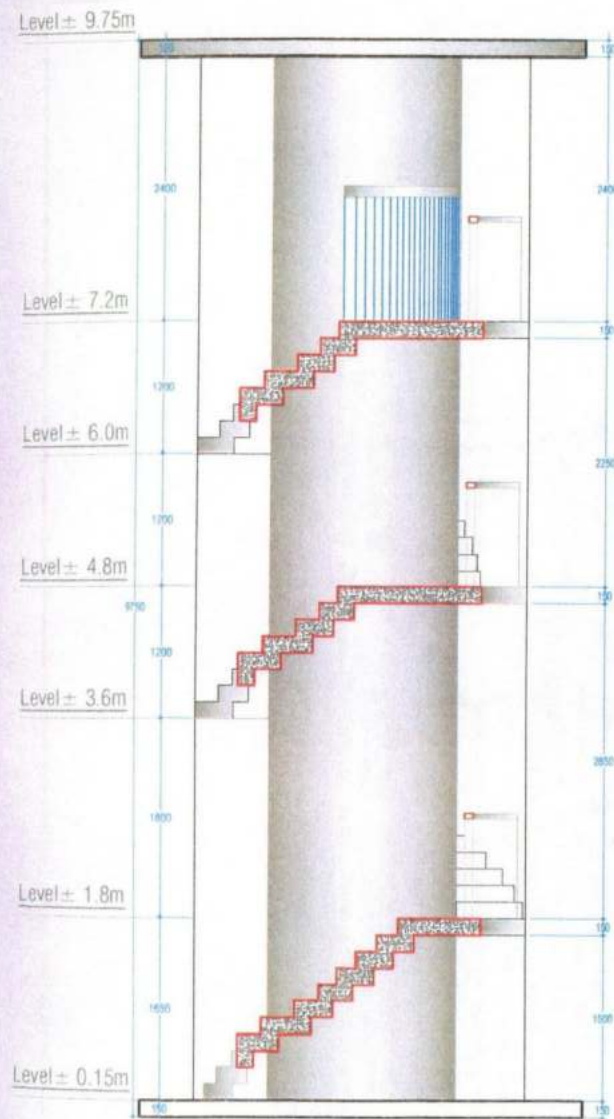
PROJECT NAME:		DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	RECOMMENDED BY:	APPROVED BY:	SHEET NO/NAME:
Securities and Support Amenities(Protection Wall/Fence, Surveillance(Lot-01) WD-10, BSMSN-BEZA)		TAMM AHMED KRAIF CRAFTSMAN Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	AMIN AHMED KRAIF (MIRA-133) Jr. Consultant Architect Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	ASHIK VASKOR MANHAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S Consultant	Dr. Eng. GAZI MOHAMMAD MOHSIN PENG, DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	Team LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	MOHAMMAD IBRAHIM MIAH Executive Engineer Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.		A-05
CLIENT:									
BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)									
								REVISION	DATE
								DECEMBER 2023	SCALE



PROJECT NAME: Securities and Support Amenities/Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA			DRAWN BY: TANIR AHMED DRAFTSMAN Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	DESIGN BY: AMIN AHMED ARIF (MIBA-133) Sr. Consultant Architect Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	CHECKED BY: ASHIK VASKOR MANNAN Sr. Architect CHEL-YOOSHIN-EPC JV, D&S Consultant	SIGNED BY: Dr. Eng. GAZI MOHAMMAD MOHSIN Peng, DEPUTY TEAM LEADER CHEL-YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY: MOHAMMAD IBRAHIM MIAH Executive Engineer Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	RECOMMENDED BY: 	APPROVED BY: 	SHEET NO:NAME "A-06"
CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)			REVISION	DATE DECEMBER 2023	SCALE					



PROJECT NAME: Securities and Support Amenities(Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA			DRAWN BY: TAIMIN AHMED DRAFTSMAN Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	DESIGN BY: AMIN AHMED ARIF (MAB.A-133) Sr. Consultant Architect Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	CHECKED BY: ASHIK VASKOR MANNAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S Consultant	SIGNED BY: Dr. Eng. GAZI MOHAMMAD MOHSIN Peng, DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY: Asif Hossain TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	RECOMMENDED BY: MOHAMMAD IBRAHIM MAH Executive Engineer Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	APPROVED BY:	SHEET NO/NAME: A-07	
CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)										REVISION	DATE
										DECEMBER 2023	

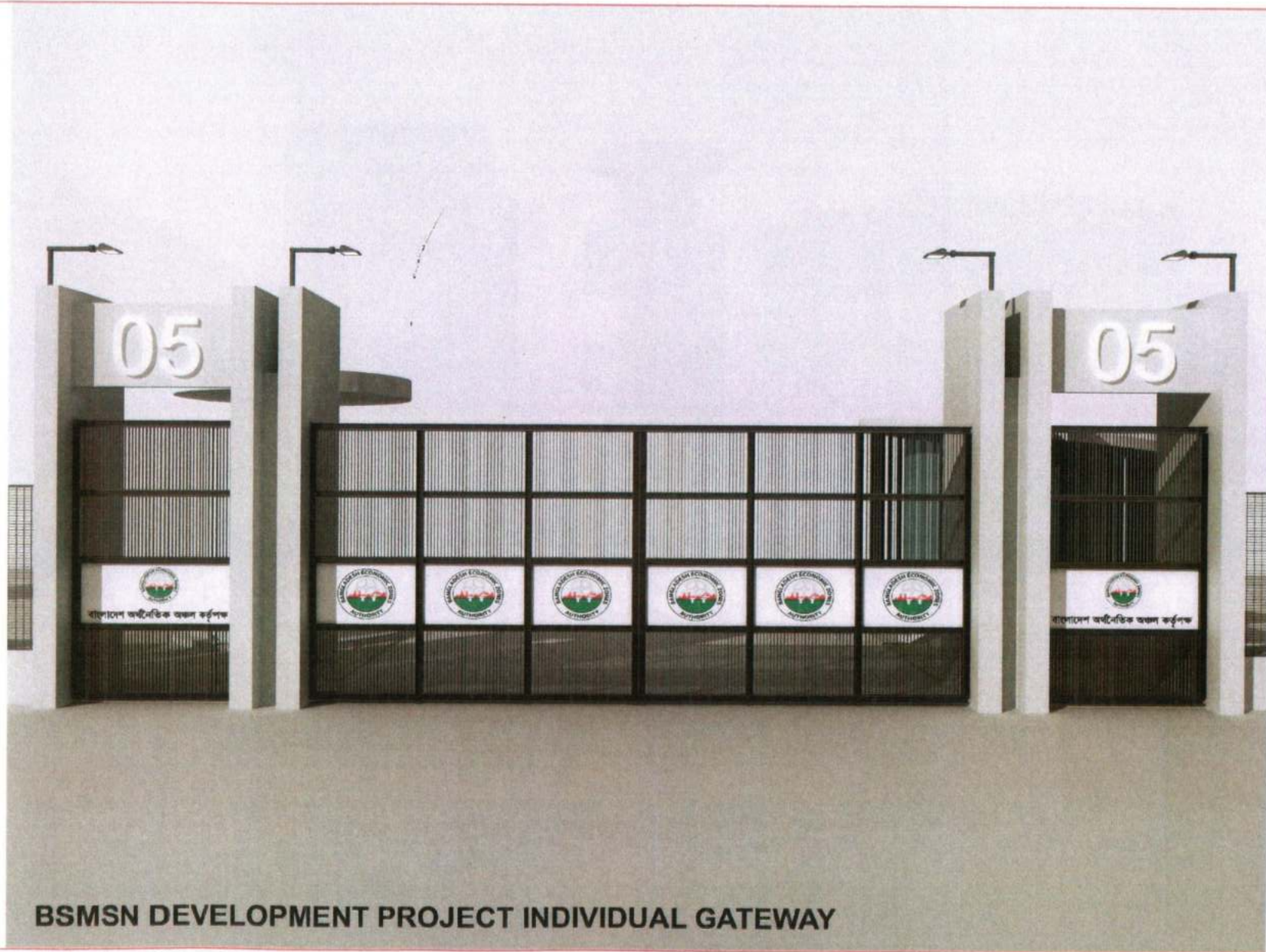


PROJECT NAME:			DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	RECOMMENDED BY:	APPROVED BY:	SHEET NO/NAME:	
Securities and Support Amenities/Protection Wall/Fence, Surveillance (Lot-01) WD-10, BSMN-BEZA			TARIK AHMED DRAFTSMAN Bangabandhu Sheikh Mujib Shipnagar (BSMN) Development Project.	AMIN AHMED ARIF (MIA/BA-133) Sr. Consultant Architect Bangabandhu Sheikh Mujib Shipnagar (BSMN) Development Project.	ASHRAF VASKOR MANNAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S Consultant	Dr. Eng. GAZI MOHAMMAD MOHSIN PING, DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	Asst. TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	MOHAMMAD IBRAHIM MAH Executive Engineer Bangabandhu Sheikh Mujib Shipnagar (BSMN) Development Project.	A-08		
CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY (BEZA)											
									REVISION	DATE	SCALE
										DECEMBER 2023	








BSMSN DEVELOPMENT PROJECT TYPICAL WATCH TOWER

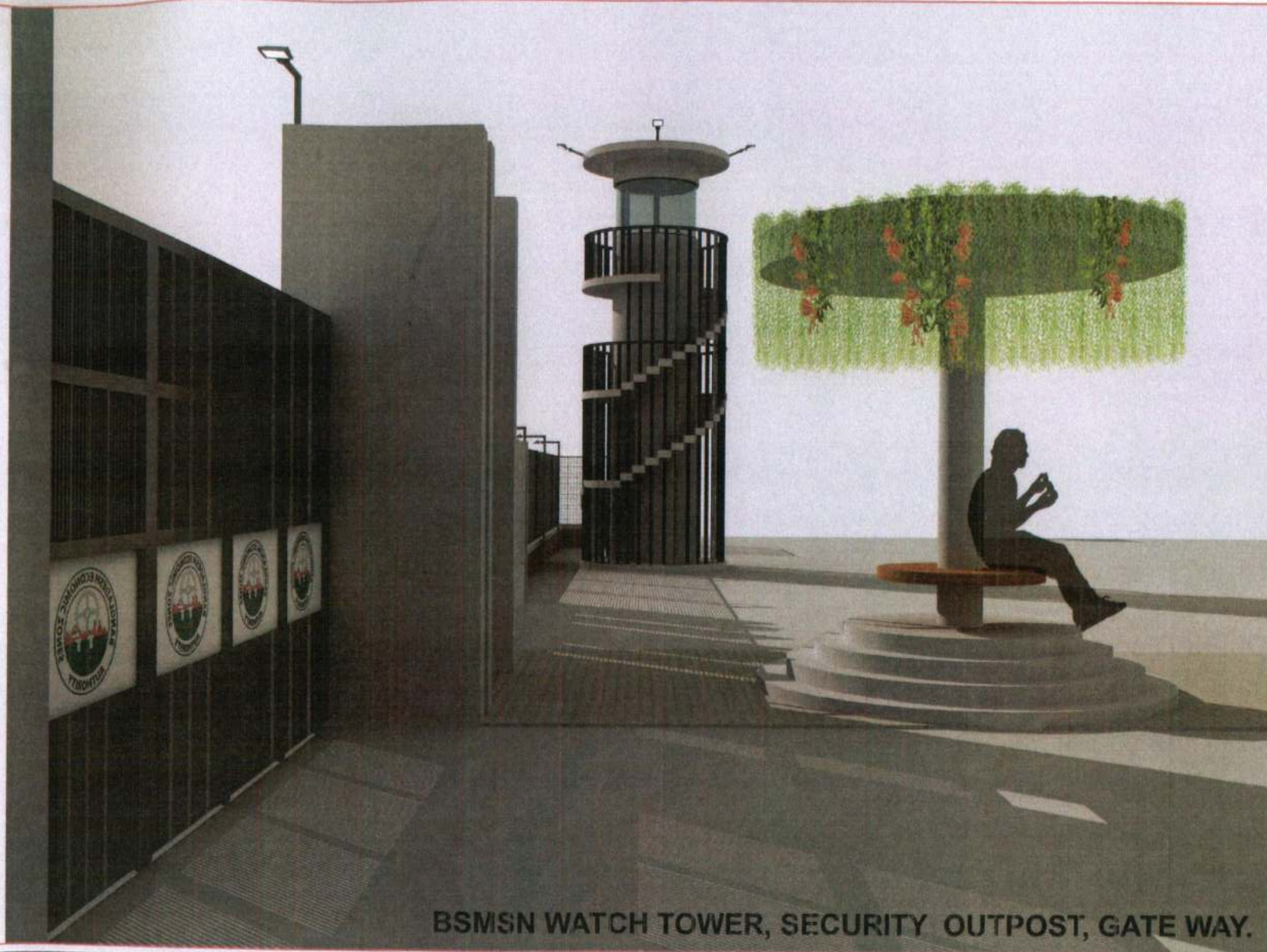
The image displays three architectural renderings of a cylindrical watch tower. The tower features a central glass-enclosed staircase and an external spiral staircase with a black metal railing. The top of the tower is a flat, circular platform with a white number on its face. The left view shows the front of the tower with the number '05'. The middle view shows the side of the tower with the number '20'. The right view shows the back of the tower with the number '05'. The tower is set against a plain white background.

PROJECT NAME:			DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	RECOMMENDED BY:	APPROVED BY:	SHEET NO/NAME:	
Securities and Support Amenities(Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA											
CLIENT:			TAWIN AHMED DRAFTSMAN Bangladesh Sheikh Mujib Shilpanagar(BSMAH) Development Project.	AMR AHMED AHS (MBA-133) Jr. Consultant Architect Bangladesh Sheikh Mujib Shilpanagar(BSMAH) Development Project.	ASHIK VASKOR MANHAN Sr. Architect CHEIL-YOOSHIN-EPG JV. D&S CONSULTANT	Dr. Eng. GAZI MOHAMMAD MOHSIN PING DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPG JV. D&S CONSULTANT	MOHAMMAD IBRAHIM MIAH Executive Engineer Bangladesh Sheikh Mujib Shilpanagar(BSMAH) Development Project.			3D VIEW	
BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)									REVISION	DATE	SCALE
										DECEMBER 2023	

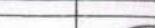









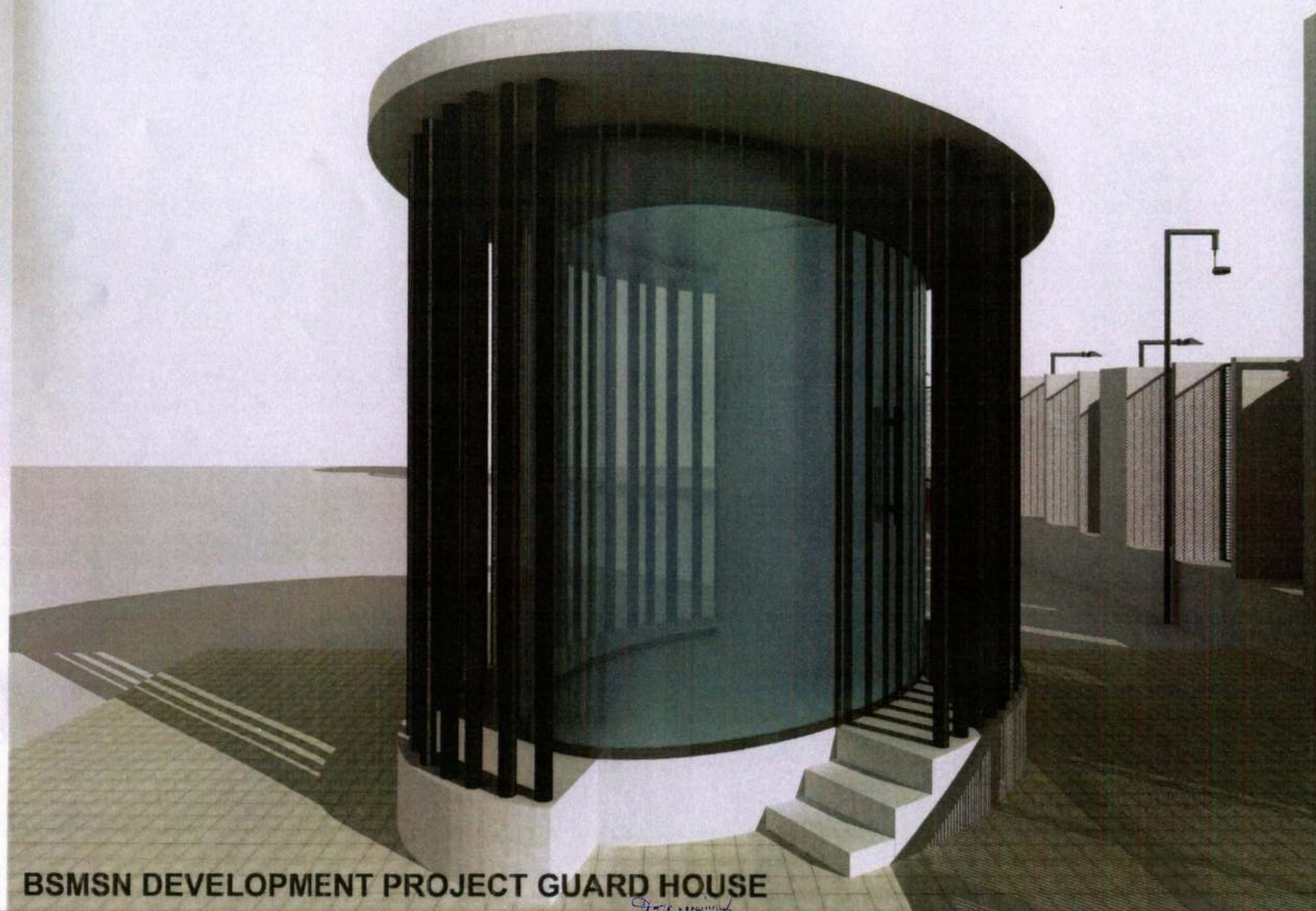
BSMSN DEVELOPMENT PROJECT INDIVIDUAL GATEWAY

PROJECT NAME: Securities and Support Amenities(Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA			DRAWN BY:  TAREK AHMED DRAWINGMAN Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	DESIGN BY:  AMIN AHMED ARIF (MBA-130) Sr. Consultant Architect Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	CHECKED BY:  ASHIK VASKOR MANNAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S Consultant	SIGNED BY:  Dr. Eng. GAZI MOHAMMAD MOHSIN PEIG. DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY:  Dr. Eng. GAZI MOHAMMAD MOHSIN PEIG. DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	RECOMMENDED BY:  MOHAMMAD IBRAHIM MIAH Executive Engineer Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	APPROVED BY:  MOHAMMAD IBRAHIM MIAH Executive Engineer Bangabandhu Sheikh Mujib Shipnagar(BSMSN) Development Project.	SHEET NO/NAME: 3D VIEW 05
CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)			REVISION	DATE	SCALE					
				DECEMBER 2023						



BSMSN WATCH TOWER, SECURITY OUTPOST, GATE WAY.

PROJECT NAME: Securities and Support Amenities(Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA			DRAWN BY:  TAWIN AHMED DRAFTSMAN Bangladesh Sheikh Mujib Shilpanagar(BSMSN) Development Project	DESIGN BY:  AMN AHMED Sr. Consultant Architect Bangladesh Sheikh Mujib Shilpanagar(BSMSN) Development Project	CHECKED BY:  A. Vashkar ASHOK VASKOR MANNAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S Consultant	SIGNED BY:  Dr. Eng. GAZI MOHAMMAD MOHSIN Sr. Architect TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY:  CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	RECOMMENDED BY:  MOHAMMAD IBRAHIM MAH Executive Engineer Bangladesh Sheikh Mujib Shilpanagar(BSMSN) Development Project	APPROVED BY:  Bangladesh Sheikh Mujib Shilpanagar(BSMSN) Development Project	SHEET NAME: 3D VIEW 06
CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)			REVISION	DATE DECEMBER 2023	SCALE					



BSMSN DEVELOPMENT PROJECT GUARD HOUSE

PROJECT NAME: Securities and Support Amenities(Protection Wall/Fence,Surveillance(Lot-01) WD-10, BSMSN-BEZA			DRAWN BY: TANIN AHMED DRAFTSMAN Bangabandhu Sheikh Mujib Shipnagar(BSMGN) Development Project	DESIGN BY: AMIN AHMED ARIF Jr. Consultant Architect Bangabandhu Sheikh Mujib Shipnagar(BSMGN) Development Project	CHECKED BY: ASHIK VASKOR MANNAN Sr. Architect CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY: Dr. Eng. GAZI MOHAMMAD MOHSIN PENG, DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY: Dr. Eng. GAZI MOHAMMAD MOHSIN PENG, DEPUTY TEAM LEADER CHEIL-YOOSHIN-EPC JV, D&S CONSULTANT	RECOMMENDED BY: MOHAMMAD IBRAHIM MAH Executive Engineer Bangabandhu Sheikh Mujib Shipnagar(BSMGN) Development Project	APPROVED BY: 	SHEET NO/NAME: 3D VIEW 07
CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY(BEZA)			REVISION	DATE DECEMBER 2023	SCALE					



BANGLADESH ECONOMIC ZONES AUTHORITY (BEZA)

BOUNDARY WALL ARCHITECTURAL, STRUCTURAL DESIGN & LONG PROFILE

Name of work: Security and Support Amenities (Construction of Boundary Wall Along Sea Side)

Package No: WD-10A-BSMSN-BEZA

STRUCTURAL DRAWING

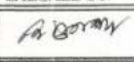


Name of work: Security and Support Amenities(Protection Wall/ Fence, Surveillance (Lot-01)

Package No: WD10-BSMSN-BEZA

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Name of work: Security and Support Amenities(Protection Wall/ Fence, Surveillance (Lot-01))	 BANGLADESH ECONOMIC ZONES AUTHORITY	TOP SHEET	 MD. NAZMUL HAQUE CAD OPERATOR CHBL-YOOSH-BN-EPIC JV. D&S CONSULTANT	 SANKU ROY CHOWDHURY M.Scpg. in Structure (BUST) B.Sc. in Civil Engineering (BUST) MEM. IN-STR CHBL-YOOSH-BN-EPIC JV. D&S CONSULTANT	 ENGR. MUSTAFIZUR RAHMAN M.Engg. (CIV) B.Sc. in Civil Engineering (CUT) FEB. F-0088 Design Engineer-1, Building CHBL-YOOSH-BN-EPIC JV. D&S CONSULTANT	 Dr. Eng. SAZD MOHAMMAD MOHSEN PING DEPUTY TEAM LEADER CHBL-YOOSH-BN-EPIC JV. D&S CONSULTANT	 Act. g. TEAM LEADER CHBL-YOOSH-BN-EPIC JV. D&S CONSULTANT	 MOHAMMAD MURUL ISLAM Executive Engineer BSMSTN Development Project BEZA, Prime Minister's Office		00	
PACKAGE NO : WD10-BSMSN-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS

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GN-02	GENERAL NOTES-02	ST-21	PLAN OF BOUNDARY WALL	ST-46	LONG PROFILE BOUNDARY WALL WALKWAY
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ST-10	REINF. DETAILS OF GUARD ROOM GROUND FLOOR SLAB & BOTTOM SLAB	ST-32	LONG PROFILE BOUNDARY WALL WALKWAY	ST-57	LONG PROFILE BOUNDARY WALL WALKWAY
		ST-33	LONG PROFILE BOUNDARY WALL WALKWAY	ST-58	LONG PROFILE BOUNDARY WALL WALKWAY
ST-11	REINF. DETAILS OF BENCH	ST-34	LONG PROFILE BOUNDARY WALL WALKWAY	ST-59	LONG PROFILE BOUNDARY WALL WALKWAY
ST-12	SHEAR WALL LAYOUT PLAN (LEVEL 6.65m & 10.25m)	ST-35	LONG PROFILE BOUNDARY WALL WALKWAY	ST-60	LONG PROFILE BOUNDARY WALL WALKWAY
ST-13	SHEAR WALL LAYOUT PLAN (LEVEL 12.65m & 16.4m)	ST-36	LONG PROFILE BOUNDARY WALL WALKWAY	ST-62	LONG PROFILE BOUNDARY WALL WALKWAY
ST-14	PILE LAYOUT PLAN & PILE CAP LAYOUT PLAN	ST-37	LONG PROFILE BOUNDARY WALL WALKWAY	ST-63	LONG PROFILE BOUNDARY WALL WALKWAY
ST-15	REINF. DETAILS OF PILE LONG SECTION (SIZE 300x300)	ST-38	LONG PROFILE BOUNDARY WALL WALKWAY	ST-64	LONG PROFILE BOUNDARY WALL WALKWAY
ST-16	STAIR BEAM LAYOUT PLAN	ST-39	LONG PROFILE BOUNDARY WALL WALKWAY	ST-65	LONG PROFILE BOUNDARY WALL WALKWAY
ST-17	STAIR REINF. DETAILS (6.65m & 3.6m)	ST-40	LONG PROFILE BOUNDARY WALL WALKWAY	ST-66	LONG PROFILE BOUNDARY WALL WALKWAY
ST-18	STAIR DETAILS (12.65m) & GROUND FLOOR BOTTOM SLAB REINF. DETAILS	ST-41	LONG PROFILE BOUNDARY WALL WALKWAY	ST-67	LONG PROFILE BOUNDARY WALL WALKWAY
		ST-42	LONG PROFILE BOUNDARY WALL WALKWAY	ST-68	LONG PROFILE BOUNDARY WALL WALKWAY
ST-19	FLOOR SLAB REINF. DETAILS (RL.10.25m & 12.65m)	ST-43	LONG PROFILE BOUNDARY WALL WALKWAY	ST-69	LONG PROFILE BOUNDARY WALL WALKWAY

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Name of work: Security and Support Amenities(Protection Wall/ Fence, Surveillance (Lot-01))	 BANGLADESH ECONOMIC ZONES AUTHORITY	TABLE OF CONTENTS	 <small>MD. NAZMUL HAQUE CAD OPERATOR CHBL-YOOSH-EPIC JV, DAS CONSULTANT</small>	 <small>SANJOY ROY CHOWDHURY M.Engg. in Structure (BUT) B.Sc. in Civil Engineering (RUT) MPhil (USC) CHBL-YOOSH-EPIC JV, DAS CONSULTANT</small>	 <small>ENDR. MUSTAFIZUR RAHMAN M.Engg. (UK) B.Sc. in Civil Engineering (CVET) CHBL-YOOSH-EPIC JV, DAS CONSULTANT</small>	 <small>Dr. Engr. SAUD MOHAMMAD MOHSEN PIR DEPUTY TEAM LEADER CHBL-YOOSH-EPIC JV, DAS CONSULTANT</small>	 <small>Act. g. TEAM LEADER CHBL-YOOSH-EPIC JV, DAS CONSULTANT</small>	 <small>MOHAMMAD NURUL ISLAM Executive Engineer BSMSN Development Project BEZA, Prime Minister's Office</small>		TC-01	
PACKAGE NO : WD10-B5MSH-BEZA										REVISION : 00	DATE : 16 NOV 23

CHATTOGRAM, ZONE-3

STRUCTURAL DESIGN NOTES & MINIMUM REQUIREMENTS FOR BUILDING STRUCTURES

1. GENERAL

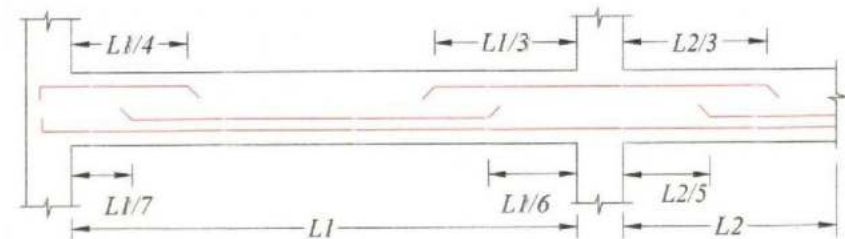
- DESIGN METHOD USED IS USD ACCORDING TO BANGLADESH NATIONAL BUILDING CODE (BNBC) 2020, ASCE 7-05, ACI 318-08.
- THE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE RELEVANT ARCHITECTURAL ELECTRICAL AND PLUMBING DRAWINGS, SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONSTRUCTION. ANY ANOMALY BETWEEN THE ARCHITECTURAL AND STRUCTURAL DRAWING REGARDING THE DIMENSIONS SHALL BE REPORTED TO THE STRUCTURAL DESIGNER.
- FOLLOW BNBC (2020) FOR SPECIFICATIONS/STRUCTURAL REQUIREMENTS NOT MENTIONED IN THE DRAWINGS OR IN THIS NOTE SHEET.
- ANY DETAILS NOT SHOWN IN THE DRAWING SHOULD BE DONE ACCORDING TO ACI DETAILING MANUAL (1994)
- BASIC WIND SPEED = As per BNBC (2020) = 80 m/s, P-3181
- SIESMIC ZONE = As per BNBC (2020), Z=0.28, P-3195
- OTHER LOADS = As per BNBC (2020)
- THE CONTRACTOR IS TO CHECK ALL DIMENSIONS PRIOR TO COMMENCING WORK AND ANY OMISSIONS ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- NO DIMENSION SHALL BE SCALED FROM THE DRAWINGS.
- DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND DURING THAT PERIOD NO PART IS OVER STRESSED UNDER CONSTRUCTION ACTIVITIES.

2. FOUNDATIONS AND EARTH WORKS :

- ALL EXCAVATION, DEWATERING, FILLING AND COMPACTION SHALL BE MADE IN ACCORDANCE WITH THE SPECIFICATION.
- THE ENGINEER IS TO APPROVE ALL EXCAVATIONS PRIOR TO PLACING CONCRETE.
- THE EXCAVATION SHALL BE KEPT FREE OF WATER AT ALL TIMES. CONCRETE QUALITY AND MIX CONSTITUENT ARE TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

3. CONCRETE :

- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONCRETE DIMENSIONS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES AND/OR THICKNESS OF BLINDING CONCRETE.
- CONCRETE QUALITY AND MIX CONSTITUENTS ARE TO BE IN ACCORDANCE WITH THE SPECIFICATION
- TYPE : CONCRETE COMPRESSIVE STRENGTH (CYLINDER)
CONSIDERED AS FOLLOWS :
 - FOR PILING WORK: f_c = MINIMUM 3500 psi
 - FOR MAT, COLUMN, PILE CAP : f_c = MINIMUM 3500 psi
 - FOR GRADE & FLOOR BEAM, SLAB AND STAIR: f_c = MINIMUM 3500 psi
 - FOR LINTEL, FIN, SIL, FALSE SLAB etc: f_c = MINIMUM 3000 psi



TYPICAL BAR TERMINATION POINTS (SLAB)(FOR UDL)

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Name of work: Security and Support Amenities(Protection Wall/ Fence, Surveillance (Lot-01))	 BANGLADESH ECONOMIC ZONES AUTHORITY	GENERAL NOTES-01								GN-01	
PACKAGE NO : WD10-BSMSH-BETA			MD. NAZMUL HAQUE CAD OPERATOR CHEL-YOOSH-ENRCP JV. DBA CONSULTANT	SANDIP ROY CHOWDHURY Manager in Structure (BUT) B.Sc. in Civil Engineering (BUT) REG. No: 17382 CHEL-YOOSH-ENRCP JV. DBA CONSULTANT	ENGR. MUSTAFIZUR RAHMAN Manager, JRC B.Sc. in Civil Engineering (BUT) REG. No: 17382 Design Engineer-1 Building CHEL-YOOSH-ENRCP JV. DBA CONSULTANT	Engr. SAAD MOHAMMAD MOHSIN PONG DEPUTY TEAM LEADER CHEL-YOOSH-ENRCP JV. DBA CONSULTANT	Engr. SAAD MOHAMMAD MOHSIN PONG TEAM LEADER CHEL-YOOSH-ENRCP JV. DBA CONSULTANT	MOHAMMAD NAZMUL ISLAM Executive Engineer BSMR Development Project BEZA, Prime Minister's Office	REVISION : 00	DATE : 16 NOV 23	SCALE : NTS

- e) MINIMUM CYLINDER STRENGTH: BASED ON CYLINDER TEST OF DIAMETER D = 150mm & HEIGHT = 300mm
 i) 28 DAYS STRENGTH = AS SPECIFIED IN 2(a)
 ii) 7 DAYS STRENGTH = 75% OF THE 28 DAYS STRENGTH.

f) CURING OF C.C & R.C.C WORK :

- i) CURING TIME MINIMUM 20 DAYS
 ii) METHOD OF CURING :
 * HORIZONTAL SURFACE: BY PONDING OF WATER
 * OTHER SURFACES: BY WRAPPING MOIST JUTE FABRIC AND SPRINKLING WATER BY HOSE PIPE FREQUENTLY.

4. CEMENT

ORDINARY PORTLAND CEMENT/TYPE-1 CONFORMING TO BDS 232 : 1974/ASTM C-150 COMPOSITE CEMENT/TYPE-2 CONFORMING TO BDS 232 : 1974/ASTM C-150

5. CONCRETE AGGREGATE

- a) FINE AGGREGATES: AS PER SPECIFICATION
 b) COARSE AGGREGATES: AS PER SPECIFICATION

6. WATER

POTABLE WATER TO BE USED IN CONCRETE MIX

7. STEEL REINFORCEMENT

- a) ALL REINFORCEMENTS ARE 60 GRADE HIGH STRENGTH DEFORMED BAR MADE FROM BILLET STEEL(UNLESS OTHERWISE SPECIFIED)
 b) YIELD STRENGTH OF STEEL f_y = 60,000 psi CONFORMED TO ONE OF THE FOLLOWING SPECIFICATIONS :
 i) BDS 1313 : 1991, ii) ASTM A615M
 THE FOLLOWING TESTS FOR REINFORCING BARS FROM RANDOM SAMPLES SHALL BE
 c) CONDUCTED AT BUET AS PER BDS 1313 : 1991 AND TEST RESULT SHALL BE SUBMITTED TO THE ENGINEER FOR CHECKING AND RECORD :
 i) TENSILE STRENGTH TEST
 ii) PERCENTAGE ELONGATION TEST

8. LAP LENGTH

LAP SPLICES (MM) IN TENSION

BAR SIZE	50*	75*	100*
8	200	275	275
10	250	325	325
12	300	400	400
16	450	600	600
20	600	800	800
22	750	1000	1000
25	1050	1400	1400
28	1300	1700	1700

* MAXIMUM PERCENT OF 'AS' SPLICED WITHIN REQUIRED LAP LENGTH. FOR TOP BARS THE ABOVE FIGURES WILL BE MULTIPLIED BY 1.3 TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 300 MM OF CONCRETE CAST BELOW THEM.

9. SPACER BARS

TO SUPPORT SECOND LAYER BARS IN BEAMS/SLABS, USE 25Ø SPACER BARS @ 750 C/C WHERE REQUIRED.

10. CHAIRS

USE CHAIRS OF NECESSARY DIMENSION MADE OF 10Ø /12Ø/16Ø BAR TO SUPPORT TOP BARS @ 750 C/C.

LAP SPLICES (MM) IN COMPRESSION

BAR SIZE	LAP SPLICE IN MM
8	200
10	250
12	300
16	400
20	600
22	650
25	750
28	800

DEVELOPMENT LENGTH OF HOOKED BARS IN MM

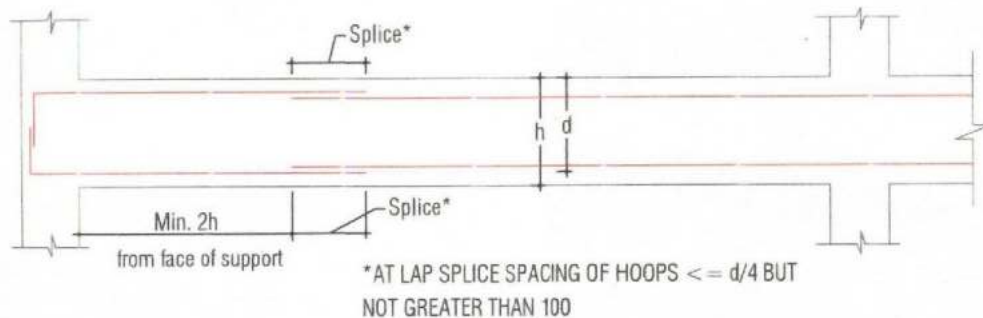
BAR SIZE	DEVELOPMENT LENGTH
8	150
10	200
12	225
16	250
20	325
22	350
25	400
28	425

PROJECT NAME : Name of work: Security and Support Amenities/Protection Wall/ Fence, Surveillance (LoH1)	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : GENERAL NOTES-02	DRAWN BY : 	DESIGN BY : 	CHECKED BY : 	SIGNED BY : 	SIGNED BY : 	APPROVED BY : 	REMARKS :	SHEET NO : GN-02
PACKAGE NO : WD10-BMSN-BEZA			MR. NAZMUL HAKUE CAD OPERATOR CHSEL-YOOSHIN&EPIC JV. D&S CONSULTANT	SANJIV KOT CHOUDHURY M.Engg. in Structure (BUET) E.Eng. in Civil Engineering (IUT) MEMO MEMBER CHSEL-YOOSHIN&EPIC JV. D&S CONSULTANT	ENGR. MUSTAFIZUR RAHMAN M.Engg. (IUT) E.Eng. in Civil Engineering (IUT) P&E Engineer Design Engineer - Building CHSEL-YOOSHIN&EPIC JV. D&S CONSULTANT	Dr. Engr. GAZI MOHAMMAD MOHSIN POND DEPUTY TEAM LEADER CHSEL-YOOSHIN&EPIC JV. D&S CONSULTANT	Dr. Engr. GAZI MOHAMMAD MOHSIN POND DEPUTY TEAM LEADER CHSEL-YOOSHIN&EPIC JV. D&S CONSULTANT	MOHAMMAD NURUL ISLAM Executive Engineer BMSN Development Project BEZA, Prime Ministry Office	REVISION : 00	DATE : 16 NOV 23

STRUCTURAL DESIGN NOTES & MINIMUM REQUIREMENTS FOR BUILDING STRUCTURES

11. LAP LOCATION :

- FOR BEAM BOTTOM BAR, LAP NOT TO BE PROVIDED AT MIDDLE THIRD ZONE OF THE SPAN
- FOR BEAM TOP BAR, LAP MAY BE PROVIDED AT MIDDLE THIRD ZONE OF THE SPAN
- NOT MORE THAN 50% OF THE BARS SHALL BE SPLICED AT ONE PLACE
- LAP SPLICES ARE TO BE CONFINED BY HOOPS WITH MAXIMUM SPACING OR PITCH OF $d/4$ OR 100mm WHERE d IS THE EFFECTIVE DEPTH OF THE BEAM.



12. DEVELOPMENT LENGTH

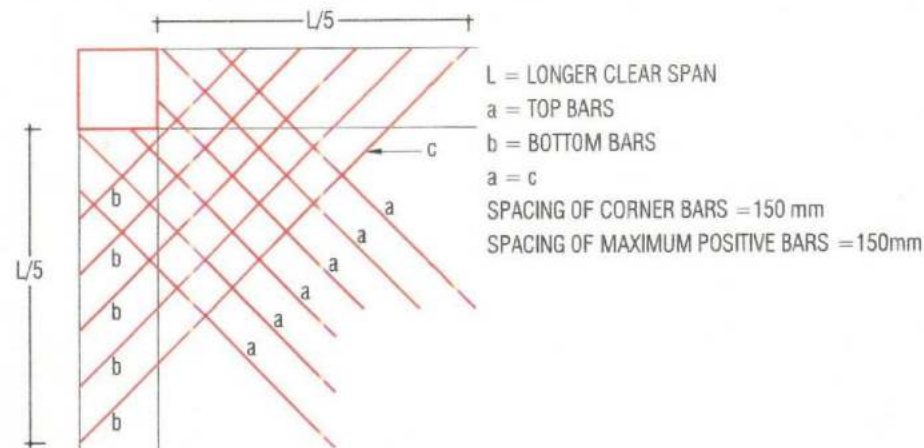
ALL BEAM AND SLAB REBAR SHOULD BE EXTENDED INTO THE SUPPORT UP TO DEVELOPMENT LENGTH.

13. ADMIXTURE

WATER PROOFING ADMIXTURE, PLASTICISER AND JOINTING ADMIXTURE SHALL BE USED AS MENTIONED IN THE RESPECTIVE DRAWINGS AND IN THE SPECIFICATION AFTER APPROVAL BY THE ENGINEER.

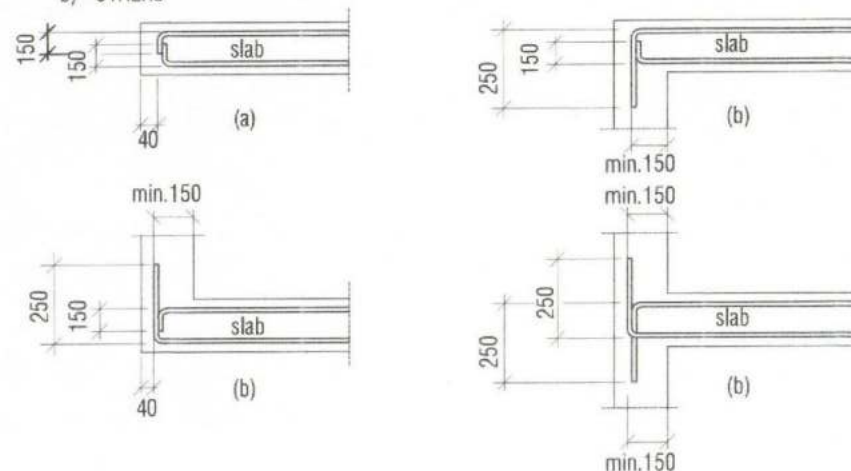
14. CORNER REINFORCEMENT








CORNER REINFORCEMENT FOR BEAM SUPPORTED 2-WAY SLABS



15. SLAB END REINFORCING DETAILS

- FREE END OF SLAB INCAPABLE OF EMBEDDING OF STEEL BAR IN BEAM/WALL
- OTHERS



PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Name of work: Security and Support Amenities/Protection Wall/ Fence/ Surveillance (Lot-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	GENERAL NOTES-03	 MD. NAZMUL HAQUE CAD OPERATOR CHEL-YOOSHINEPC JV. O&S CONSULTANT	 SAHAJ ROY CHOWDHURY M.Engg. in Structures (IUT) B.Sc. in Civil Engineering (IUT) MRB-14-001 Design Engineer - Civil Building CHEL-YOOSHINEPC JV. O&S CONSULTANT	 ENGR. MUSTAFIZUR RAHMAN M.Engg. (IUT) P.Sc. in Civil Engineering (IUT) MRB-14-001 Design Engineer - Building CHEL-YOOSHINEPC JV. O&S CONSULTANT	 Dr. Engr. SAJJAD MOHAMMAD MOHIBIN PING SENIOR TEAM LEADER CHEL-YOOSHINEPC JV. O&S CONSULTANT	 ACH-3 TEAM LEADER CHEL-YOOSHINEPC JV. O&S CONSULTANT	 MOHAMMAD KUTUBUZZAMAN Executive Engineer BSMR Development Project SEDA, Prime Minister's Office		GN-03	
PACKAGE NO : WD10-045051-3-2A									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS

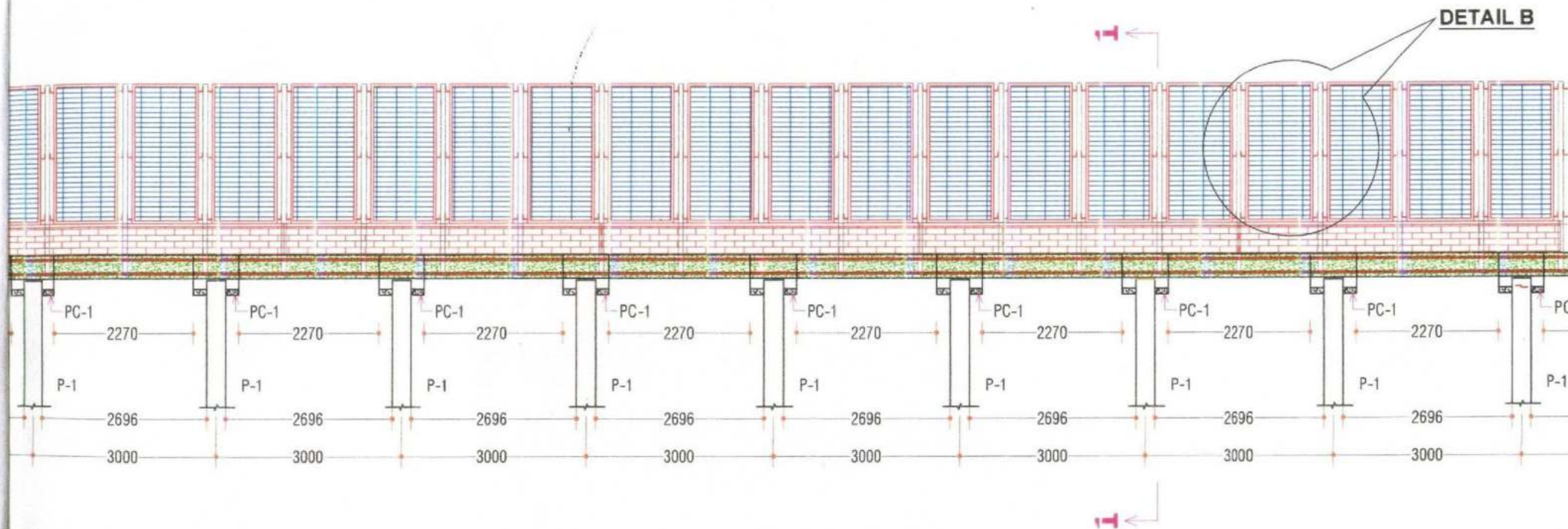
STRUCTURAL DRAWING

Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)

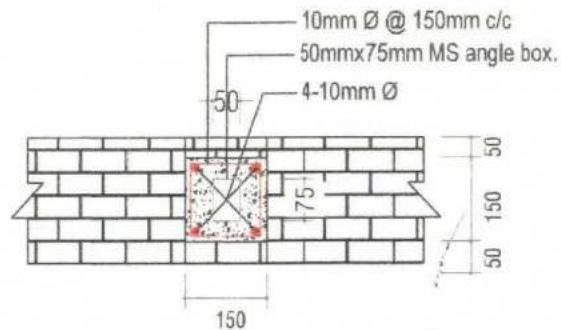
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NAME OF WORK: DETAILS OF BOUNDARY WALL

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO	
Name of work: Security and Support Amenities/Protection Wall/ Fence, Surveillance (Lot-01) PACKAGE NO: WD10-BSMSN-BEZA	 BANGLADESH ECONOMIC ZONES AUTHORITY	DETAIL OF BOUNDARY WALL GATE SHEAR WALL AND GRADE BEAM	MD. NAZMUL HAQUE CAD OPERATOR CHEL-YOOSHIN-EPG JV, DAS CONSULTANT	BANJOY ROY CHOWDHURY M.Engg. in Structure (SUET) S.E. in Civil Engineering (SUET) FEB-7035 Design Engineer-1, Building CHEL-YOOSHIN-EPG JV, DAS CONSULTANT	ENGR. SAURTAJUR RAHMAN M.Engg. (US) S.E. in Civil Engineering (SUET) FEB-7035 Design Engineer-1, Building CHEL-YOOSHIN-EPG JV, DAS CONSULTANT	Dr. Engr. GAZI MOHAMMAD MOHSIN PENG DEPUTY TEAM LEADER CHEL-YOOSHIN-EPG JV, DAS CONSULTANT	Ahsan TEAM LEADER CHEL-YOOSHIN-EPG JV, DAS CONSULTANT	MOHAMMAD KURUL ISLAM Executive Engineer BRACED Development Project BEZA, Panna Mirsar's Office		00	
									REVISION : 00	DATE: 16 NOV 23	SCALE : NTS



PROJECT NAME : Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance Lot-01)	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : DETAIL OF BOUNDARY WALL AND GRADE BEAM	DRAWN BY :  MD. NAZMUL HAQUE CAD OPERATOR CHEL-YOOSH-HAQUE JV. D&S CONSULTANT	DESIGN BY :  SANJOY POKS CHANDHURY M.Sc. in Structural (BUT) B.Sc. in Civil Engineering (BUT) MPhil in Civil CHEL-YOOSH-HAQUE JV. D&S CONSULTANT	CHECKED BY :  ENGR. MUSTAFIZUR RAHMAN M.Sc. Eng. (UR) B.Sc. in Civil Engineering (UR) PES Middle Design Engineer-1, Building CHEL-YOOSH-HAQUE JV. D&S CONSULTANT	SIGNED BY :  Dr. Eng. QASIM MOHAMMAD MOHSIN PING DEPUTY TEAM LEADER CHEL-YOOSH-HAQUE JV. D&S CONSULTANT	SIGNED BY :  Ahsan TEAM LEADER CHEL-YOOSH-HAQUE JV. D&S CONSULTANT	APPROVED BY :  MOHAMMAD NURUL ISLAM Executive Engineer B&M&P Development Project BEZA, Prime Minister's Office	REMARKS :	SHEET NO ST-01	
PACKAGE NO : WD10-BSMN-02A									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS



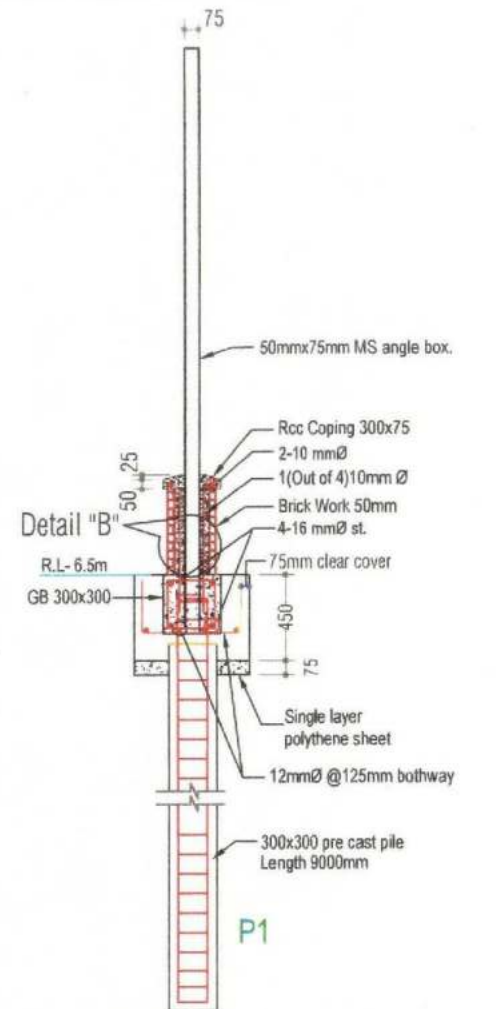
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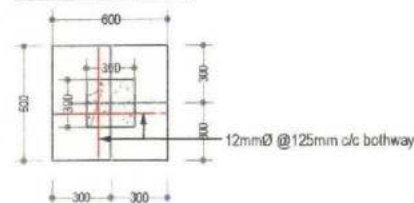
GRADE BEAM LONG SECTION



GRADE BEAM CROSS SECTION



SECTION_1-1



PILE CAP_PC-1
600mm x 600mm




PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Name of work: Security and Support Amenities/Protection Wall/ Fence, Surveillance (Lot-01)	<div><div>BANGLADESH ECONOMIC ZONES AUTHORITY</div></div>	REINF. DETAIL OF BOUNDARY WALL GRADE BEAM & PILE CAP	 MD. NAZMUL HAQUE CAD OPERATOR CHER-YOOSH&EPC JV, D&S CONSULTANT	 SANJOY ROY CHOWDHURY Manager, IT Services (BUT), S.E. in Civil Engineering (BUT) CHER-YOOSH&EPC JV, D&S CONSULTANT	 PRIMA MUSTAFER RAHMAN Manager, S.M. S.E. in Civil Engineering (BUT) P&B P&B Design Engineer - Building CHER-YOOSH&EPC JV, D&S CONSULTANT	 DR. ENG. SAJJAD MOHAMMAD MOHAMMAD DEPUTY TEAM LEADER CHER-YOOSH&EPC JV, D&S CONSULTANT	 ACH. S. TEAM LEADER CHER-YOOSH&EPC JV, D&S CONSULTANT	 MOHAMMAD HURUS ISLAM Executive Engineer B&B&P, Construction Project B&B&P, Home Ministry Office		ST-02	
PACKAGE NO : WD10-BTMSH-RELA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS

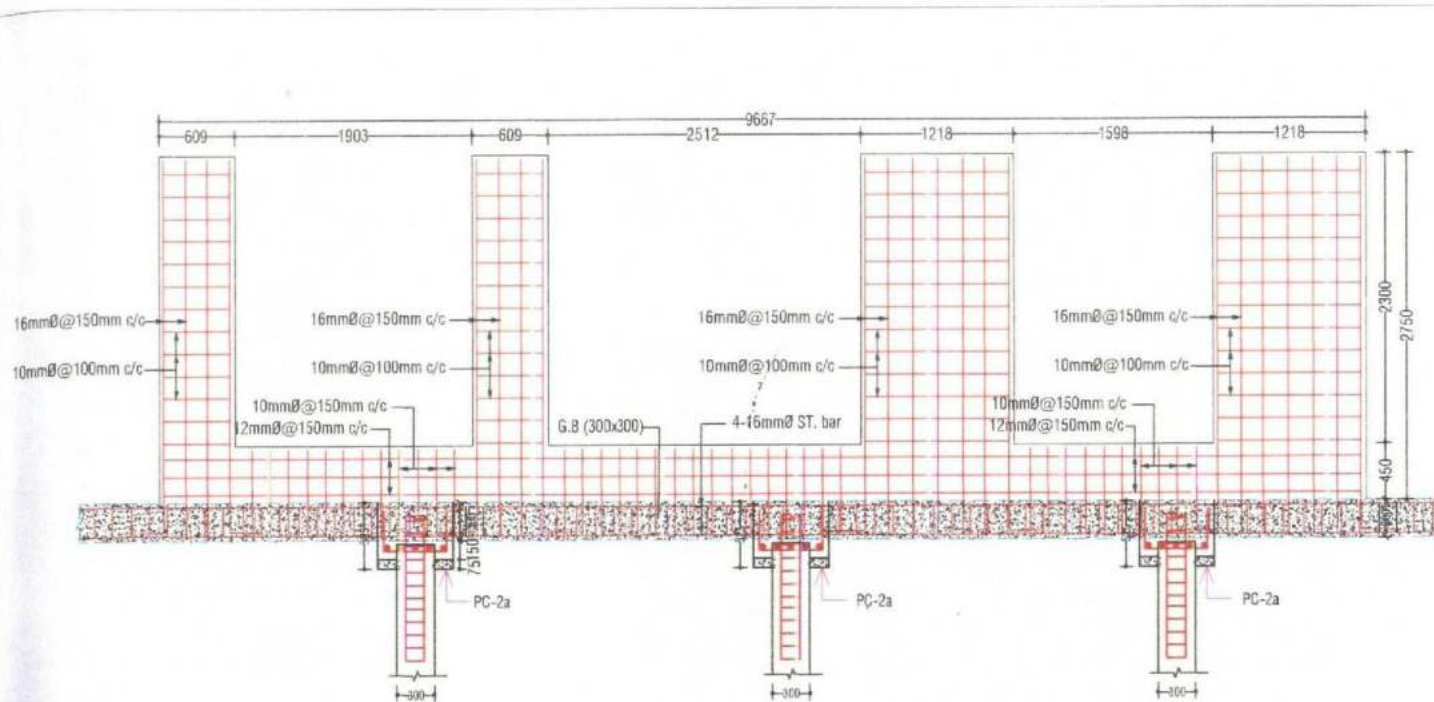
STRUCTURAL DRAWING

Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)

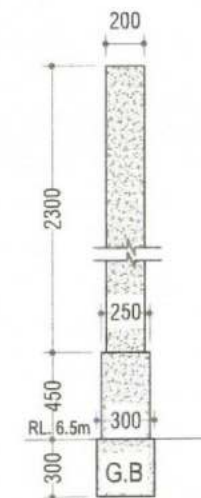
Package No: WD10-BSMSN-BEZA

NAME OF WORK: DETAILS OF GATE SHEAR WALL, GRADE BEAM & PILE

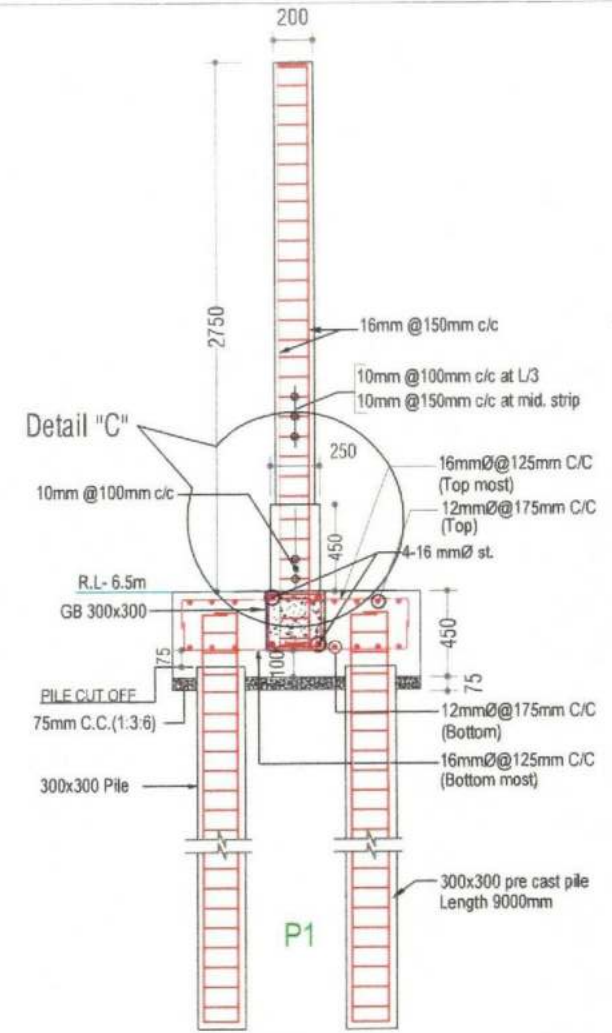
PROJECT NAME: Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: DETAILS OF GATE SHEAR WALL, GRADE BEAM & PILE	DRAWN BY:  ME. NAZMUL HAQUE CAD OPERATOR CHSEL/1003/BSMSN/PC JV D&S CONSULTANT	DESIGN BY:  SANJOY ROY CHOWDHURY M.Engg. in Structures (BUT) B.Sc. in Civil Engineering (BUT) MEMBER CHSEL/1003/BSMSN/PC JV, D&S CONSULTANT	CHECKED BY:  ENGR. SAJJAD TAHER RAHMAN M.Engg. (LSE) B.Sc. in Civil Engineering (BUT) MEMBER Design Engineer-1, Building CHSEL/1003/BSMSN/PC JV, D&S CONSULTANT	SIGNED BY:  Dr. Engr. QASIM MOHAMMAD MOHAMMAD DEPUTY TEAM LEADER CHSEL/1003/BSMSN/PC JV D&S CONSULTANT	SIGNED BY:  Acker TEAM LEADER CHSEL/1003/BSMSN/PC JV D&S CONSULTANT	APPROVED BY:  MOHAMMAD NURUL ISLAM Executive Engineer BSMSN Development Project BEZA, Prime Minister's Office	REMARKS:	SHEET NO: 00	
PACKAGE NO: WD10-BSMSN-BEZA									REVISION: 00	DATE: 16 NOV 23	SCALE: NTS



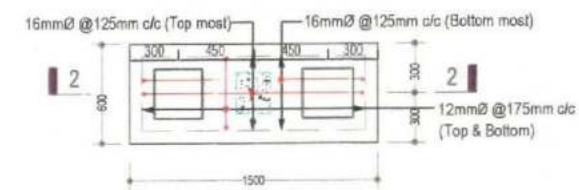
SECTION DETAILS "A"






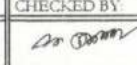


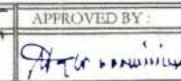
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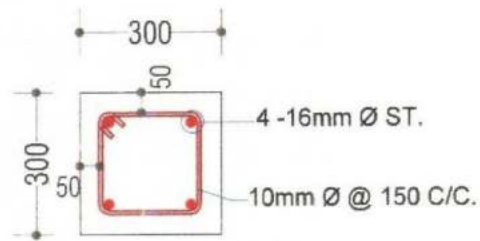
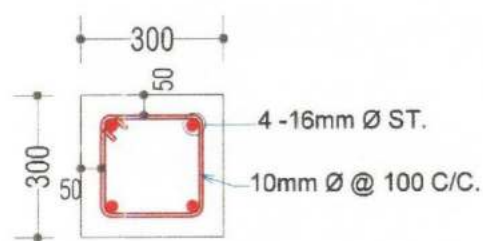
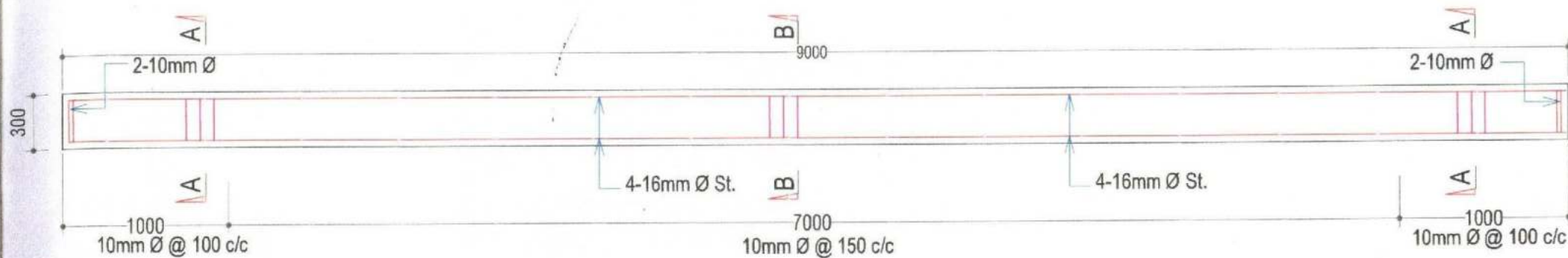


SECTION 2-2




PLAN OF PILE CAP - PC-2a
600mm x 1500mm

PROJECT NAME:		CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO	
Name of work: Security and Support Amenities/Protection Wall/ Fence, Surveillance (Lot-01)		 BANGLADESH ECONOMIC ZONES AUTHORITY	REINF. DETAIL OF SECTION "A" PLAN OF PILE CAP-PC-2a								ST-05	
PACKAGE NO: WC10-B/MSH-BELA				MD. NAJIBUL HAQUE CAD OPERATOR CHEL-YOOSHIN-EPIC JV. DAS CONSULTANT	SANKUJ ROY CHOWDHURY M.Engg. in Structure (BUT) S.Sci. in Civil Engineering (BUT) P.E. in Building Design Engineer - Building CHEL-YOOSHIN-EPIC JV. DAS CONSULTANT	EMUL VUJESWAR NARAYAN M.Engg. (CIVIL) S.Sci. in Civil Engineering (CIVIL) P.E. in Building Design Engineer - Building CHEL-YOOSHIN-EPIC JV. DAS CONSULTANT	DR. Engr. SAJJAD MOHAMMAD MOHSIN PENG DEPUTY TEAM LEADER CHEL-YOOSHIN-EPIC JV. DAS CONSULTANT	Actg. TEAM LEADER CHEL-YOOSHIN-EPIC JV. DAS CONSULTANT	MOHAMMAD HURUL BILAM Executive Engineer BEMAH Development Project BEZA, Prime Minister's Office			
										REVISION: 00	DATE: 16 NOV 23	SCALE: NTS



REINF. DETAIL OF PILE P1



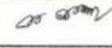

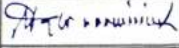
PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (LoA))	 BANGLADESH ECONOMIC ZONES AUTHORITY	REINFORCEMENT DETAIL OF PILE (P1 & P2)	 MD. NAZMUL HQUE CAD OPERATOR CHERLYGOS-RE-EPIC JV, DAS CONSULTANT	 SAHJOY DEY CHOWDHURY Jt. Supv. in Structure (S&ST) S&St. in Civil Engineering (S&ST) 788 Pabna CHERLYGOS-RE-EPIC JV, DAS CONSULTANT	 ENGR. MUSTAFOZUL RAHMAN M.Engg. (LND) S&St. in Civil Engineering (S&ST) 788 Pabna Design Engineer-I Building CHERLYGOS-RE-EPIC JV, DAS CONSULTANT	 Dr. Eng. GAB MOHAMMAD MOHEEN FENG DEPUTY TEAM LEADER CHERLYGOS-RE-EPIC JV, DAS CONSULTANT	 Ad. Eng. TEAM LEADER CHERLYGOS-RE-EPIC JV, DAS CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer S&St. in Civil Engineering Project BEZA, Prime Minister's Office		ST-07	
PACKAGE NO : W01060001-BEA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS

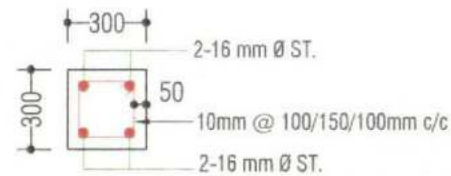
STRUCTURAL DRAWING

Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)

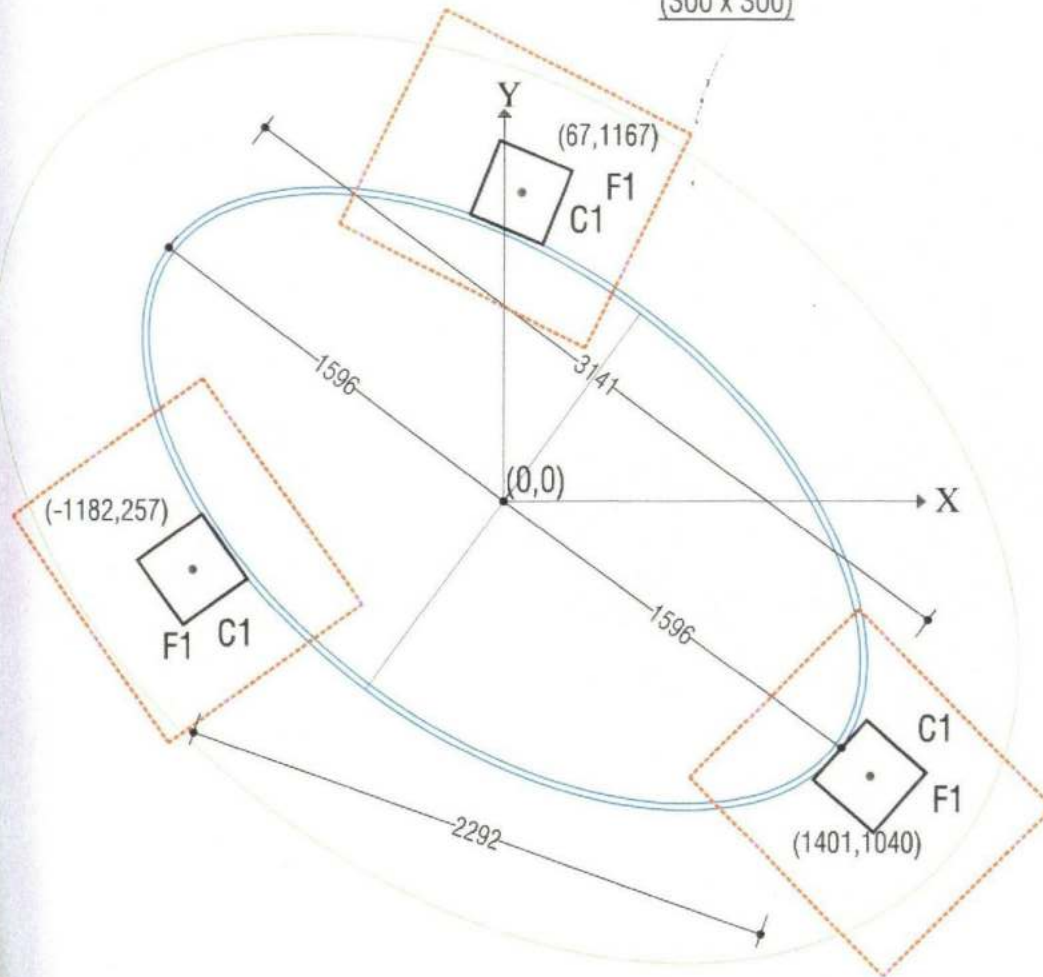
Package No: WD10-BSMSN-BEZA

NAME OF WORK: DETAILS OF GUARD ROOM

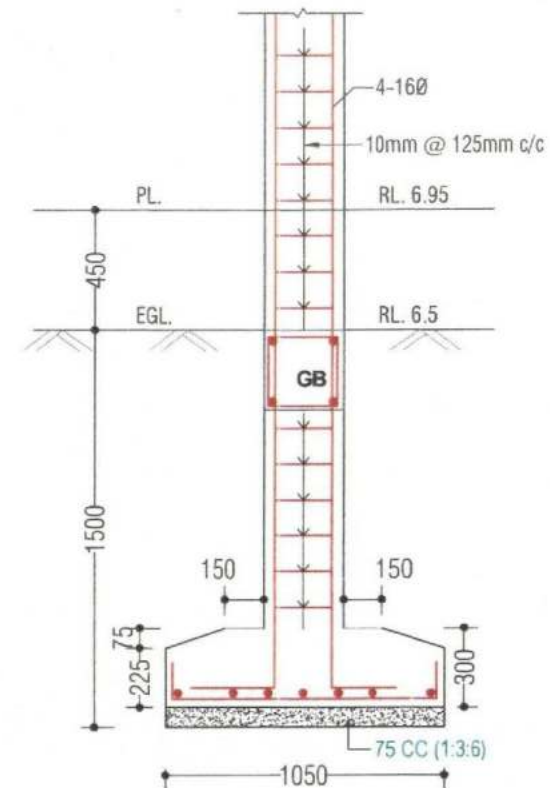
PROJECT NAME: Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: DETAILS OF GUARD ROOM	DRAWN BY: 	DESIGN BY: 	CHECKED BY: 	SIGNED BY: 	SIGNED BY: 	APPROVED BY: 	REMARKS:	SHEET NO 00	
PACKAGE NO: WD10-BSMSN-BEZA			MD. NAZMUL HQUE CADD OPERATOR CHSEL/YOOSHIN-EPG JV, D&S CONSULTANT	SANJOY ROY CHOWDHURY M.Engg. (S&E) B.Sc. in Civil Engineering (S&E) PESH Engineer Design Engineer-1, Building CHSEL/YOOSHIN-EPG JV, D&S CONSULTANT	ENDR. MUSTAFIZUR RAHMAN M.Engg. (S&E) B.Sc. in Civil Engineering (S&E) PESH Engineer Design Engineer-1, Building CHSEL/YOOSHIN-EPG JV, D&S CONSULTANT	Dr. Eng. QADIR MOHAMMAD MOHEEN FENG DEPUTY TEAM LEADER CHSEL/YOOSHIN-EPG JV, D&S CONSULTANT	ACH TEAM LEADER CHSEL/YOOSHIN-EPG JV, D&S CONSULTANT	MOHAMMAD NURUL ISLAM Executive Engineer BSMSN Development Project BEZA, Prime Minister's Office	REVISION: 00	DATE: 16 NOV 23	SCALE: NTS



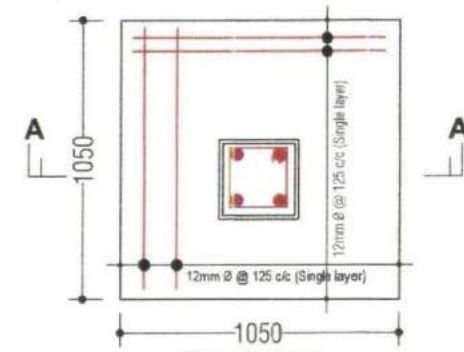
Column Section (C1)
(300 x 300)



PLAN OF COLUMN & FOOTING



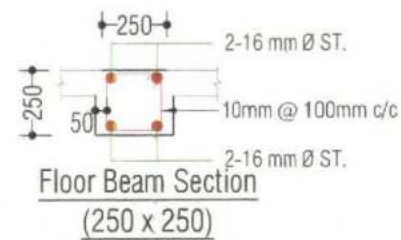
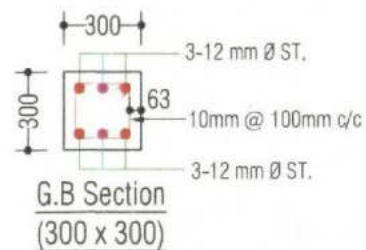
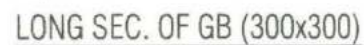
SECTION A-A



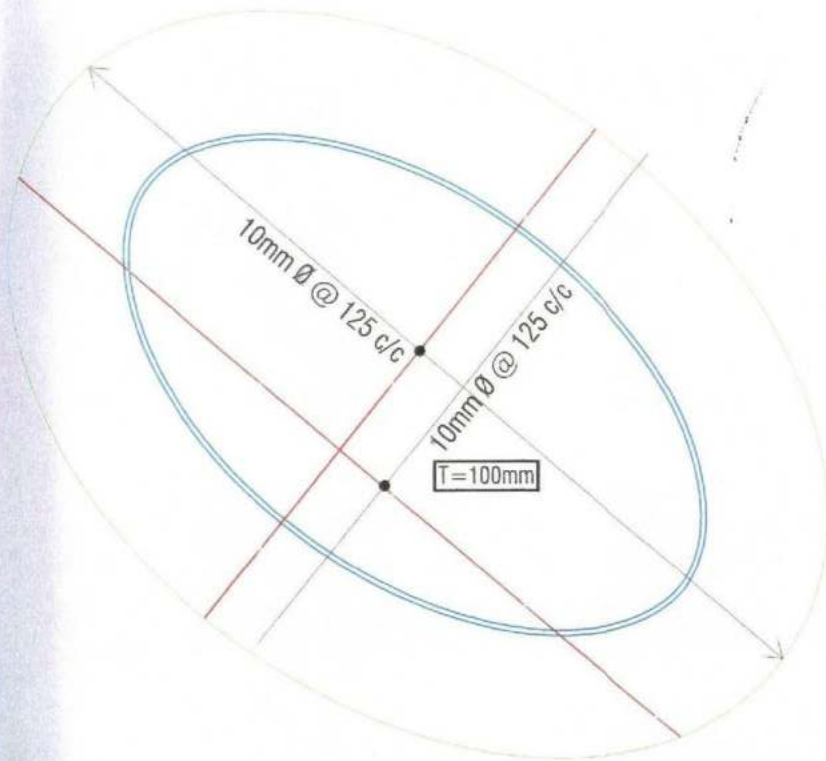
FOOTING F1
(1050x1050)

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO
Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Land))	BANGLADESH ECONOMIC ZONES AUTHORITY	PLAN OF GUARD ROOM COLUMN & FOOTING	MD. NAZMUL HAQUE CAD OPERATOR CHEL-YOOSHIN-EPIC JV. D&S CONSULTANT	SAIKYI ROY CHANDRAPHY H.O. in Charge (S&T) S&T in Civil Engineering (S&T) H&S Officer Design Engineer - Building CHEL-YOOSHIN-EPIC JV. D&S CONSULTANT	ENGR. MUSTAFIZ RAHMAN H.O. in Charge (S&T) S&T in Civil Engineering (S&T) H&S Officer Design Engineer - Building CHEL-YOOSHIN-EPIC JV. D&S CONSULTANT	DR. ENGR. GAZI MOHAMMAD MOHSIN PENG DEPUTY TEAM LEADER CHEL-YOOSHIN-EPIC JV. D&S CONSULTANT	DR. ENGR. GAZI MOHAMMAD MOHSIN PENG DEPUTY TEAM LEADER CHEL-YOOSHIN-EPIC JV. D&S CONSULTANT	MOHAMMAD MURIS ISLAM Executive Engineer B&S&T Development Project DEZA, Prime Minister's Office		ST-08
PACKAGE NO: WD1045MSH48EA									REVISION: 00	DATE: 16 NOV 23

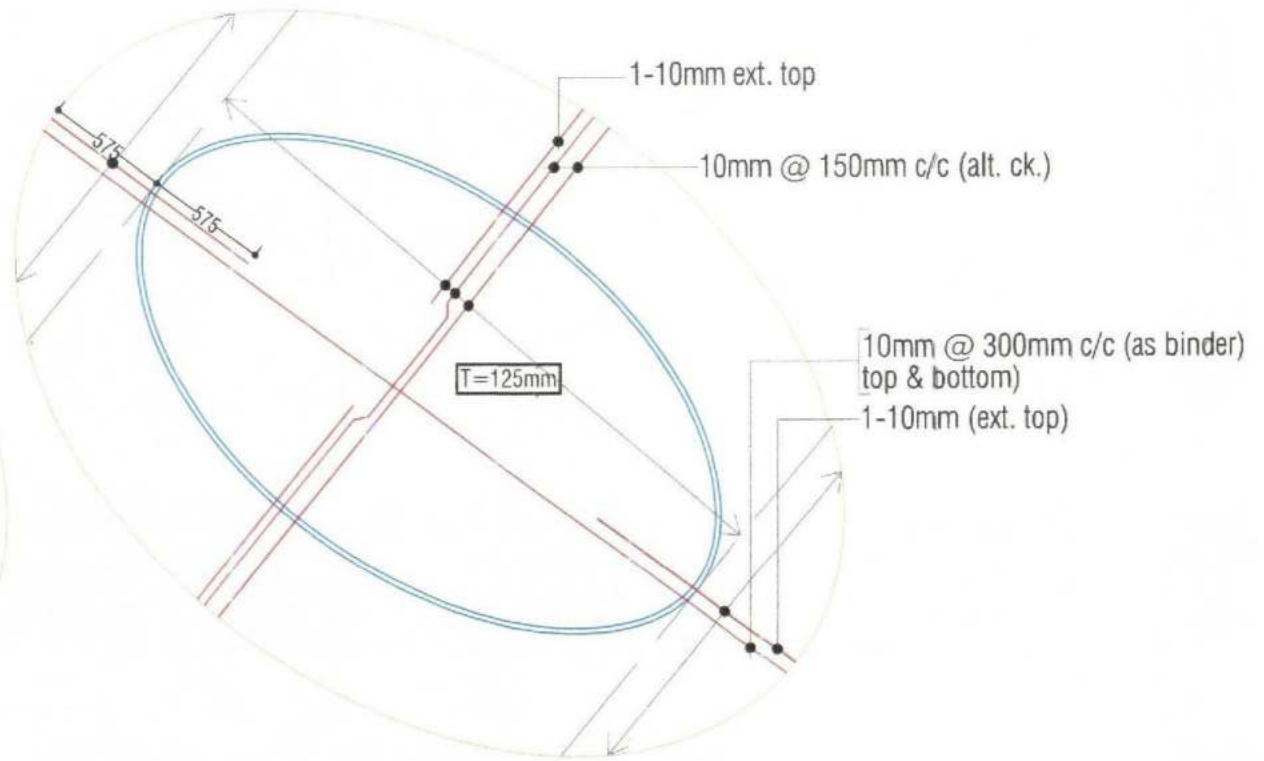
SCALE: NTS



PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO	
Name of work: Security and Support Amenities (Protection Wall, Fence, Surveillance (L&C))	 BANGLADESH ECONOMIC ZONES AUTHORITY	DETAILS OF GUARD ROOM GRADE BEAM & FLOOR BEAM	 MD. NAZMUL HAQUE CAD OPERATOR CHEL-YOOSH-ENG. JV. DMS CONSULTANT	 SANDOY ROY CHOWDHURY M.Engg. in Structure (BUT) B.Sc. in Civil Engineering (BUT) MBS MPhil CHEL-YOOSH-ENG. JV. DMS CONSULTANT	 ENGR. MUB TAFELUL AHAMAN M.Engg. (SJS) B.Sc. in Civil Engineering (SJS) PhD Fellow Design Engineer - Building CHEL-YOOSH-ENG. JV. DMS CONSULTANT	 Dr. Engr. GAZI MOHAMMAD MOHSEN PERIS DEPUTY TEAM LEADER CHEL-YOOSH-ENG. JV. DMS CONSULTANT	 Dr. Engr. GAZI MOHAMMAD MOHSEN PERIS TEAM LEADER CHEL-YOOSH-ENG. JV. DMS CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer BSMAN (Construction Project) BEZ, Home Minister's Office		ST-09	
PACKAGE NO: WD-06-10-13-02A									REVISION: 00	DATE: 16 NOV 23	SCALE: NTS

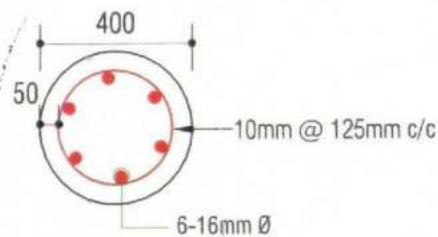
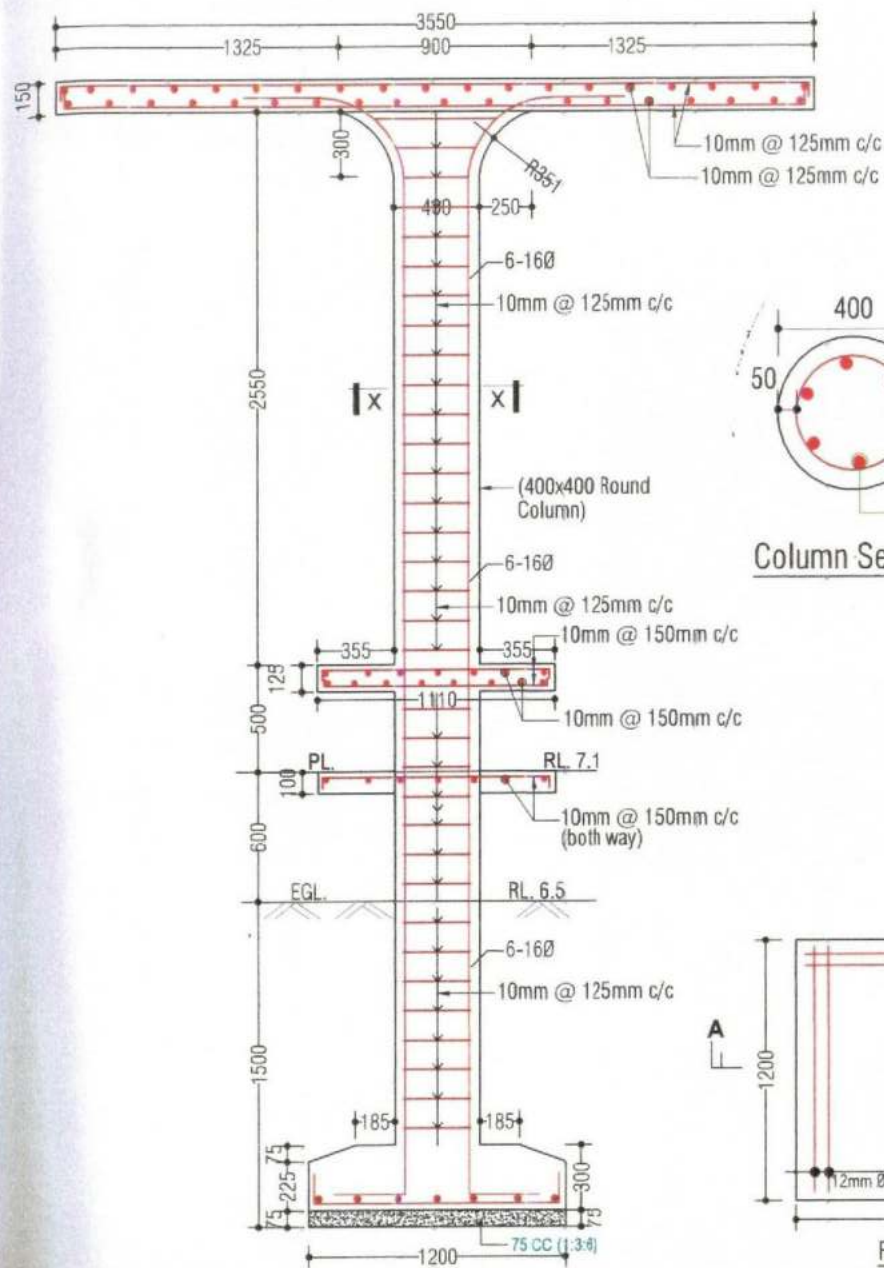


REINF. DETAIL OF GROUND FLOOR SLAB
(T = 100mm)

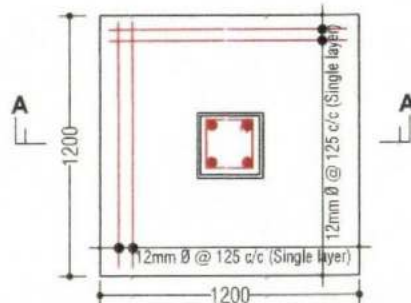


REINF. DETAIL OF BOTTOM SLAB
(T = 125mm)

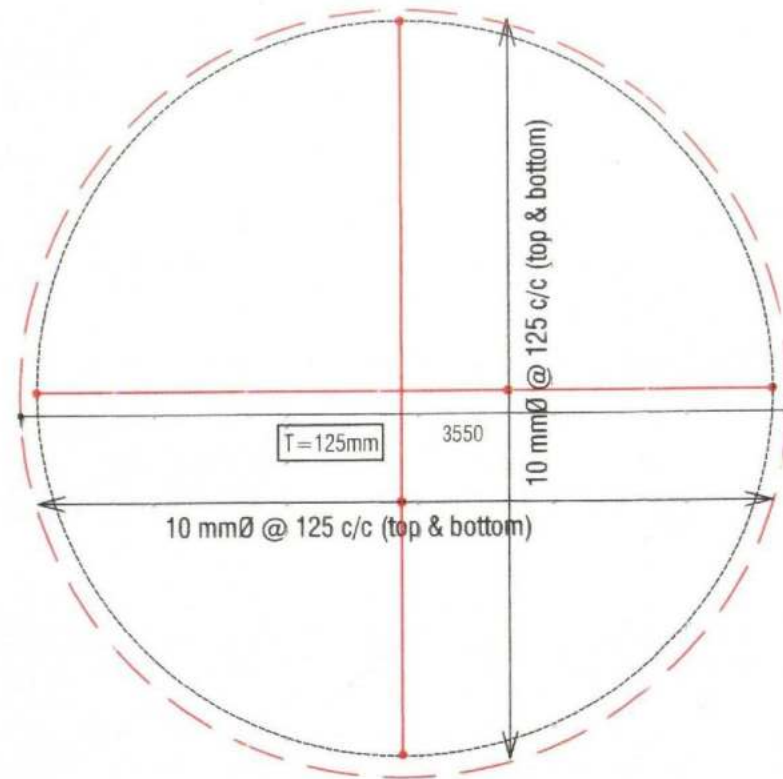
PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO
Name of Work: Security and Support Amenities/ Protection Wall/ Fence, Surveillance (LONG)	 BANGLADESH ECONOMIC ZONES AUTHORITY	REINF. DETAILS OF GUARD ROOM GROUND FLOOR SLAB & BOTTOM SLAB	 MD. NAZMUL HAQUE CAD OPERATOR CHSEL-YOOSH-BH-EPIC JV, DAS CONSULTANT	 SANJOY ROY CHOUDHARY M.Engg. in Structural (B.U.T.) B.Sc. in Civil Engineering (CUET) P.E.D. Holder Design Engineer-1, Building CHSEL-YOOSH-BH-EPIC JV, DAS CONSULTANT	 ENGR. MUS TARBUR RAHMAN M.Engg. (SR) B.Sc. in Civil Engineering (CUET) P.E.D. Holder Design Engineer-1, Building CHSEL-YOOSH-BH-EPIC JV, DAS CONSULTANT	 DR. ENGR. SAAD MOHAMMAD MOHSIN PENG DISPUTY TEAM LEADER CHSEL-YOOSH-BH-EPIC JV, DAS CONSULTANT	 A.K.G. TEAM LEADER CHSEL-YOOSH-BH-EPIC JV, DAS CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer BGMEA Development Project BGMEA, Prime Minister's Office		ST-10
PACKAGE NO : WD/06/AD/04/02/01									REVISION : 00 DATE : 16 NOV 23 SCALE : NTS	



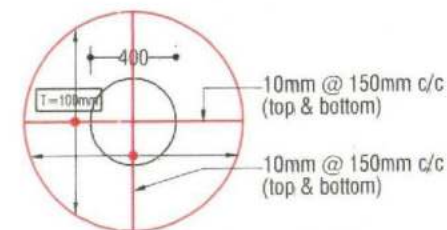
Column Section X-X



FOOTING F1
(1200x1200)



REIN. DETAILS OF ROOF
SLAB



REIN. DETAILS OF BENCH

SECTION A-A

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO	
Name of work: Security and Support Amnesty/Protection Wall/Fence, Surveillance (Lot-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	DETAILS OF BENCH								ST-11	
PACKAGE NO: WB/08/SH/14/2A			MD. NAJMA HAQUE DAD OPERATOR CHIEL-POOSH-EPIC JV, DAS CONSULTANT	SANJOY ROY CHANDLER Sr. Engg. in Structures (SDET) Sr. Engr. in Civil Engineering (SDET) MEM 1417385 CHIEL-POOSH-EPIC JV, DAS CONSULTANT	ENGR. MUS. SAZUR RAHMAN Sr. Engr. in Civil Engineering (SDET) Sr. Engr. in Civil Engineering (SDET) MEM 1417385 CHIEL-POOSH-EPIC JV, DAS CONSULTANT	DR. ENGR. SAJJAD MOHAMMAD MOHAMMAD DEPUTY TEAM LEADER CHIEL-POOSH-EPIC JV, DAS CONSULTANT	TEAM LEADER CHIEL-POOSH-EPIC JV, DAS CONSULTANT	MOHAMMAD NURUL ILIYAS Executive Engineer BEMEP Development Project BEMEP, Prime Minister's Office	REVISION: 00	DATE: 16 NOV 23	SCALE: NTS

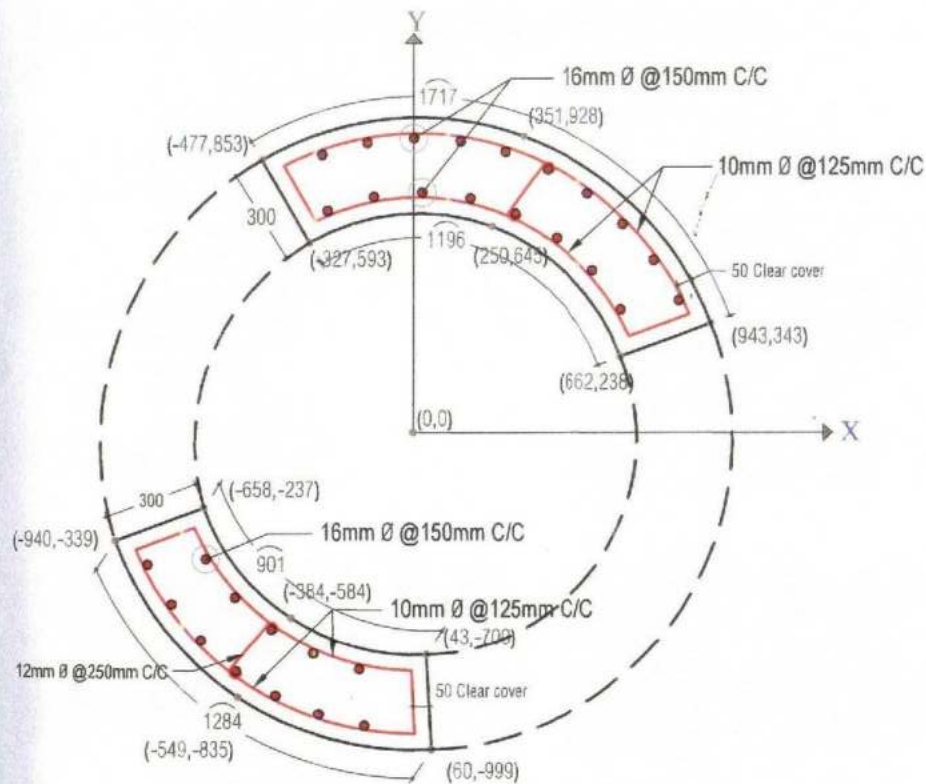
STRUCTURAL DRAWING

Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)

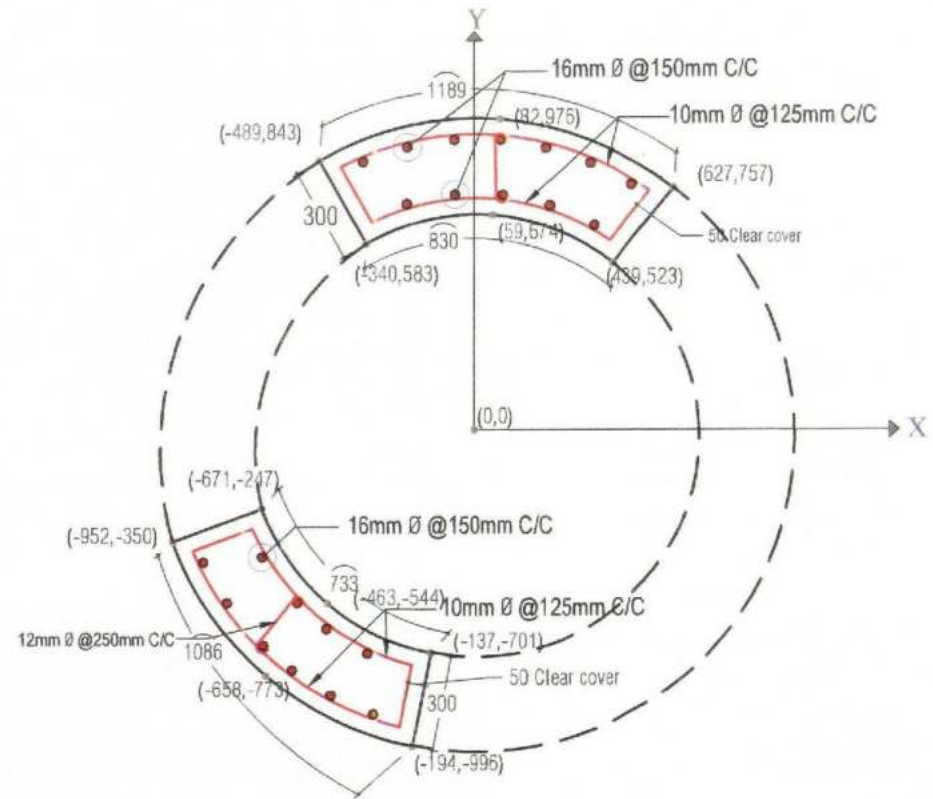
Package No: WD10-BSMSN-BEZA

NAME OF WORK: DETAILS OF WATCH TOWER

PROJECT NAME: Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: TDP PAGE	DRAWN BY: 	DESIGN BY: 	CHECKED BY: 	SIGNED BY: 	SIGNED BY: 	APPROVED BY: 	REMARKS:	SHEET NO: 00
PACKAGE NO: WD10-BSMSN-BEZA			MD. SAJJAD HANIF CHIEF OPERATOR CHSEL/POD/BSMSN/EP/ JV DAS CONSULTANT	SARAFAT RIZY GHOSH/CHART ENGINEER IN TRAINING (JUNIOR) B.Sc. in Civil Engineering (BUST) JUNIOR ARCHITECT CHSEL/POD/BSMSN/EP/ JV DAS CONSULTANT	ENGR. MUS TAHER RAHMAN M.Sc. Engg B.Sc. in Civil Engineering (CUAT) FIELD ENGINEER CHSEL/POD/BSMSN/EP/ JV DAS CONSULTANT	Dr. Eng. SAZIM HANMUKH MOHAMMED SENIOR TEAM LEADER CHSEL/POD/BSMSN/EP/ JV DAS CONSULTANT	Dr. Eng. SAZIM HANMUKH MOHAMMED SENIOR TEAM LEADER CHSEL/POD/BSMSN/EP/ JV DAS CONSULTANT	MD. HASANAT MEHUL BEJAM Structural Engineer BSMSN Development Project BSMA, Prime Minister's Office	REVISION: 00 DATE: 16 NOV 23 SCALE: NTS	

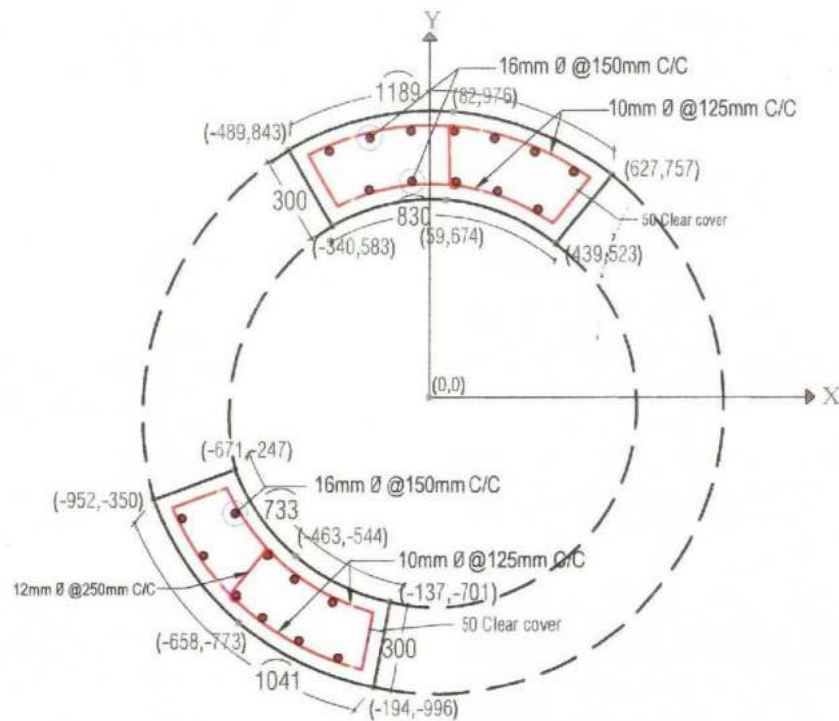


SHEAR WALL LAYOUT PLAN (RL. 6.65m)

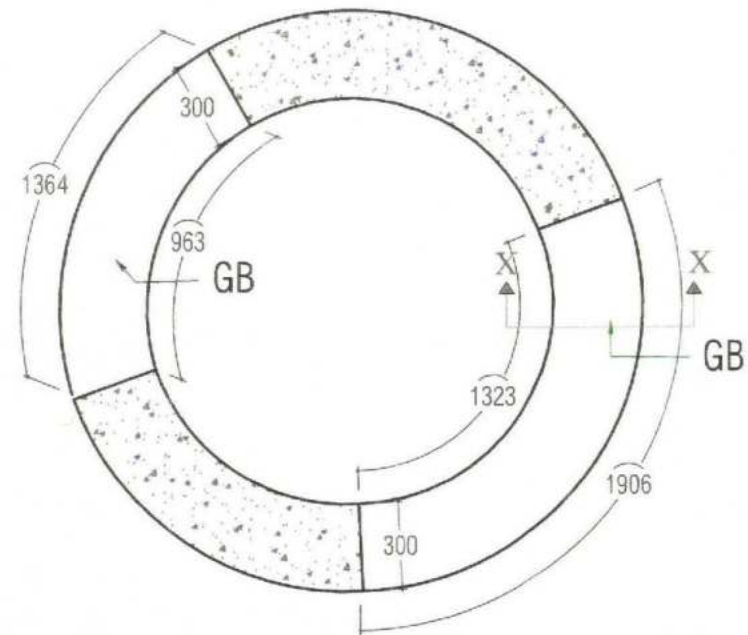


SHEAR WALL LAYOUT PLAN (RL. 10.25m)

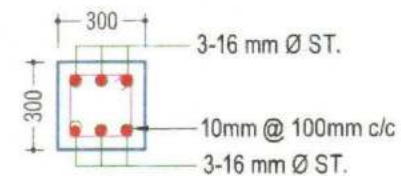
PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO.
Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance etc.)	 BANGLADESH ECONOMIC ZONES AUTHORITY	SHEAR WALL LAYOUT PLAN (LEVEL 6.65m & 10.25m)	 M. NAZIMUL HAQUE CADD OPERATOR CHSIL/COO/SH-EPIC/A/ D&S CONSULTANT	 SANJOY ROY CHOWDHURY Sr. Eng. & Structures BURET B.Sc. in Civil Engineering (BURET) HSE MANAGER CHSIL/COO/SH-EPIC/A/ D&S CONSULTANT	 ENGR. MD. MOSTAFIZUR RAHMAN Sr. Eng. (SSE) B.Sc. in Civil Engineering (CUET) HSE PROJECT Design Engineer - Building CHSIL/COO/SH-EPIC/A/ D&S CONSULTANT	 Dr. Eng. SAJID MOHAMMAD MOSHIR HOSSAIN DEPUTY TEAM LEADER CHSIL/COO/SH-EPIC/A/ D&S CONSULTANT	 Asif TEAM LEADER CHSIL/COO/SH-EPIC/A/ D&S CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer BSMRH Development Project BECA, Prime Ministers Office		ST-12
PACKAGE NO: WSP-BANAH-BEA									REVISION: 00	DATE: 16 NOV 23



SHEAR WALL LAYOUT PLAN (LEVEL 12.65m)
(CONTINUOUS FROM RL = +12.65m TO +16.4m)



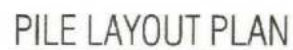
GRADE BEAM LAYOUT PLAN



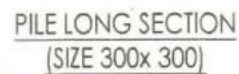
SECTION X-X

CROSS SECTION GRADE BEAM (300 x 300)

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO
Name of work: Security and Support Amenities(Protection Wall/ Fence, Surveillance (JG451)	 BANGLADESH ECONOMIC ZONES AUTHORITY	SHEAR WALL LAYOUT PLAN (LEVEL 12.65m & 16.4m)								ST-13
PACKAGE NO: WD/IR/MSH-BEZA		MD. NAZMUL HAQUE CAG OPERATOR CHIEF/COMPLAINTS/JC DMS CONSULTANT	SANJOY ROY CHOWDHURY JG451/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425							

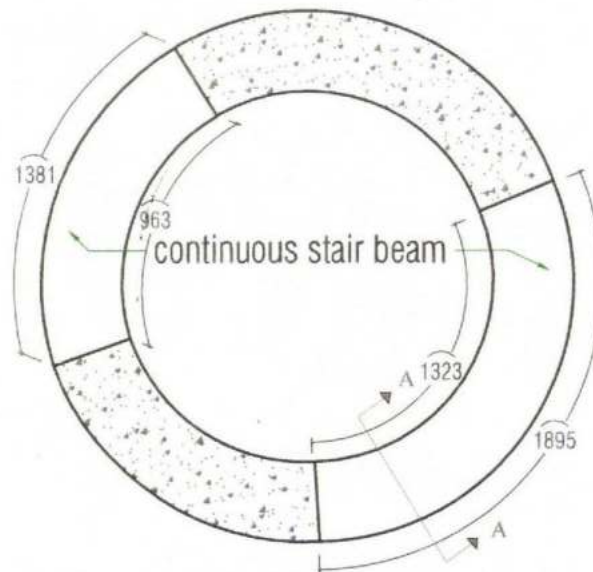


PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO:
Name of Work: Security and Support Amenities/Protection Wall/Fence Surveillance (Lot-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	PILE LAYOUT PLAN & PILE CAP LAYOUT PLAN	 V.D. NADIA HANDEL CAD OPERATOR/PROJ. ENGR. SMB CONSULTANT	 SANJOY ROY CHOWDHURY Manager in Charge (SMB) S.R. to Civil Engineering (SMB) SMB CONSULTANT	 SHRI. SUBTAPRATIM BANERJEE Asst. Engr. in Charge (SMB) S.R. to Civil Engineering (SMB) SMB CONSULTANT	 Dr. Eng. Saad Mohammad Momen PhD DEPUTY TEAM LEADER CHS/PROJ/ENGR/IN SMB CONSULTANT	 ACF SMB CONSULTANT	 JAO-HAFID SHUKIL BILAL Executive Engineer SMB/IN/3 Development/IN SMB CONSULTANT		ST-14
PACKAGE NO: WD-10-BSMN-BSA									REVISION: 00 DATE: 16 NOV 23	SCALE: NT

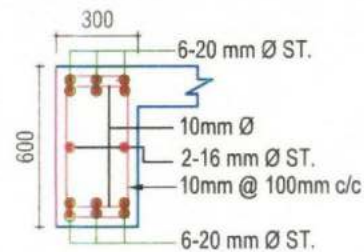


SECTION X-X
PILE SIZE : 300x 300

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO.
Name of Work: Security and Support Activities: Protection Wall Fence, Surveillance (ST-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	REF: DETAILS OF PILE LONG SECTION (SIZE 300x300)	 M. MAZHARUL HAQUE CHIEF OFFICER (CONSTRUCTION), DDA CONSULTANT	 ENGR. MD. SHAUKAT HOSSAIN S. Engr. in Civil Engineering (SECT) CHIEF ENGINEERING (SECT) CHIEF (CONSTRUCTION), DDA CONSULTANT	 ENGR. MD. SAIKAT MOHAMMAD S. Engr. in Civil Engineering (SECT) CHIEF ENGINEERING (SECT) CHIEF (CONSTRUCTION), DDA CONSULTANT	 ENGR. MD. SAIKAT MOHAMMAD S. Engr. in Civil Engineering (SECT) CHIEF ENGINEERING (SECT) CHIEF (CONSTRUCTION), DDA CONSULTANT	 ENGR. MD. SAIKAT MOHAMMAD S. Engr. in Civil Engineering (SECT) CHIEF ENGINEERING (SECT) CHIEF (CONSTRUCTION), DDA CONSULTANT	 ENGR. MD. SAIKAT MOHAMMAD S. Engr. in Civil Engineering (SECT) CHIEF ENGINEERING (SECT) CHIEF (CONSTRUCTION), DDA CONSULTANT	 ENGR. MD. SAIKAT MOHAMMAD S. Engr. in Civil Engineering (SECT) CHIEF ENGINEERING (SECT) CHIEF (CONSTRUCTION), DDA CONSULTANT	ST-15
DRAWING NO.: WST-0000000000									REVISION: 00 DATE: 16 NOV 23 SCALE: NTS	



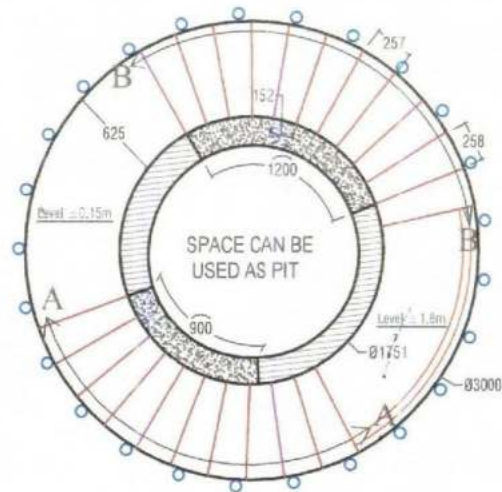
STAIR BEAM LAYOUT PLAN



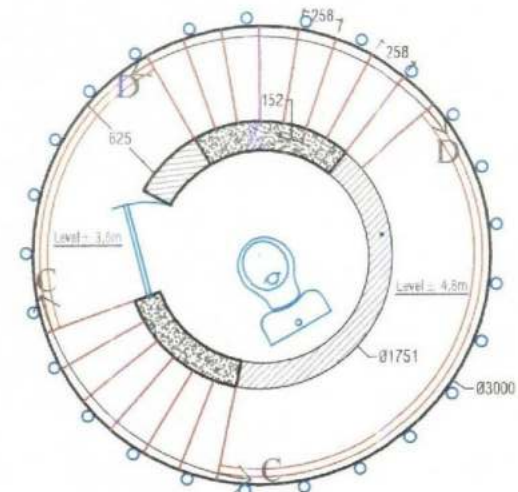
SECTION A-A

**CROSS SECTION (A-A) OF STAIR BEAM (300 x 600)
(CONTINUOUS FROM RL = +6.65m TO +13.85m)**

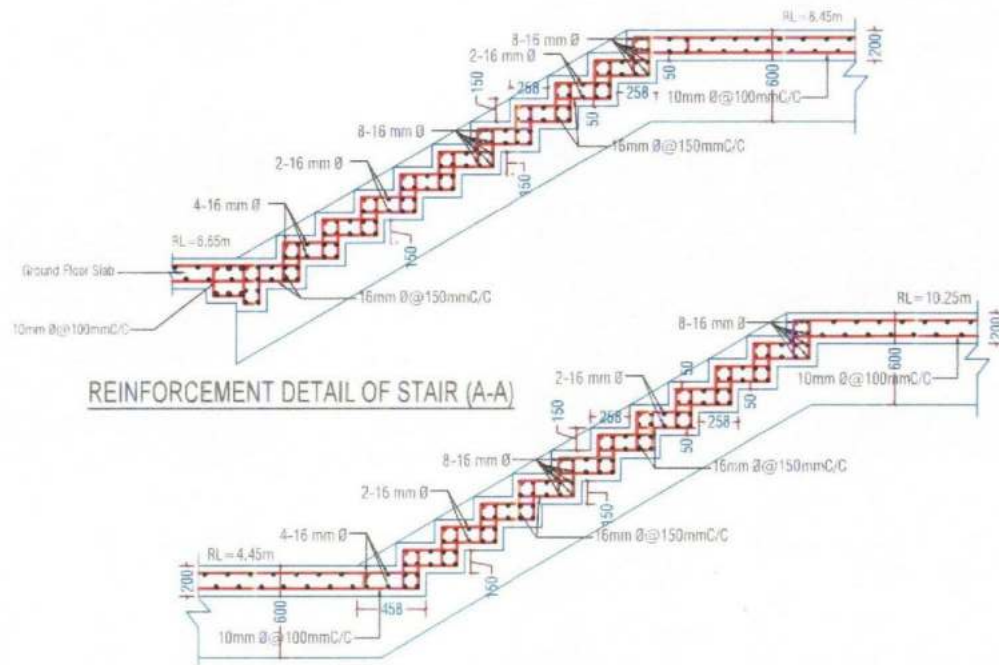
PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO.
Name of work: Security and support Amenities/Protection Wall/ Fence, Surveillance (Lot-61)	 BANGLADESH ECONOMIC ZONES AUTHORITY	STAIR BEAM LAYOUT PLAN	MEL. MAZMUL HAQUE CAD OPERATOR CHSEL/PTOSH/HAQPC JV DAS CONSULTANT	SANJOY RAY/CHOPHURRY As Supv. in Structure (SMT) B.Sc. in Civil Engineering (BAUST) MBS FUTURE Design Engineer/1/ Subdiv CHSEL/PTOSH/HAQPC JV/ DAS CONSULTANT	ENGR. MUSTAFIZUR RAHMAN As Supv. I/2 B.Sc. in Civil Engineering (BAUST) MBS FUTURE Design Engineer/1/ Subdiv CHSEL/PTOSH/HAQPC JV/ DAS CONSULTANT	D. Engr. SAJJAD MOHAMMAD MOHAMMAD PERG DEPUTY TEAM LEADER CHSEL/PTOSH/HAQPC JV DAS CONSULTANT	CHSEL/PTOSH/HAQPC JV DAS CONSULTANT	MOHAMMAD NURUL ILIYAS Executive Engineer SEAME Development Project SEZA, Prime Minister's Office		ST-16
PACKAGE NO: W710-45M1-REJA									REVISION: 00 DATE: 16 NOV 23	SCALE: NTS



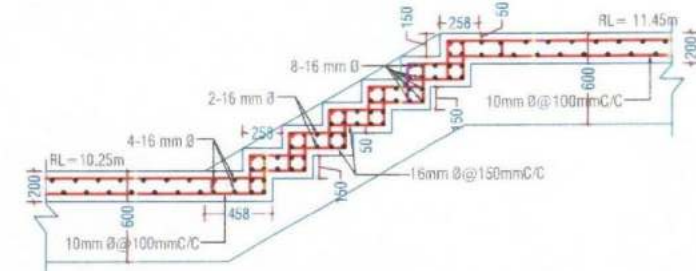
Plan at 6.65m



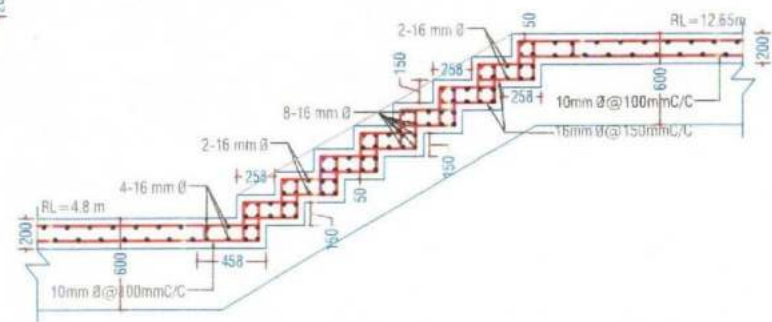
Plan at 3.6m



REINFORCEMENT DETAIL OF STAIR (A-A)

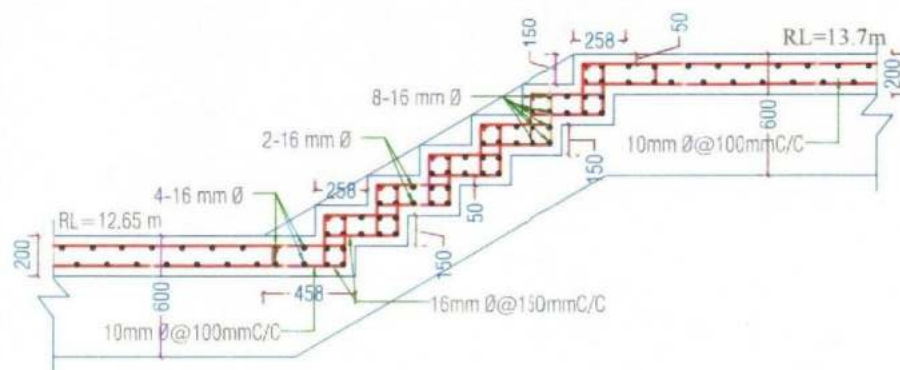
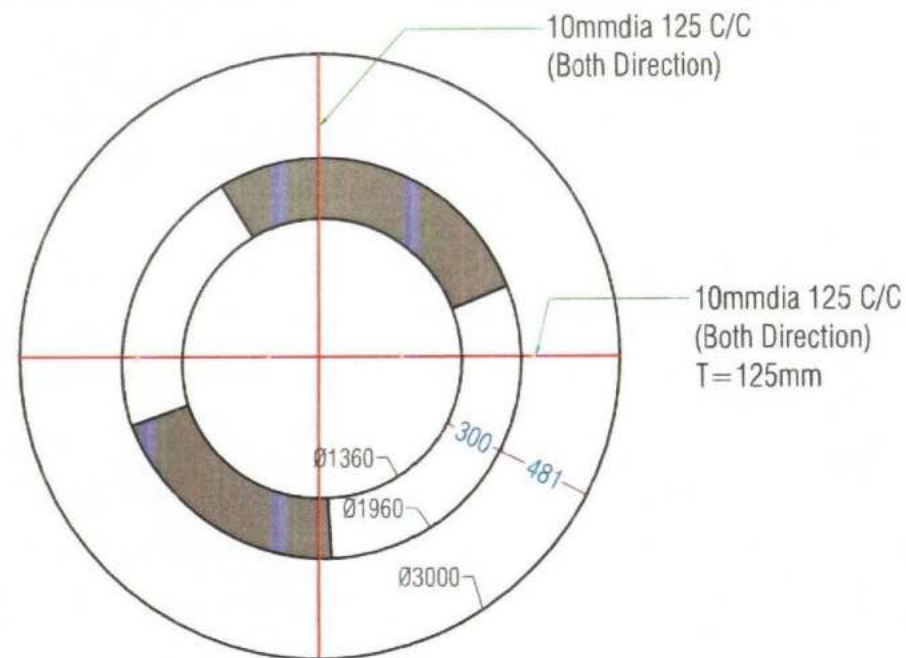
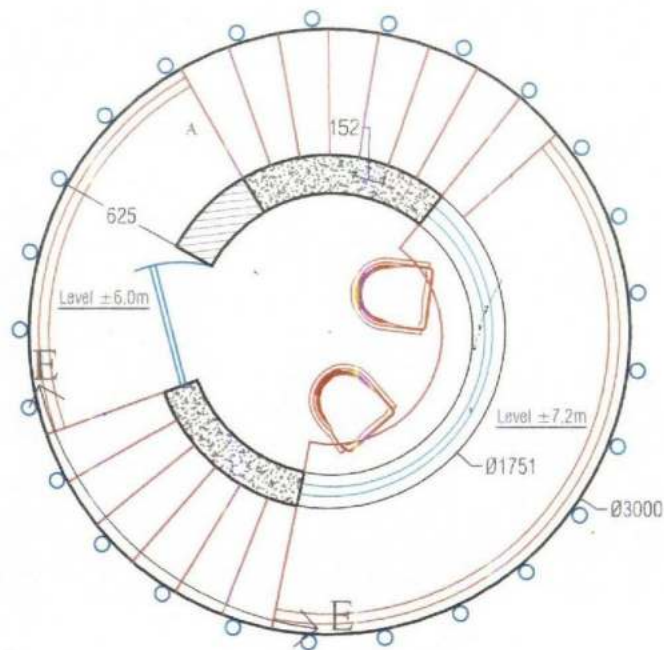









REINFORCEMENT DETAIL OF STAIR (C-C)

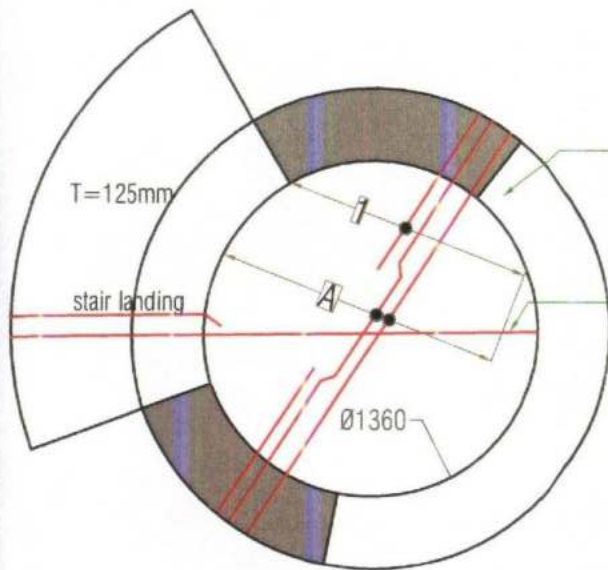


REINFORCEMENT DETAIL OF STAIR (D-D)

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO
Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (L&A))	 BANGLADESH ECONOMIC ZONES AUTHORITY	STAIR RAINF. DETAILS (6.65m & 3.6m)								ST-17
PACK. IGBR NO: W/C 12-B3M5H-827A			MD. NAJIBUL HAQUE CAD OPERATOR CHS-17000-B3M5H-827A DAS CONSULTANT	SAJJAD ROY CHOWDHURY SUPERV. in Structure (B&E) B.Sc. in Civil Engineering (BUTS) 1989 P-4000 Design Engineer / Building CHS-17000-B3M5H-827A DAS CONSULTANT	ENGR. MUBINUR RAHMAN 4th Engg. (L&A) Sub. in Civil Engineering (BUTS) 1989 P-4000 Design Engineer / Building CHS-17000-B3M5H-827A DAS CONSULTANT	Dr. Eng. SAZIMUL HASAN SENIOR TEAM LEADER CHS-17000-B3M5H-827A DAS CONSULTANT	ENGR. MUBINUR RAHMAN TEAM LEADER CHS-17000-B3M5H-827A DAS CONSULTANT	ENGR. MUBINUR RAHMAN SENIOR ENGINEER CHS-17000-B3M5H-827A DAS CONSULTANT		REVISION: 00 DATE: 16 NOV 23 SCALE: NTS



PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO:	
Name of work: Security and Support Amritnagar Protection Wall/ Fence, Surveillance (Lot-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	STAR DETAILS (12.85m) & GROUND FLOOR BOTTOM SLAB REIN. DETAILS	 MD. NAZIMUL HAQUE CAD OPERATOR CHBL-YOBN-ENR/C IN DSA CONSULTANT	 SANJIV PURI CONSULTANT Manager, in-charge S&T S&T in Civil Engineering (S&T) CHBL-YOBN-ENR/C IN DSA CONSULTANT	 SHM. MUHTASIMUL RAHMAN S&T in Civil Engineering (S&T) CHBL-YOBN-ENR/C IN DSA CONSULTANT	 SHM. SHAIK MOHAMMAD DEPUTY TEAM LEADER CHBL-YOBN-ENR/C IN DSA CONSULTANT	 TEAM LEADER CHBL-YOBN-ENR/C IN DSA CONSULTANT	 MOHAMMAD SURUL ISLAM Executive Engineer S&M&M Development Project BEZA, Power Division's Office		ST-18	
PACKAGE NO: WB10-RSMH-02A									REVISION: 00	DATE: 16 NOV 23	SCALE: NTS

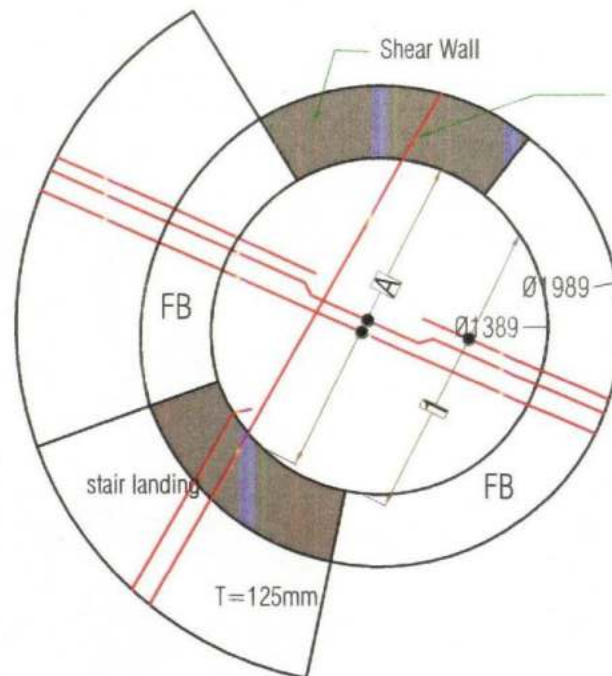


Shear Wall

12mm dia(top &bottom)
(alternate)
as per stair landing details

(A)10 mm Ø @ 125 mm c/c alt. ckd.
(1) 1-10 mm Ø extra top


FLOOR SLAB REINFORCEMENT
DETAILS (RL. 10.25m)

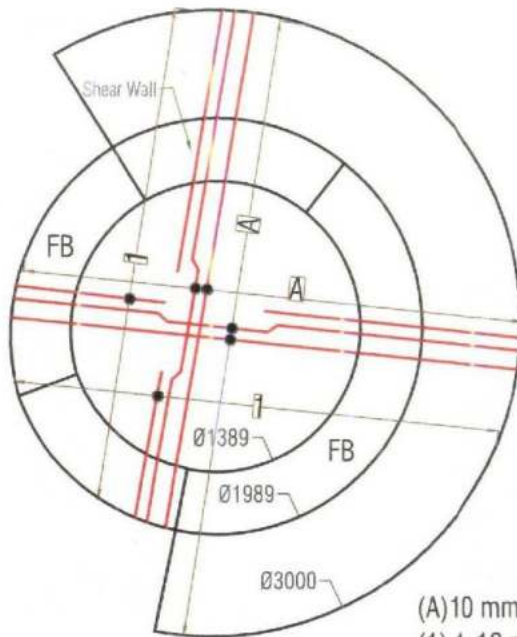


12mm dia(top &bottom)
(alternate)
as per stair landing details

(A)10 mm Ø @ 125 mm c/c alt. ckd.
(1) 1-10 mm Ø extra top

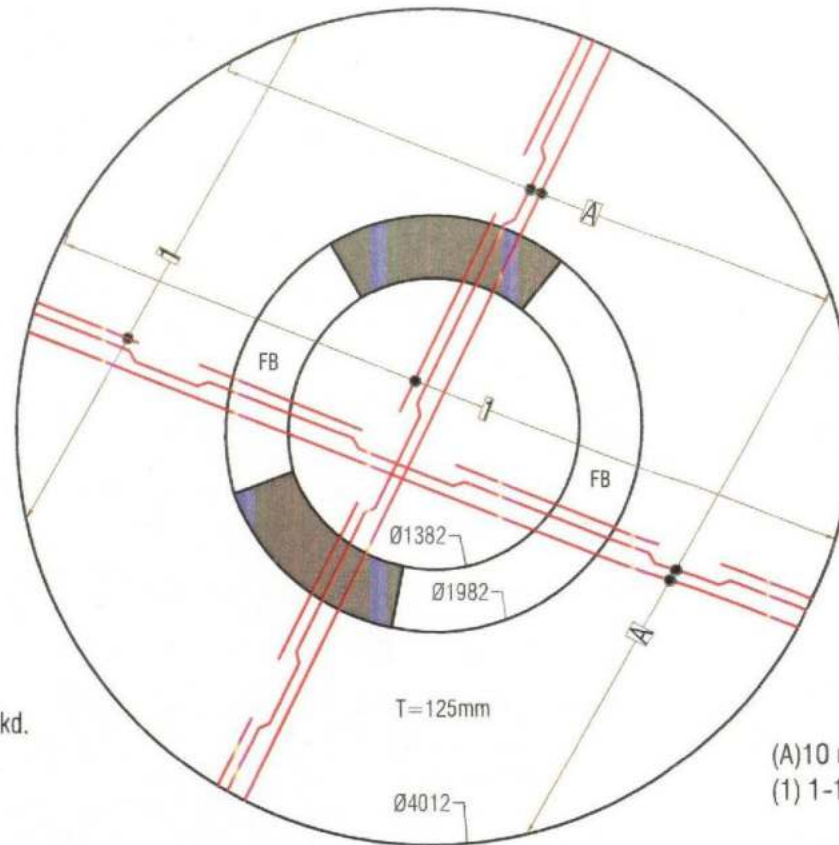
FLOOR SLAB REINFORCEMENT
DETAILS (RL. 12.65 m)

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO:
Name of work: Security and support Amenities(Protection Wall/ Fence, Surveillance (Lot-01))	 BANGLADESH ECONOMIC ZONES AUTHORITY	FLOOR SLAB REIN. DETAILS (RL. 10.25m & 12.65m)								ST-19
PACKAGE NO: WD10-SSMS-14EZA			MD. MAJMA HAQUE CAD OPERATOR CHIEF/POSS/INSP/JV DAS CONSULTANT	SANJOY RAY CHOWDHURY Sr. Eng. in Structure (BUT) B.Sc. in Civil Engineering (BUT) REG. NO. 1000 CHIEF/POSS/INSP/JV, DAS CONSULTANT	TRISA MAJUMDAR MAHMON Sr. Eng. / INSP B.Sc. in Civil Engineering (BUT) REG. NO. 1000 Sr. Eng. / INSP, Building CHIEF/POSS/INSP/JV, DAS CONSULTANT	Dr. Eng. SAUR MAHMOND MEHMON PRIN. DEPUTY TEAM LEADER CHIEF/POSS/INSP/JV DAS CONSULTANT	Dr. Eng. SAUR MAHMOND MEHMON PRIN. DEPUTY TEAM LEADER CHIEF/POSS/INSP/JV DAS CONSULTANT	MOHAMMAD NURUL ISLAM Executive Engineer SSM/N Development Project SECA, Prime Minister's Office	REVISION: 00 DATE: 16 NOV 23 SCALE: NTS	



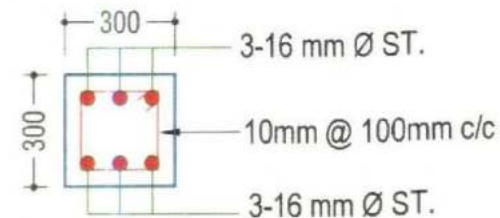
(A) 10 mm Ø @ 125 mm c/c alt. ckd.
(1) 1-10 mm Ø extra top

FLOOR SLAB REINFORCEMENT
DETAILS (RL. 13.85 m)




(A) 10 mm Ø @ 150 mm c/c alt. ckd.
(1) 1-10 mm Ø extra top

ROOF FLOOR SLAB REINFORCEMENT DETAILS (RL. 16.4 m)



CROSS SECTION FLOOR BEAM (300 x 300)

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO.	
Name of work: Security and Support Amenities (Protection Wall/Fence, Surveillance Lot-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	FLOOR SLAB REINF. (RL. 13.85m) & ROOF SLAB REINF. DETAILS (RL. 16.4m)	MD. MUHAMMAD NAGAR DAD CHIEF ARCHITECT CHIEF ARCHITECT/IN-CHARGE DAS CONSULTANT	SANJIV KUT CHOWDHURY Asst. Engg. in Structures (B.Sc. Engg.) S.M. in Civil Engineering (B.Sc. Engg.) CHIEF ENGINEER/IN-CHARGE DAS CONSULTANT	SHR. M. SADEK RAHMAN Asst. Engg. in Structures S.M. in Civil Engineering (B.Sc. Engg.) CHIEF ENGINEER/IN-CHARGE DAS CONSULTANT	Dr. Engr. Dr. Md. MEHDI HASSEIN PING DEPUTY TEAM LEADER CHIEF ENGINEER/IN-CHARGE DAS CONSULTANT	Dr. Engr. Dr. Md. MEHDI HASSEIN PING DEPUTY TEAM LEADER CHIEF ENGINEER/IN-CHARGE DAS CONSULTANT	MD. HAMMAM NURUL BEGUM Executive Engineer BESAD (Development Project) BEZA, Panna, Mithamun Office		ST-20	
PACKAGE NO.: P010-BSM-02A									REVISION: 00	DATE: 16 NOV 23	SCALE: NTS

BOUNDARY WALL WALKWAY DRAWING

Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01)

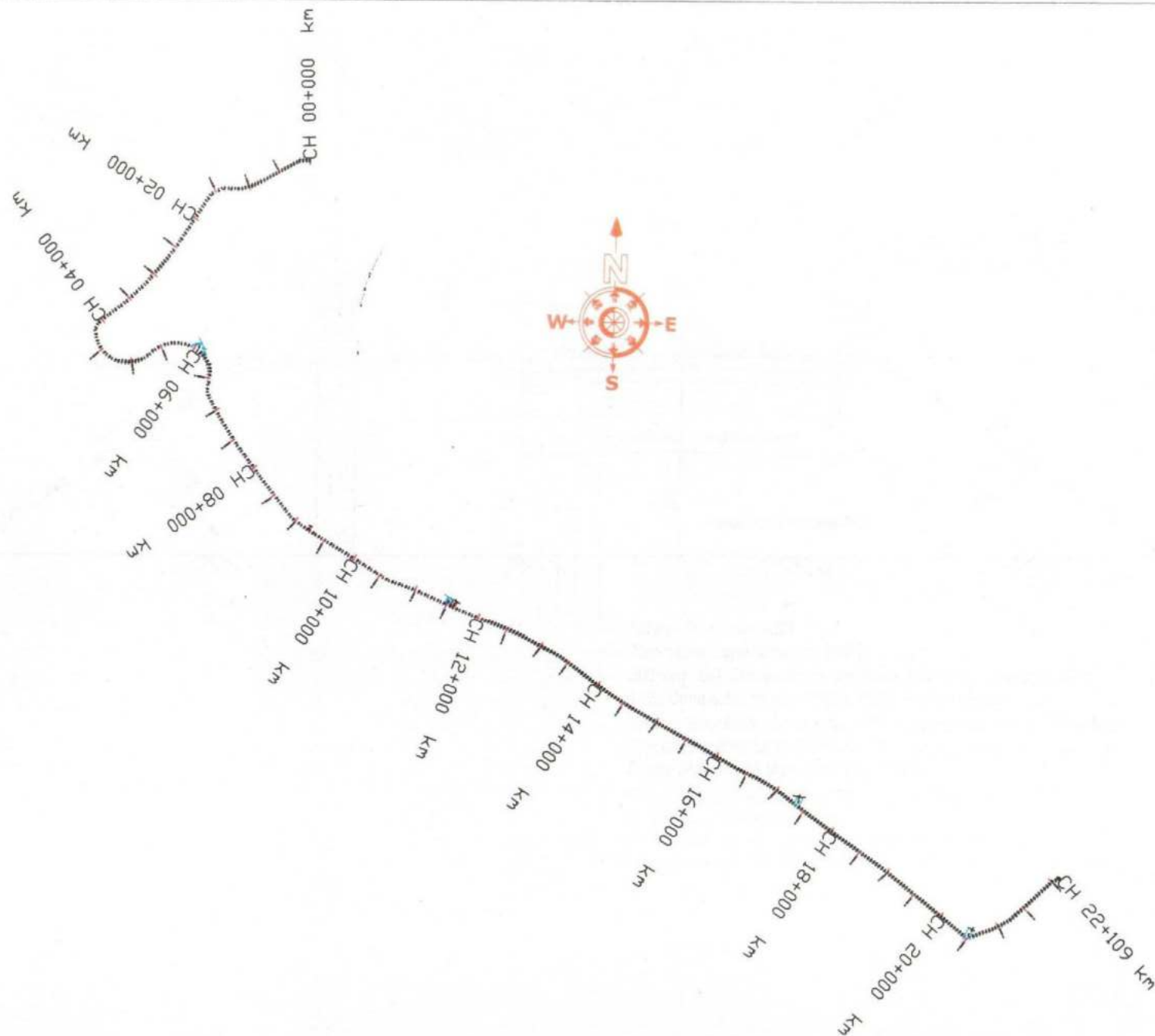
Package No: WD10-BSMSN-BEZA

NAME OF WORK: DETAILS OF BOUNDARY WALL WALKWAY

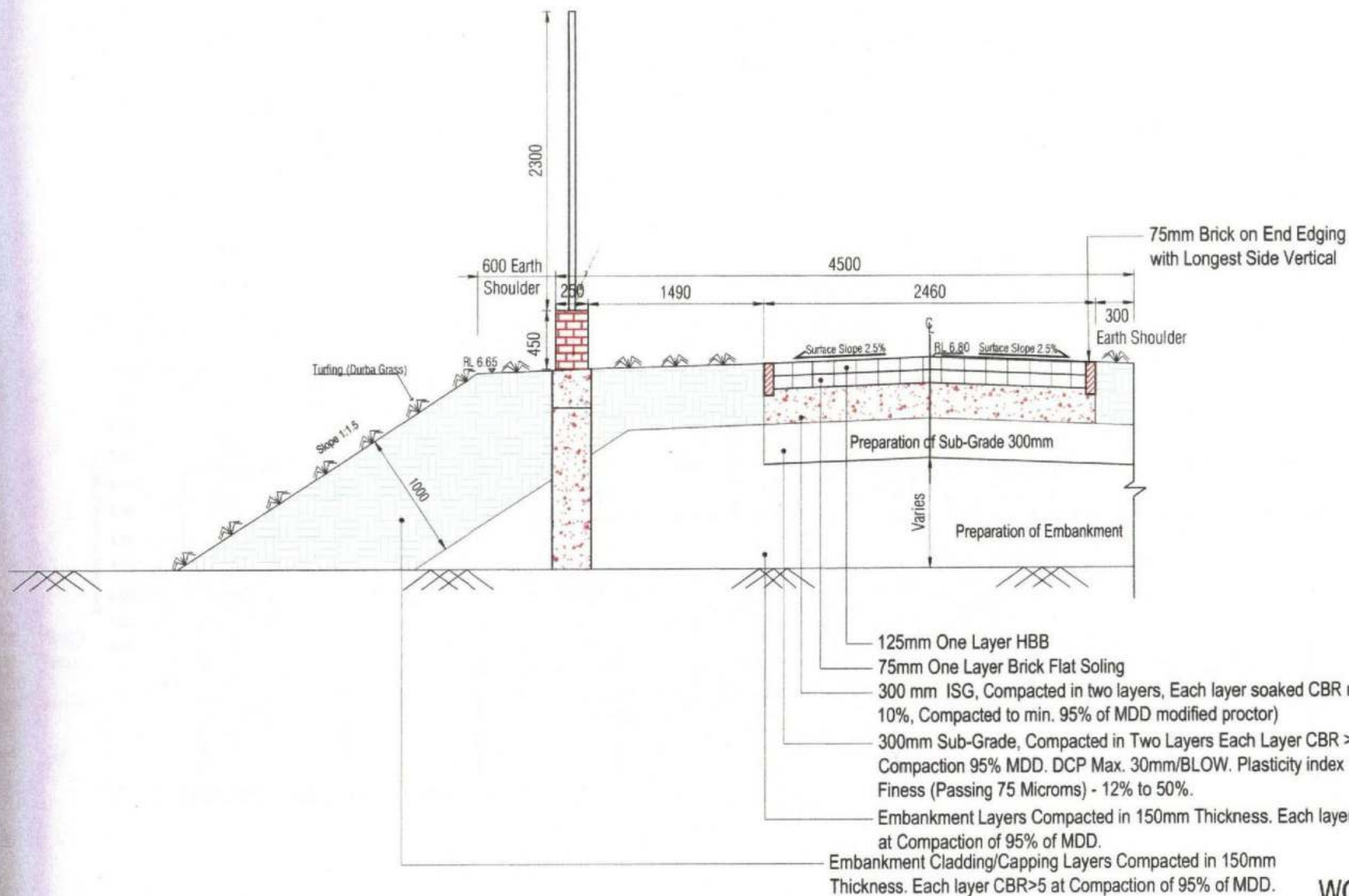
PROJECT NAME: Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance (Lot-01))	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: DETAILS OF BOUNDARY WALL WALKWAY	DRAWN BY:  MD. NAZMUL HAQUE CAD OPERATOR CHSEL/1003/BSMSN-EPIC JV, DMS CONSULTANT	DESIGN BY:  MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHSEL/1003/BSMSN-EPIC JV, DMS CONSULTANT	CHECKED BY:  PRYAS KUMAR SAHA Design Engineer-Embarkment CHSEL/1003/BSMSN-EPIC JV, DMS CONSULTANT	SIGNED BY:  Dr. Engr. GAZI MOHAMMAD MOHSIN PING DEPUTY TEAM LEADER CHSEL/1003/BSMSN-EPIC JV, DMS CONSULTANT	SIGNED BY:  ACF TEAM LEADER CHSEL/1003/BSMSN-EPIC JV, DMS CONSULTANT	APPROVED BY:  MOHAMMAD NURUL ISLAM Executive Engineer BSMSN Development Project BEZA, Prime Minister's Office	REMARKS:	SHEET NO 00	
PACKAGE NO: WD10-BSMSN-BEZA									REVISION: 00	DATE: 16 NOV 23	SCALE: NTS



PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO	
Name of work: Security and Support Amenities (Protection Wall/ Fence, Surveillance Light-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	PLAN OF BOUNDARY WALL	 MD. NAZMUL HAQUE CAD OPERATOR DAS CONSULTANTS BSMHP-PRIDE	 MD. OCLAM GAFFAR KHAN Jr. Design Engineer-Embarkment DAS CONSULTANTS BSMHP-PRIDE	 PIYAS KUMAR SAHA Design Engineer-Embarkment DAS CONSULTANTS BSMHP-PRIDE	 Dr. Eng. Qazi Mohammad Mohsin Ping DEPUTY TEAM LEADER DAS CONSULTANTS BSMHP-PRIDE	 ACT TEAM LEADER DAS CONSULTANT BSMHP-PRIDE	 MOHAMMAD NURUL ISLAM Executive Engineer BSMHP Development Project BEZA, Peta Ministry's Office		ST-21	
PACKAGE NO : WD10-BSMHP-BEZA									REVISION : 00	DATE : 16 Jan 24	SCALE : NTS



PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Name of work : Security and Support Amenities (Protection Wall/ Fence, Surveillance [0.60-01])	 BANGLADESH ECONOMIC ZONES AUTHORITY	BOUNDARY WALL PLAN VIEW BSMSN-BESIDE SUPER DYKE	 MD. HAZMUL HAQUE CAD OPERATOR DMS CONSULTANTS BSMNHCP-PRIDE	 MD. GOLAM GAFFAR KHAN 2. Design Engineer Embankment DMS CONSULTANTS BSMNHCP-PRIDE	 PRYAS KUMAR SAHA Design Engineer Embankment DMS CONSULTANTS BSMNHCP-PRIDE	 Dr. Eng. GAZI MOHAMMAD MOHSIN PRIN DEPUTY TEAM LEADER DMS CONSULTANTS BSMNHCP-PRIDE	 ACT TEAM LEADER DMS CONSULTANT BSMNHCP-PRIDE	 MOHAMMAD NURUL ISLAM Executive Engineer BSMNH Development Project BSA, Prime Minister's Office		ST-22	
PACKAGE NO : WFO-D-BSMNH-BEZA									REVISION : 00	DATE : 16 Jan 24	SCALE : NTS

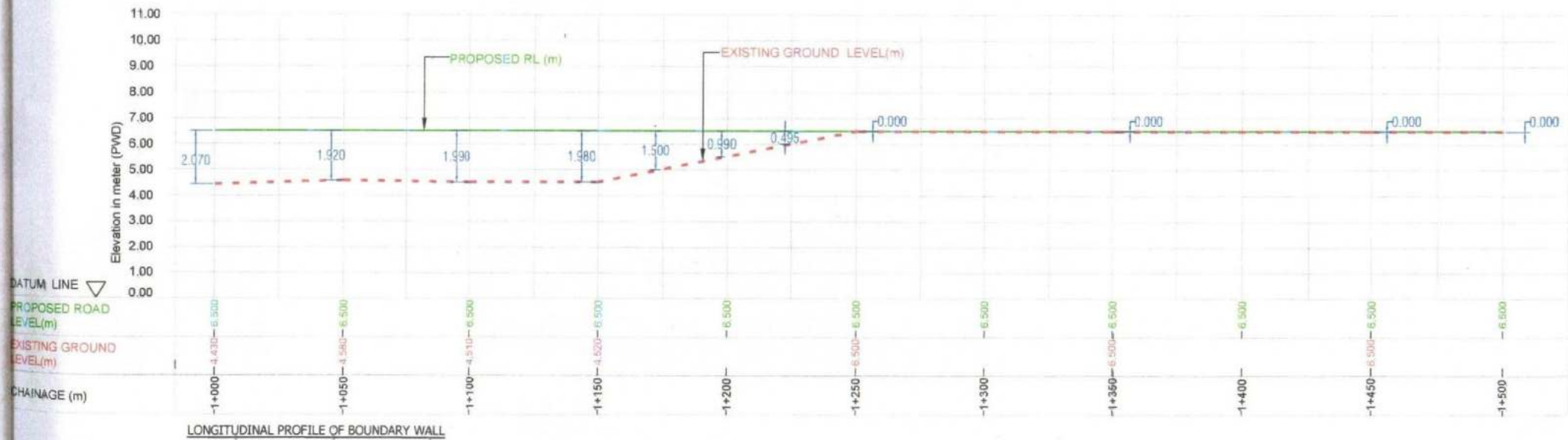









- 125mm One Layer HBB
- 75mm One Layer Brick Flat Soling
- 300 mm ISG, Compacted in two layers, Each layer soaked CBR min. 10%, Compacted to min. 95% of MDD modified proctor)
- 300mm Sub-Grade, Compacted in Two Layers Each Layer CBR > 5 at Compaction 95% MDD. DCP Max. 30mm/BLOW. Plasticity index < 12, Finess (Passing 75 Microns) - 12% to 50%.
- Embankment Layers Compacted in 150mm Thickness. Each layer CBR > 5 at Compaction of 95% of MDD.
- Embankment Cladding/Capping Layers Compacted in 150mm Thickness. Each layer CBR > 5 at Compaction of 95% of MDD.

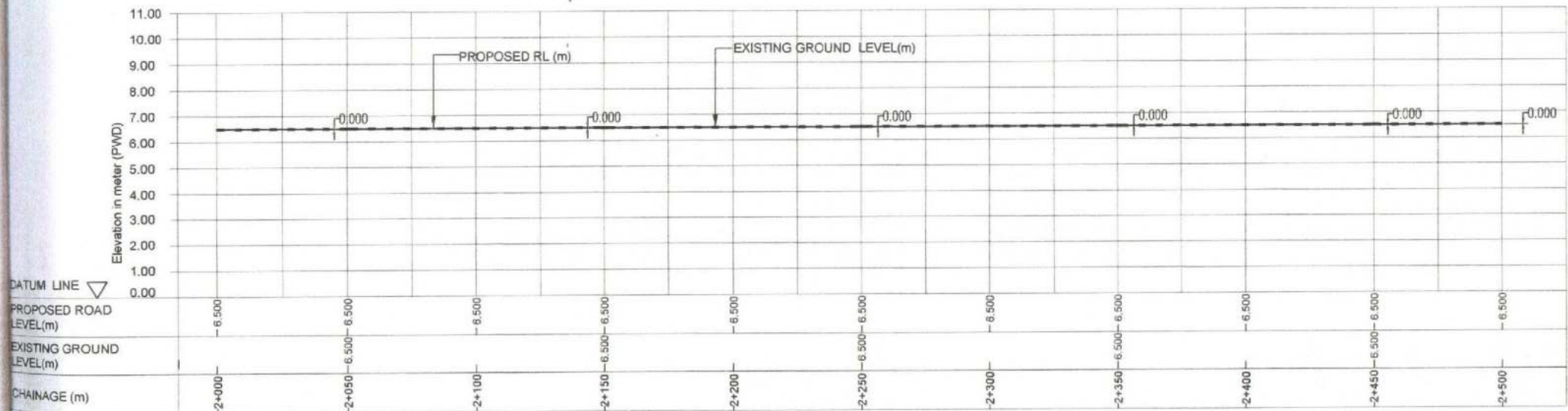
WORK ZONE LENGTH

- A. Ch. 1+250 to 5+000
- B. Ch. 5+150 to 6+000
- C. Ch. 6+450 to 12+000

PROJECT NAME:	CLIENT:	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO
Project Name: Security and Support Project: Protection Wall/ Fence, Surveillance	BANGLADESH ECONOMIC ZONES AUTHORITY	TYPICAL CROSS SECTIONAL VIEW WITH CHAINAGE - EMBANKMENT	MD. MAZMUL HAQUE CAD OPERATOR D&S CONSULTANTS BISHOP-PRICE	MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment D&S CONSULTANTS BISHOP-PRICE	PIYAS KUMAR SAHA Design Engineer-Embarkment D&S CONSULTANTS BISHOP-PRICE	Dr. Eng. GAB MOHAMMAD MOHAMMAD PENG DEPUTY TEAM LEADER D&S CONSULTANTS BISHOP-PRICE	ACT. TEAM LEADER D&S CONSULTANT BISHOP-PRICE	MOHAMMAD NURUL ISLAM Executive Engineer BSMR Development Project BEZA, Prime Minister's Office		ST-24
PACKAGE NO: MD. RAHMAN-BEZA									REVISION: 00 DATE: 16 Jan 24	SCALE: NTS



PROJECT NAME: Security and Support Services (Protection Wall/ Fence, Surveillance)	CLIENT: <div><div>BANGLADESH ECONOMIC ZONES AUTHORITY</div></div>	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY: <div><div>MD. NAZMUL HAQUE CAD OPERATOR CHSL-YOOSHIN-EPC JV. DMS CONSULTANT</div></div>	DESIGN BY: <div><div>MD. GOLAM SAJJAD KHAN Jr. Design Engineer-Embarkment CHSL-YOOSHIN-EPC JV. DMS CONSULTANT</div></div>	CHECKED BY: <div><div>PPRAB KUMAR SARKAR Design Engineer-Embarkment CHSL-YOOSHIN-EPC JV. DMS CONSULTANT</div></div>	SIGNED BY: <div><div>Dr. Engr. RAZI MOHAMMAD MOHSIN P.Eng. DEPUTY TEAM LEADER CHSL-YOOSHIN-EPC JV. DMS CONSULTANT</div></div>	SIGNED BY: <div><div>TEAM LEADER CHSL-YOOSHIN-EPC JV. DMS CONSULTANT</div></div>	APPROVED BY: <div><div>MOHAMMAD NURUL ISLAM Executive Engineer SABHAN Settlement Project BEZA, Prime Minister's Office</div></div>	REMARKS:	SHEET NO: ST-27	
PROJECT NO: 100/2024/BEZA									REVISION: 00	DATE: 16 NOV 23	SCALE: NTS









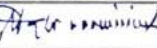
LONGITUDINAL PROFILE OF BOUNDARY WALL

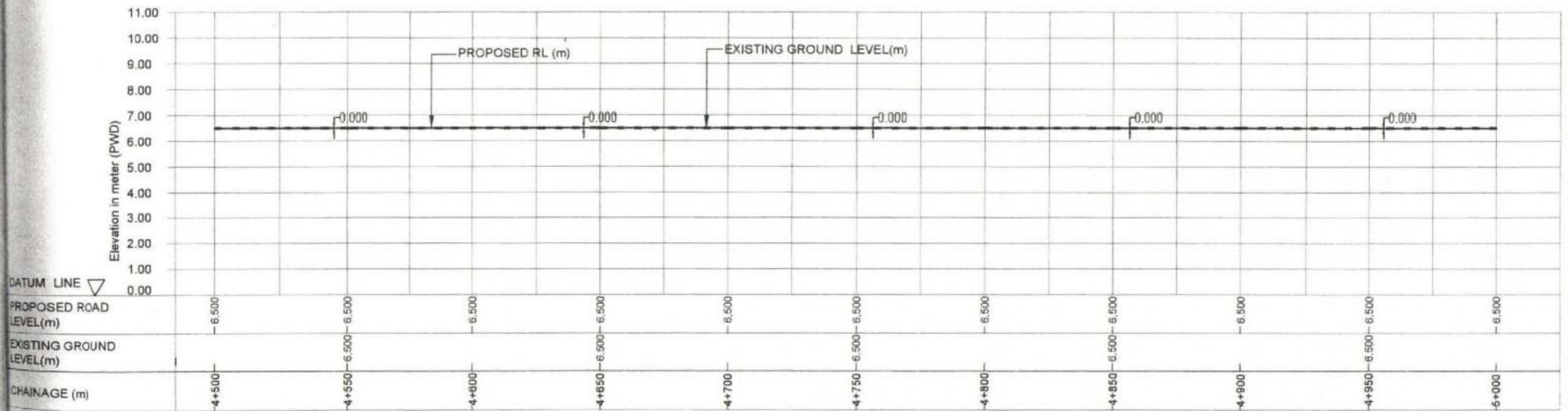
PROJECT NAME: Security and Support Protection Wall/ Fence, Surveillance	CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY: 	DESIGN BY: 	CHECKED BY: 	SIGNED BY: 	SIGNED BY: 	APPROVED BY: 	REMARKS:	SHEET NO: ST-29
PROJECT NO: BEZA			MD. NAZMUL HAQUE CAD OPERATOR CHIEF, YOCOSIN-EPC JV, DAS CONSULTANT	MD. GOLAM SAFFAR KHAN Jr. Design Engineer-Embarkment CHIEF, YOCOSIN-EPC JV, DAS CONSULTANT	RIYAS KUMAR SAHA Design Engineer-Embarkment CHIEF, YOCOSIN-EPC JV, DAS CONSULTANT	D. Eng. SAZ MOHAMMAD MOHSIN PERG DEPUTY TEAM LEADER CHIEF, YOCOSIN-EPC JV, DAS CONSULTANT	AFE g. TEAM LEADER CHIEF, YOCOSIN-EPC JV, DAS CONSULTANT	MOHAMMAD NURUL ISLAM Resident Engineer BIMAN Development Project BEZA, Prime Minister's Office	REVISION: 00	DATE: 16 NOV 23
										SCALE: NTS

ST-30







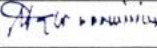


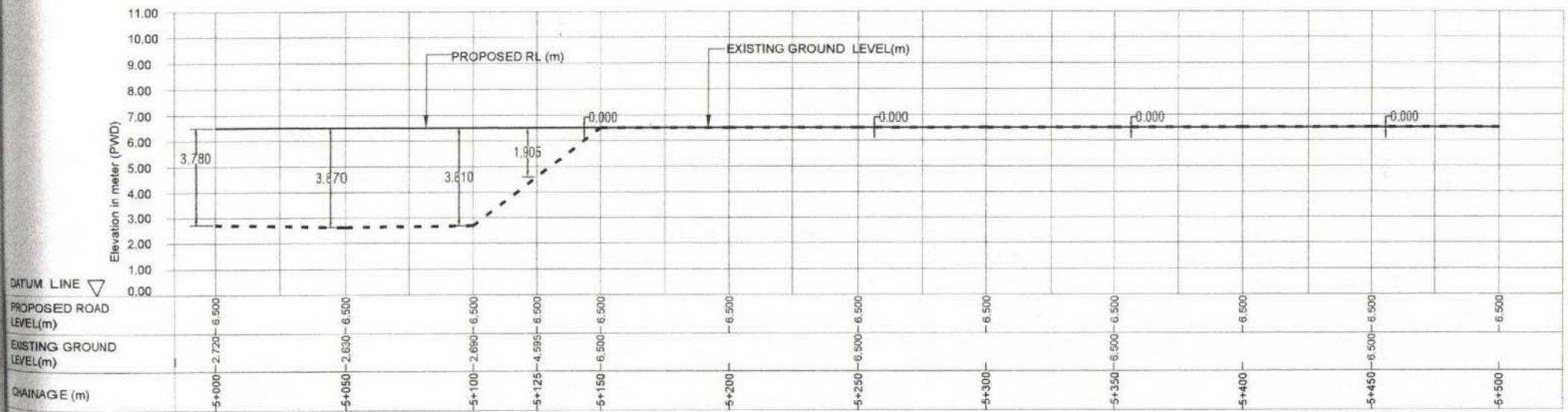
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Security and Support Protection Wall/ Fence, Surveillance	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY:  MD. NAZMUL HAQUE CAD OPERATOR CHIEF-YOOSHIN/PC JV, DAS CONSULTANT	DESIGN BY:  MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHIEF-YOOSHIN/PC JV, DAS CONSULTANT	CHECKED BY:  PIVAS KUMAR SAHA Design Engineer-Embarkment CHIEF-YOOSHIN/PC JV, DAS CONSULTANT	SIGNED BY:  Dr. Eng. SAZ MCHAMMAD MOHSEN PENG DEPUTY TEAM LEADER CHIEF-YOOSHIN/PC JV, DAS CONSULTANT	SIGNED BY:  Act. 5 TEAM LEADER CHIEF-YOOSHIN/PC JV, DAS CONSULTANT	APPROVED BY:  MOHAMMAD NURUL ISLAM Executive Engineer SEAMAN Development Project BEZA, Prime Minister's Office	REMARKS:	SHEET NO: ST-33
REVISION: 00	DATE: 16 NOV 23	SCALE: NTS								



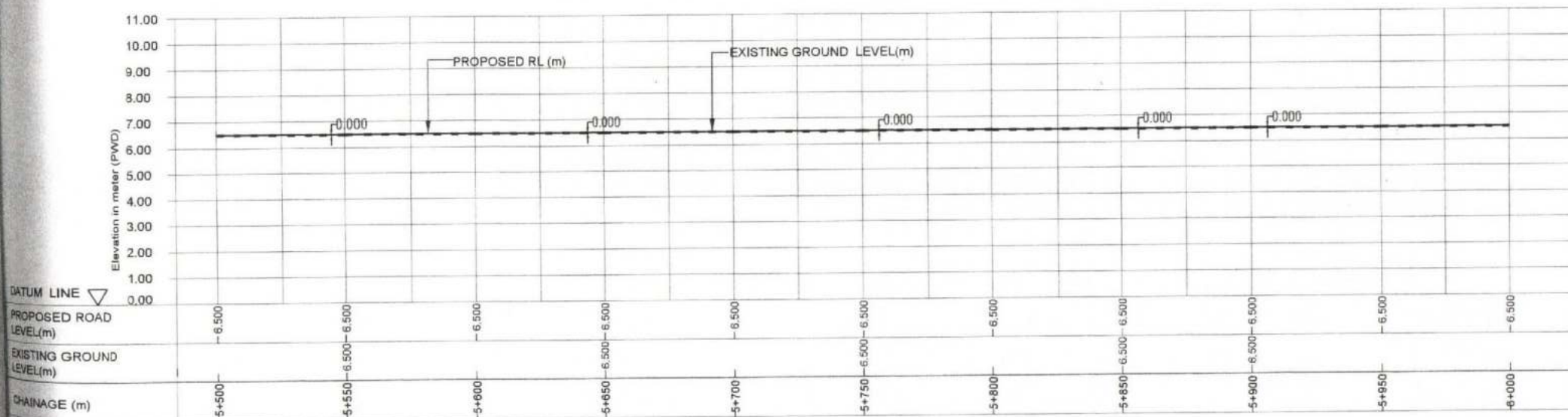
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Security and Support Protection Wall/ Fence, Surveillance	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY:  MD. NAZMUL HAQUE CAD OPERATOR CHSL/YOOSHIN-EPG JV, DAS CONSULTANT	DESIGN BY:  MD. ISLAM SAFFAR KHAN Jr. Design Engineer-Embarkment CHSL/YOOSHIN-EPG JV, DAS CONSULTANT	CHECKED BY:  PRYMS KUMAR SAHA Design Engineer-Embarkment CHSL/YOOSHIN-EPG JV, DAS CONSULTANT	SIGNED BY:  Dr. Shp. GATI MOHAMMAD MOHSIN PENG DEPUTY TEAM LEADER CHSL/YOOSHIN-EPG JV, DAS CONSULTANT	SIGNED BY:  Ach. g. TEAM LEADER CHSL/YOOSHIN-EPG JV, DAS CONSULTANT	APPROVED BY:  MOHAMMAD NURUL ISLAM Executive Engineer BSRAN Development Project BEZA, Prime Minister's Office	REMARKS:	SHEET NO: ST-34
REVISION : 00									DATE : 16 NOV 23	SCALE : NTS










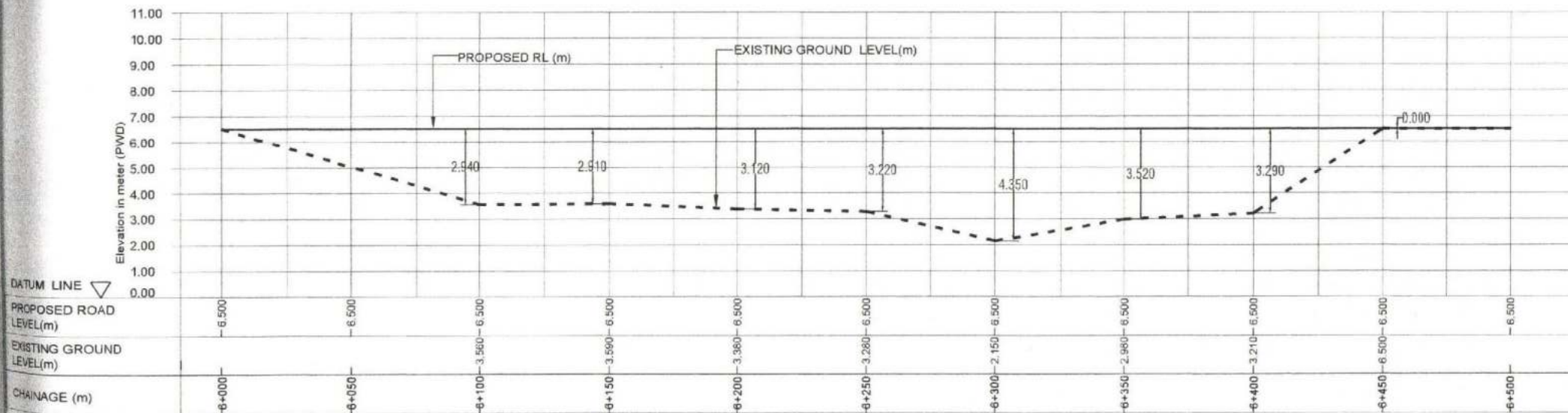
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Border Security and Support Protection Wall/ Fence, Surveillance	CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY: MD. NAZMUL HAQUE LAD OPERATOR CHSL-RODHPH/EPIC JV, DMS CONSULTANT	DESIGN BY: MD. SIAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHSL-RODHPH/EPIC JV, DMS CONSULTANT	CHECKED BY: PIYAS KUMAR SAHA Design Engineer-Embarkment CHSL-RODHPH/EPIC JV, DMS CONSULTANT	SIGNED BY: Dr. Eng. QAZI MOHAMMAD MOHSIN PWDg DEPUTY TEAM LEADER CHSL-RODHPH/EPIC JV, DMS CONSULTANT	SIGNED BY: ACFg TEAM LEADER CHSL-RODHPH/EPIC JV, DMS CONSULTANT	APPROVED BY: MOHAMMAD NURUL ISLAM Executive Engineer BDMEN Development Project SEZA, Prime Minister's Office	REMARKS:	SHEET NO: ST-35	
DATE NO: 16/11/23									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS










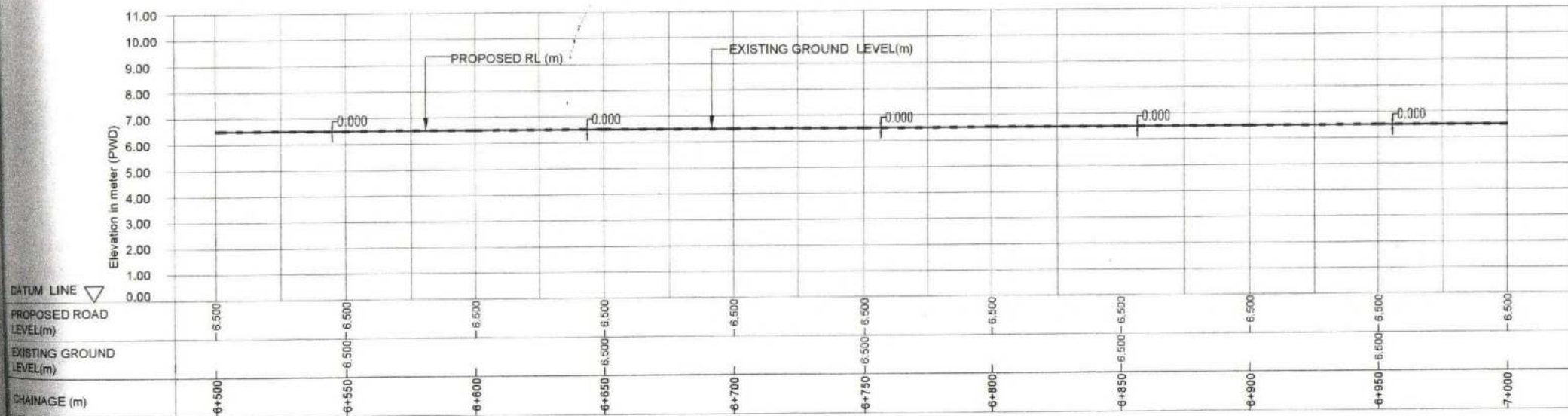
LONGITUDINAL PROFILE OF BOUNDARY WALL

DRAWING NAME : Task: Security and Support Protection Wall/ Fence, Surveillance	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. NAZMUL HAQUE SAD OPERATOR CHSEL/YOOSHIN-EPC JV, D&S CONSULTANT	DESIGN BY :  MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHSEL/YOOSHIN-EPC JV, D&S CONSULTANT	CHECKED BY :  RYAS KUMAR SANYAL Design Engineer-Embarkment CHSEL/YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY :  Dr. Eng. SAID MOHAMMAD MOHSIN PIR DEPUTY TEAM LEADER CHSEL/YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY :  Acha TEAM LEADER CHSEL/YOOSHIN-EPC JV, D&S CONSULTANT	APPROVED BY :  MOHAMMAD MURUL ISLAM Executive Engineer SADMAN Development Project BEZA, Prime Minister's Office	REMARKS :	SHEET NO ST-36	
DRAWING NO : CHSEL/BEA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS










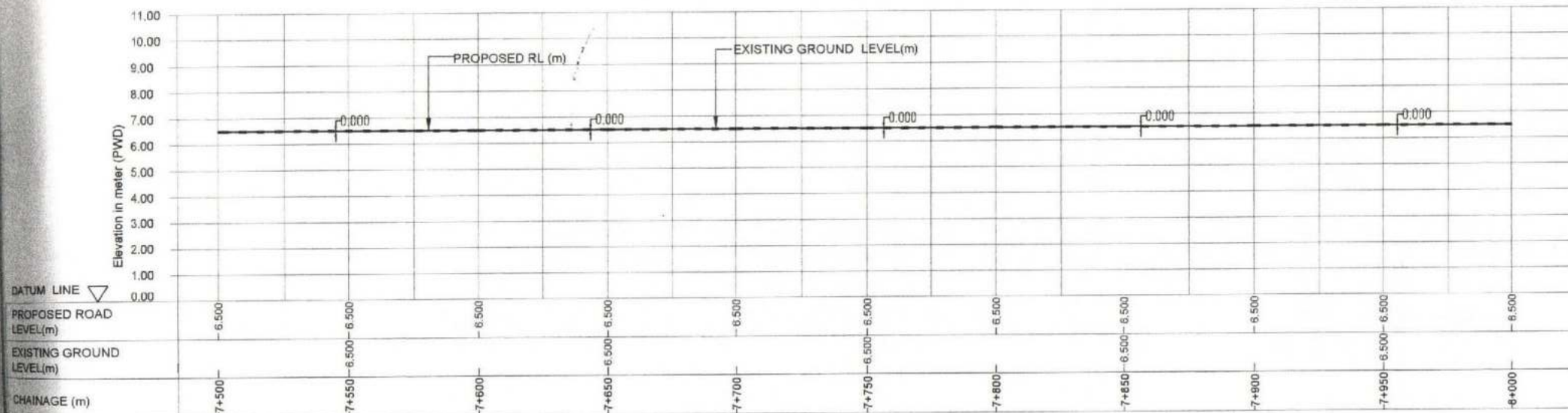
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Border Security and Support Protection Wall/ Fence, Surveillance	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. NAZMUL HAQUE CAD OPERATOR CHSEL/ROCKHILL/PC JV, DMS CONSULTANT	DESIGN BY :  MD. SOLAM GAFFAR KHAN Jr. Design Engineer/Embarkment CHSEL/ROCKHILL/PC JV, DMS CONSULTANT	CHECKED BY :  PIYAB KUMAR SAHA Design Engineer/Embarkment CHSEL/ROCKHILL/PC JV, DMS CONSULTANT	SIGNED BY :  Dr. Eng. SAUD MOHAMMAD MOHSEN PEng DEPUTY TEAM LEADER CHSEL/ROCKHILL/PC JV, DMS CONSULTANT	SIGNED BY :  Ake TEAM LEADER CHSEL/ROCKHILL/PC JV, DMS CONSULTANT	APPROVED BY :  MOHAMMAD NURUL ISLAM Executive Engineer BEMRII Development Project WIZA, Prime Minister's Office	REMARKS :	SHEET NO ST-37	
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




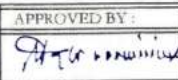


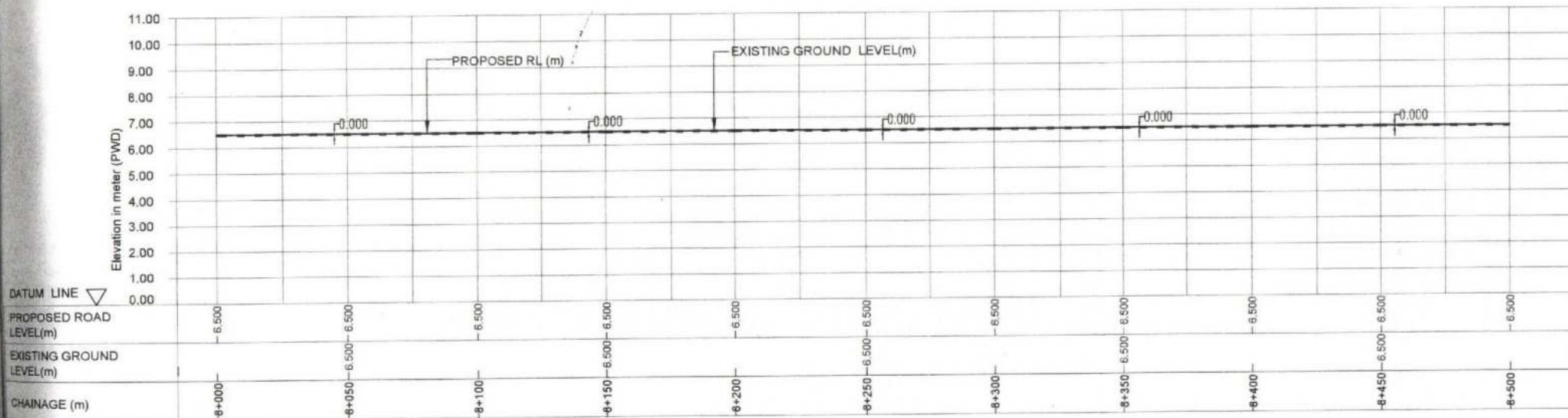
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Physical Security and Support Protection Wall/ Fence, Surveillance	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY:  MD. NAZMUL HAZLE CAD OPERATOR CHER/VOOSH/EPG JV, D&S CONSULTANT	DESIGN BY:  MD. SOLAM GATFAR SHAN Sr. Design Engineer-Embarkment CHER/VOOSH/EPG JV, D&S CONSULTANT	CHECKED BY:  PIVAS KUMAR SAHA Design Engineer-Embarkment CHER/VOOSH/EPG JV, D&S CONSULTANT	SIGNED BY:  Dr. Eng. GAZI MOHAMMAD MOHSIN DEPUTY TEAM LEADER CHER/VOOSH/EPG JV, D&S CONSULTANT	SIGNED BY:  A.C.E. TEAM LEADER CHER/VOOSH/EPG JV, D&S CONSULTANT	APPROVED BY:  MD. NAZMUL HAZLE Executive Engineer BSRSM/Embarkment Project BEZA, Prime Minister's Office	REMARKS:	SHEET NO: ST-38
REVISION: 00 DATE: 16 NOV 23 SCALE: NTS										










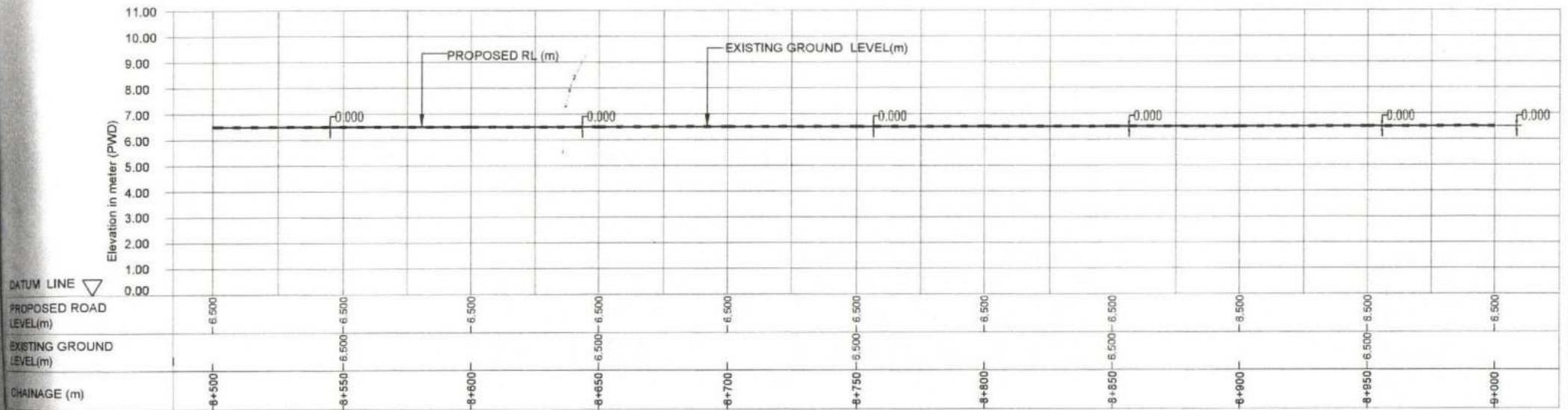
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Traffic, Security and Support Protection Wall/ Fence, Surveillance	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY:  MD. MAZMUL HAQUE CAD OPERATOR CHIEF-YOOSHIN-EPIC JV, DAS CONSULTANT	DESIGN BY:  MD. GOLAM SAFFAR KHAN Jt. Design Engineer-Infrastructure CHIEF-YOOSHIN-EPIC JV, DAS CONSULTANT	CHECKED BY:  PIYAK KUMAR BARI Design Engineer-Infrastructure CHIEF-YOOSHIN-EPIC JV, DAS CONSULTANT	SIGNED BY:  Dr. Eng. GAZI MOHAMMAD MOHSIN PRIN DEPUTY TEAM LEADER CHIEF-YOOSHIN-EPIC JV, DAS CONSULTANT	SIGNED BY:  Ach. G. TEAM LEADER CHIEF-YOOSHIN-EPIC JV, DAS CONSULTANT	APPROVED BY:  MD. HAMMAD NURUL ISLAM Executive Engineer BARISH Development Project BEZA, Prime Minister's Office	REMARKS: 	SHEET NO. ST-40
DRAWING NO. 100/2024									REVISION : 00 DATE : 16 NOV 23 SCALE : NTS	



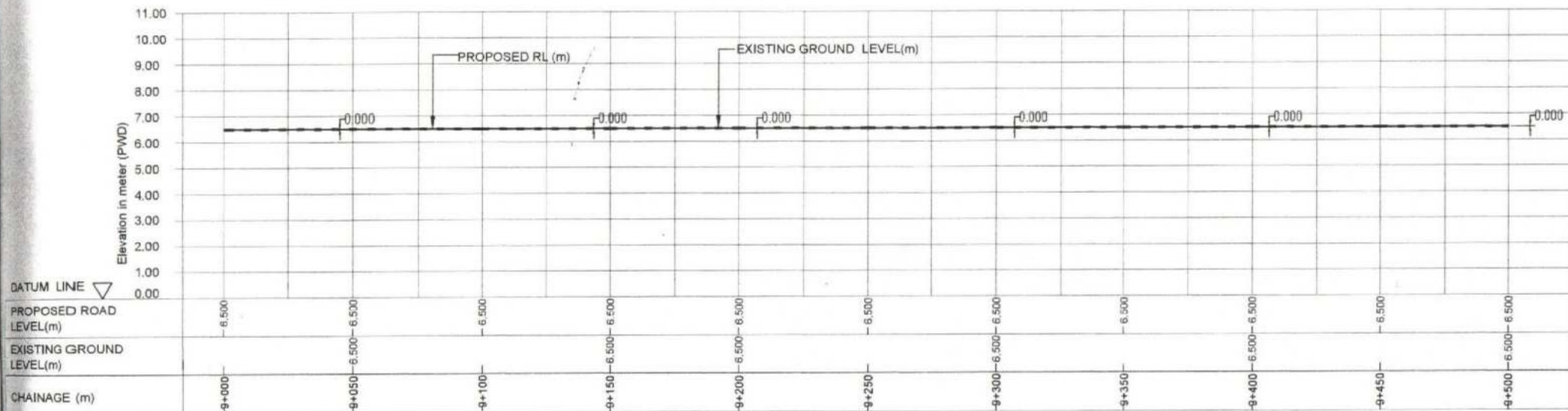
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Boundary Wall, Security and Support Protection Wall/ Fence, Surveillance	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY	 MD. NAZMUL HAKUE CAD OPERATOR CHSL/TOOSH/BN-EPZ JV, D&S CONSULTANT	 MD. GOLAM GAFIAR KHAN Jr. Design Engineer-Structural CHSL/TOOSH/BN-EPZ JV, D&S CONSULTANT	 TITING KUMAR SARKAR Design Engineer-Structural CHSL/TOOSH/BN-EPZ JV, D&S CONSULTANT	 Dr. Eng. GAZI MOHAMMAD MOHSIN PING DEPUTY TEAM LEADER CHSL/TOOSH/BN-EPZ JV, D&S CONSULTANT	 TEAM LEADER CHSL/TOOSH/BN-EPZ JV, D&S CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer S&M&A Development Project BEZA, Prime Minister's Office		ST-41	
DRAWING NO : BMA-BELA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS







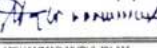


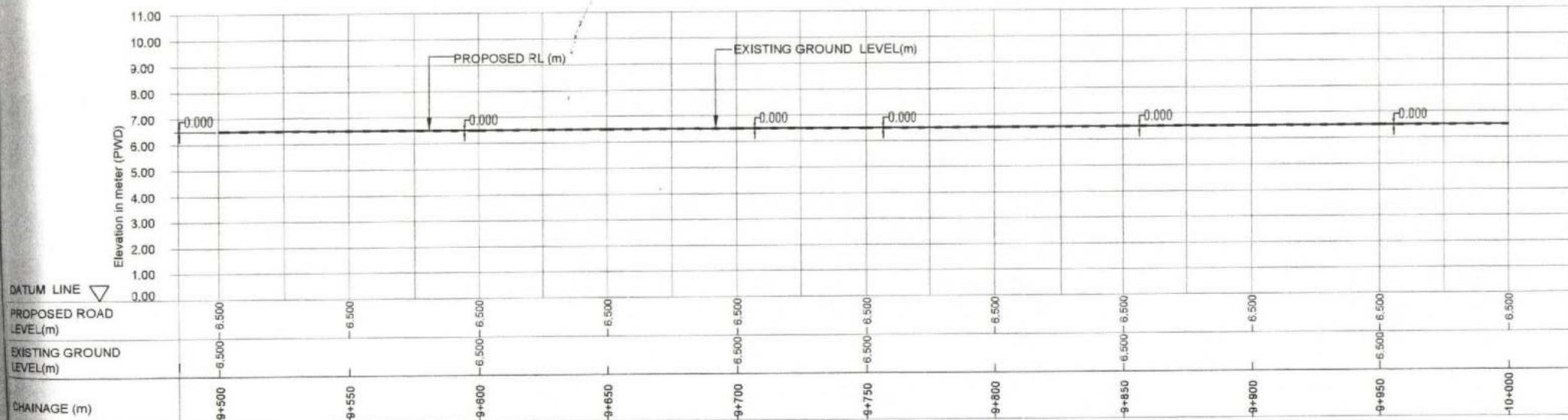
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Security and Support Construction Wall/ Fence, Surveillance SHEET NO : ST-42	CLIENT : BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY : MD. NAKUL HAKUE CAD OPERATOR CHSL/YOOSH/IN-EPG JV, D&S CONSULTANT	DESIGN BY : MD. GOLAM SAFFAR KHAN Jt. Design Engineer-Embarkment CHSL/YOOSH/IN-EPG JV, D&S CONSULTANT	CHECKED BY : RYAN KUMAR SAHA Design Engineer-Embarkment CHSL/YOOSH/IN-EPG JV, D&S CONSULTANT	SIGNED BY : Dr. Eng. SAZ MOHAMMAD MOHSIN REH DEPUTY TEAM LEADER CHSL/YOOSH/IN-EPG JV, D&S CONSULTANT	SIGNED BY : ACHUT TEAM LEADER CHSL/YOOSH/IN-EPG JV, D&S CONSULTANT	APPROVED BY : MOHAMMAD NURUL ISLAM Executive Engineer BARBAN Development Project BEZA, Prime Minister's Office	REMARKS : 	SHEET NO : ST-42
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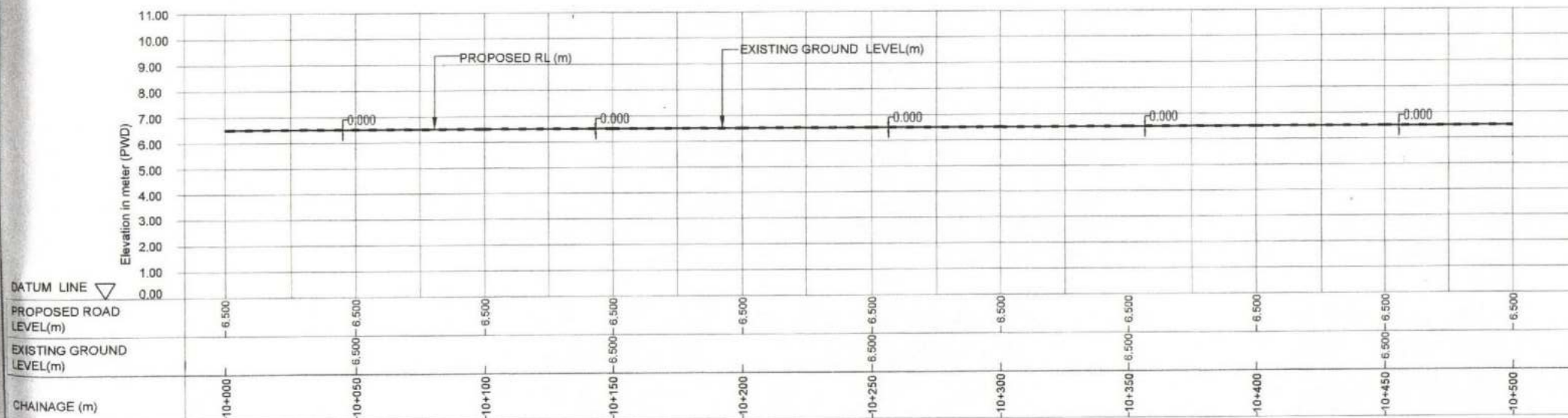
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Work Security and Support (Protection Wall/ Fence, Surveillance)	CLIENT : <div><div>BANGLADESH ECONOMIC ZONES AUTHORITY</div></div>	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. NAZMUL HAQUE CAD OPERATOR CHEL-YOOSHIN&CPC JV, DAS CONSULTANT	DESIGN BY :  MD. GOLAM SAIFUR KHAN Jr. Design Engineer-Embarkment CHEL-YOOSHIN&CPC JV, DAS CONSULTANT	CHECKED BY :  PIYAS KUMAR SAHA Design Engineer-Embarkment CHEL-YOOSHIN&CPC JV, DAS CONSULTANT	SIGNED BY :  Dr. Eng. QASIM MOHAMMAD MICHERI PENG DEPUTY TEAM LEADER CHEL-YOOSHIN&CPC JV, DAS CONSULTANT	SIGNED BY :  A.C.F.B. TEAM LEADER CHEL-YOOSHIN&CPC JV, DAS CONSULTANT	APPROVED BY :  MOHAMMAD MIRUL ISLAM Executive Engineer BEMEN Development Project BEZA, Prime Minister's Office	REMARKS :	SHEET NO ST-43	
DRAWING NO : BEMEN-82A									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS



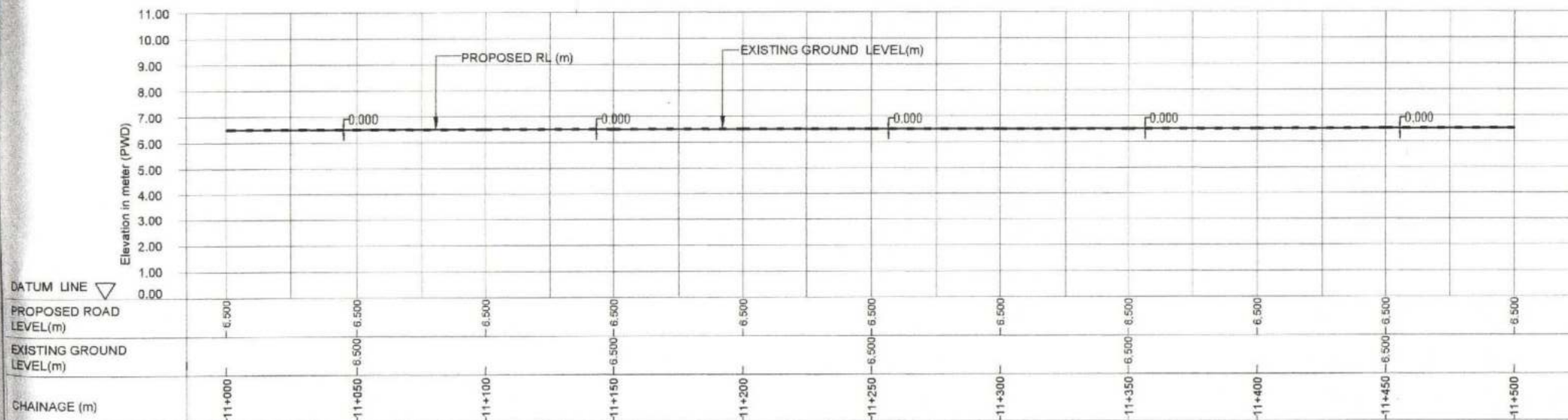
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Security and Support Protection Wall/ Fence, Surveillance	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. MOJIBUL HAQUE DAD OPERATOR CHSEL/DOSS/BNPC JV, DAS CONSULTANT	DESIGN BY :  MD. QILAM QAFFAR KHAN Jr. Design Engineer-Embarkment CHSEL/DOSS/BNPC JV, DAS CONSULTANT	CHECKED BY :  PRINCE KUMAR SARKAR Design Engineer-Embarkment CHSEL/DOSS/BNPC JV, DAS CONSULTANT	SIGNED BY :  Dr. Eng. QASIM MOHAMMAD MOHSEN PERG DEPUTY TEAM LEADER CHSEL/DOSS/BNPC JV, DAS CONSULTANT	SIGNED BY :  A.R.S. TEAM LEADER CHSEL/DOSS/BNPC JV, DAS CONSULTANT	APPROVED BY :  MOHAMMAD NURUL ISLAM Executive Engineer BEMBN Development Project BEZA, Prime Minister's Office	REMARKS :	SHEET NO ST-44	
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




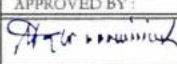


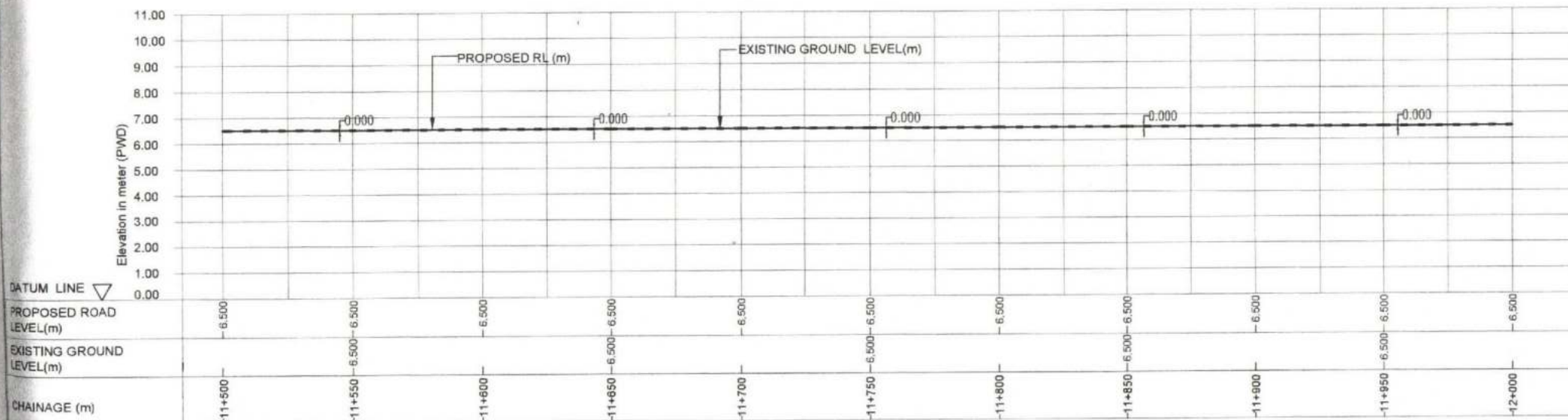
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO :	
Project work: Security and Support Fences (Protection Wall/ Fence, Surveillance)	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY	 MD. NAZMUL HAQUE CAD OPERATOR CHSL/YOOSHIN&PC JV. D&S CONSULTANT	 MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Environment CHSL/YOOSHIN&PC JV. D&S CONSULTANT	 PIYAS KARMAR SAHA Design Engineer-Environment CHSL/YOOSHIN&PC JV. D&S CONSULTANT	 OL. Eng. GAB MOHAMMAD MOHERI PENG DEPUTY TEAM LEADER CHSL/YOOSHIN&PC JV. D&S CONSULTANT	 ACR-8 TEAM LEADER CHSL/YOOSHIN&PC JV. D&S CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer B&S&N Development Project SCZA, Prime Minister's Office		ST-45	
PAGE NO : RAMSH-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS







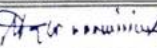


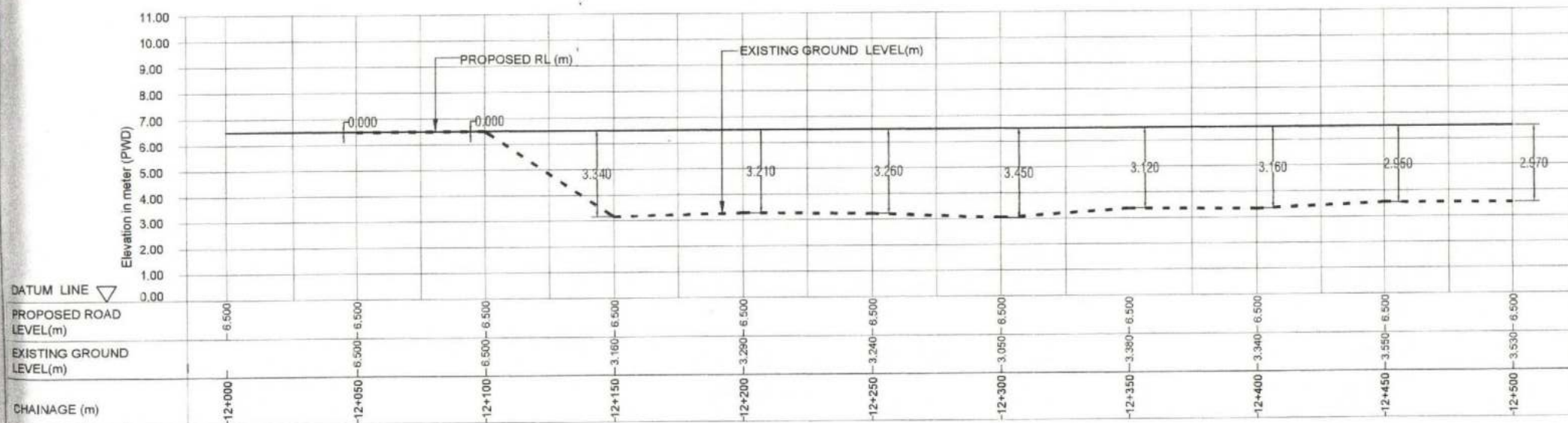
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Work: Security and Support Protection Wall/ Fence, Surveillance	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY:  MD. NAJIBUL HAQUE Jr. Design Engineer-Embarkment CHIEL-YOOSHIN&P.C JV D&S CONSULTANT	DESIGN BY:  MD. USLAM GATTAR KHAN Jr. Design Engineer-Embarkment CHIEL-YOOSHIN&P.C JV D&S CONSULTANT	CHECKED BY:  PYUNG KUMAR SAHA Design Engineer-Embarkment CHIEL-YOOSHIN&P.C JV D&S CONSULTANT	SIGNED BY:  Dr. Eng. GAB MOHAMMAD MOHSEN FENG DISABILITY TEAM LEADER CHIEL-YOOSHIN&P.C JV D&S CONSULTANT	SIGNED BY:  A.C.F. 5 TEAM LEADER CHIEL-YOOSHIN&P.C JV D&S CONSULTANT	APPROVED BY:  MOHAMMAD NURUL ISLAM Executive Engineer BAGMAN Development Project BESA, Prime Minister's Office	REMARKS:	SHEET NO: ST-47	
PAGE NO: 1 KAMRU-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS







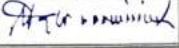


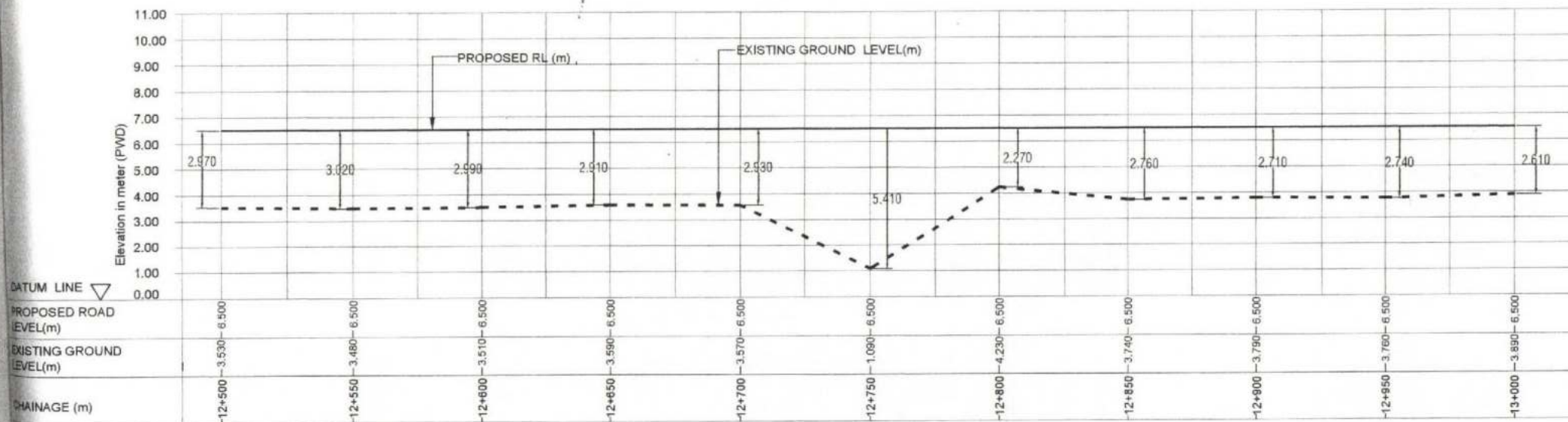
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Work: Security and Support Protection Wall/ Fence, Surveillance	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. WAKILU HAQUE CAD OPERATOR CHIEL-YOOSHIN-EPG JV, D&S CONSULTANT	DESIGN BY :  MD. SOLAM DAFAR KHAN Jr. Design Engineer-Embarkment CHIEL-YOOSHIN-EPG JV, D&S CONSULTANT	CHECKED BY :  RYAN KUMAR SAHA Design Engineer-Embarkment CHIEL-YOOSHIN-EPG JV, D&S CONSULTANT	SIGNED BY :  Dr. Eng. GAB MOHAMMAD MOHIBU PEN DEPUTY TEAM LEADER CHIEL-YOOSHIN-EPG JV, D&S CONSULTANT	SIGNED BY :  ACP-3 TEAM LEADER CHIEL-YOOSHIN-EPG JV, D&S CONSULTANT	APPROVED BY :  MOHAMMAD NURUL ISLAM Executive Engineer BEMEN Development Project BEZA, Prime Ministry Office	REMARKS :	SHEET NO ST-48	
PAGE NO : CHASHA-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS









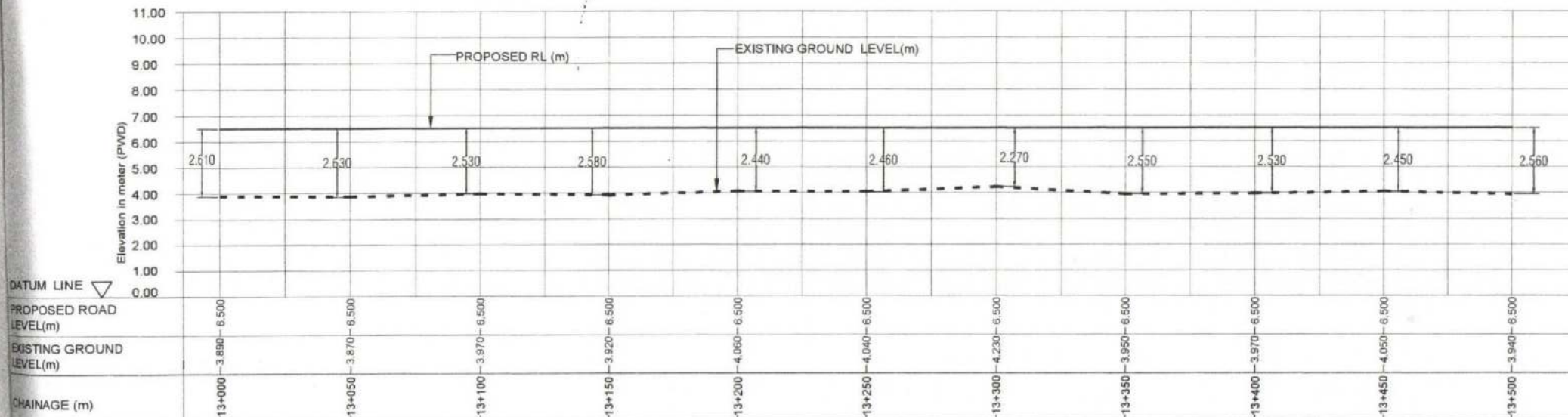
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Security and Support Protection Wall/ Fence, Surveillance	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. NAZMUL HQUE CAD OPERATOR CHIEF, YOCOR-HR/PC JV. DAS CONSULTANT	DESIGN BY :  MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHIEF, YOCOR-HR/PC JV. DAS CONSULTANT	CHECKED BY :  RYAN KUMAR SAHA Design Engineer-Embarkment CHIEF, YOCOR-HR/PC JV. DAS CONSULTANT	SIGNED BY :  Dr. Eng. GAZI MOHAMMAD MOHEEN PERG DEPUTY TEAM LEADER CHIEF, YOCOR-HR/PC JV. DAS CONSULTANT	SIGNED BY :  ACF TEAM LEADER CHIEF, YOCOR-HR/PC JV. DAS CONSULTANT	APPROVED BY :  MOHAMMAD NURUL ISLAM Executive Engineer BEMAN Development Project BEZA, Prime Minister's Office	REMARKS :	SHEET NO ST-49
REVISION : 00 DATE : 16 NOV 23 SCALE : NTS										



LONGITUDINAL PROFILE OF BOUNDARY WALL

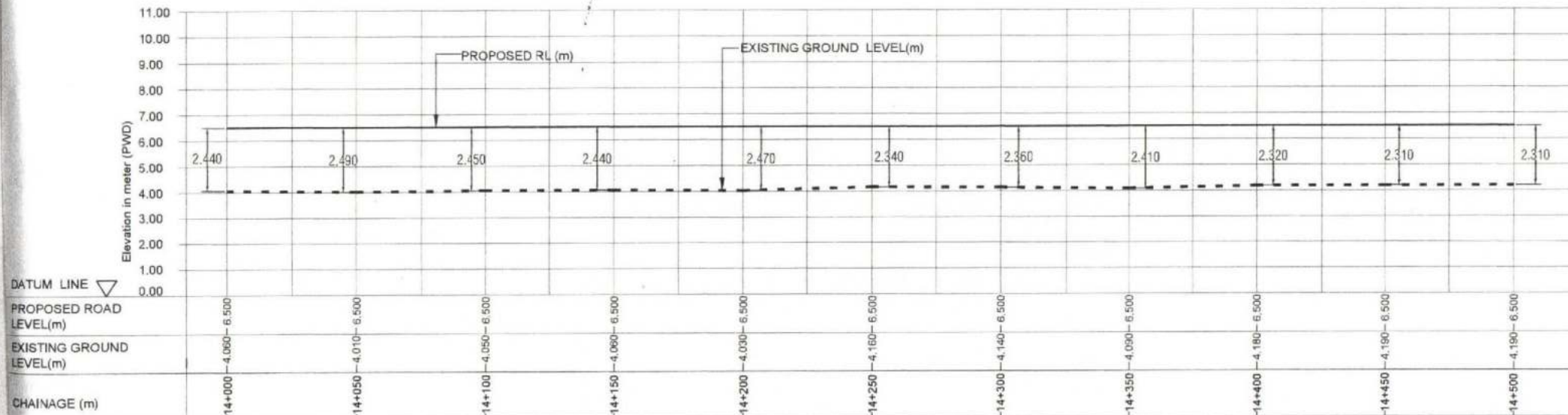
PROJECT NAME : Economic Security and Support Protection Wall/ Fence, Surveillance	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. NAZMUL HQUE CAD OPERATOR CHSL-YOOSH-BN-EPG JV. D&S CONSULTANT	DESIGN BY :  MD. SOLAM DAFAR KHAN Jr. Design Engineer-Embarkment CHSL-YOOSH-BN-EPG JV. D&S CONSULTANT	CHECKED BY :  PYAR KUMARI BANA Design Engineer-Embarkment CHSL-YOOSH-BN-EPG JV. D&S CONSULTANT	SIGNED BY :  Dr. Eng. GAZI MOHAMMAD MOHSEN PING DEPUTY TEAM LEADER CHSL-YOOSH-BN-EPG JV. D&S CONSULTANT	SIGNED BY :  A.K. Z. TEAM LEADER CHSL-YOOSH-BN-EPG JV. D&S CONSULTANT	APPROVED BY :  MOHAMMAD NURUL ISLAM Executive Engineer S&SM Development Project BEZA, Prime Minister's Office	REMARKS :	SHEET NO ST-50
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LONGITUDINAL PROFILE OF BOUNDARY WALL

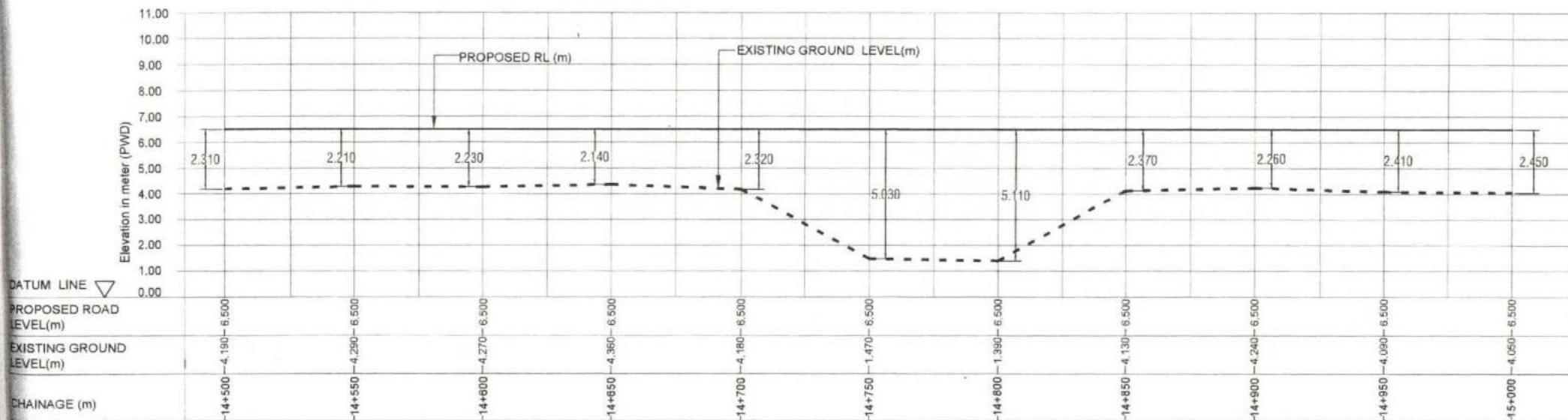
PROJECT NAME: Security and Support Protection Wall/ Fence, Surveillance	CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY: 	DESIGN BY: 	CHECKED BY: 	SIGNED BY: 	SIGNED BY: 	APPROVED BY: 	REMARKS:	SHEET NO: ST-51
DRAWING NO: BAN/24			MD. NAZMUS HASSE CAD OPERATOR CHIEF-YOOSHIN-EPC JV. DAS CONSULTANT	MD. GOLAM SAFFAR KHAN Jr. Design Engineer-Embarkment CHIEF-YOOSHIN-EPC JV. DAS CONSULTANT	HYAB KUMAR SAHA Design Engineer-Embarkment CHIEF-YOOSHIN-EPC JV. DAS CONSULTANT	Dr. Eng. QASIM MOHAMMAD MOHIB FEROZ DEPUTY TEAM LEADER CHIEF-YOOSHIN-EPC JV. DAS CONSULTANT	Akh. B. TEAM LEADER CHIEF-YOOSHIN-EPC JV. DAS CONSULTANT	MOHAMMAD NURUL ISLAM Executive Engineer SABSA Development Project SEZA, Prime Ministers Office	REVISION: 00	DATE: 16 NOV 23

SCALE: NTS










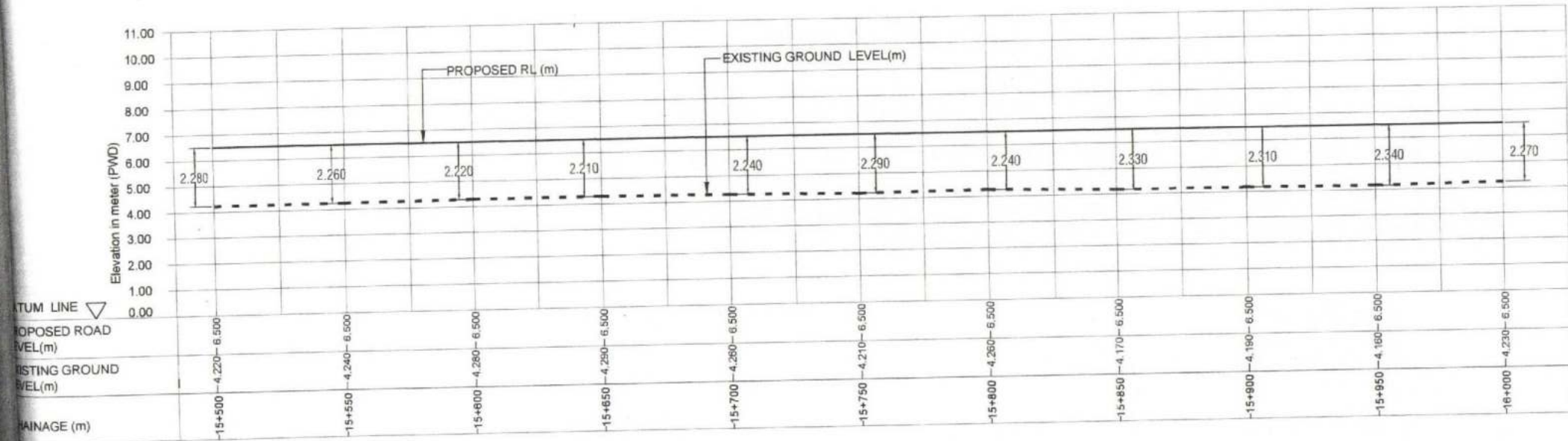
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Work: Security and Support Fence/Protection Wall/ Fence, Surveillance	CLIENT : BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY : 	DESIGN BY : 	CHECKED BY : 	SIGNED BY : 	SIGNED BY : 	APPROVED BY : 	REMARKS :	SHEET NO ST-53
PAGE NO : 1			MD. NAZMUL HAQUE CAD OPERATOR CHSL/YOOSH/EPG JV, DMS CONSULTANT	MD. GOLAM GAFFAR SHAM Jr. Design Engineer/Embarkment CHSL/YOOSH/EPG JV, DMS CONSULTANT	PYNIS KUMAR SAHA Design Engineer/Embarkment CHSL/YOOSH/EPG JV, DMS CONSULTANT	Dr. King SAZI MOHAMMAD MOHIBUZZAMAN DEPUTY TEAM LEADER CHSL/YOOSH/EPG JV, DMS CONSULTANT	ACF-S TEAM LEADER CHSL/YOOSH/EPG JV, DMS CONSULTANT	MOHAMMAD NUREL ISLAM Executive Engineer BMDMV Development Project BEZA, Prime Minister's Office	REVISION : 00	DATE : 16 NOV 23
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




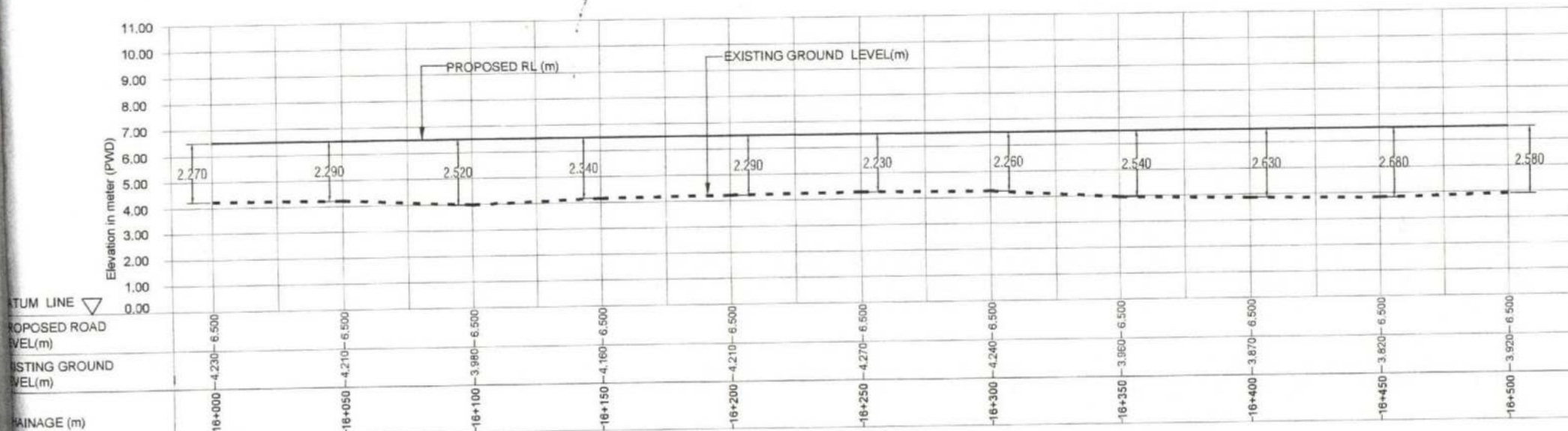
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Work: Security and Support Protection Wall/ Fence, Surveillance	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY	 MD. NAZMUL HAQUE CAD OPERATOR CHSL/POOSH/EPG JV, DAS CONSULTANT	 MD. SOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHSL/POOSH/EPG JV, DAS CONSULTANT	 PIVAN KUMAR SAHA Design Engineer-Embarkment CHSL/POOSH/EPG JV, DAS CONSULTANT	 Dr. Eng. QASIM MOHAMMAD MOHSEN PIR DEPUTY TEAM LEADER CHSL/POOSH/EPG JV, DAS CONSULTANT	 Acha TEAM LEADER CHSL/POOSH/EPG JV, DAS CONSULTANT	 MOHAMMAD NAZMUL ISLAM Executive Engineer/ BEMBA Development Project BEZA, Prime Minister's Office		ST-54	
PAGE NO : BMAN-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS



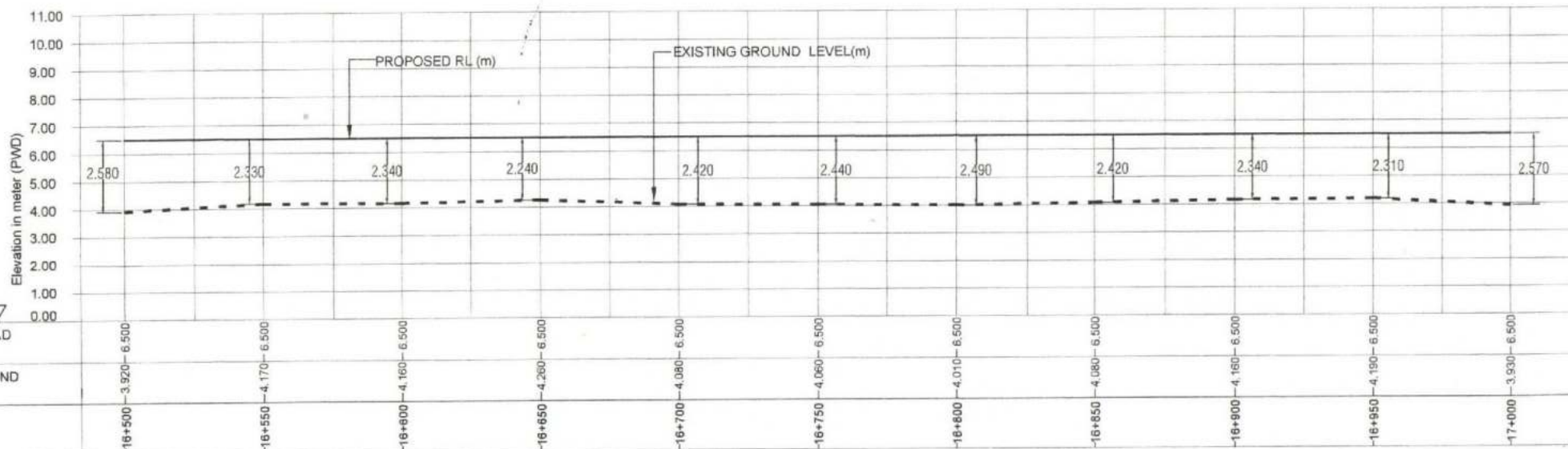
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Work: Security and Support Protection Wall/ Fence, Surveillance	CLIENT:  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY: 	DESIGN BY: 	CHECKED BY: 	SIGNED BY: 	SIGNED BY: 	APPROVED BY: 	REMARKS:	SHEET NO ST-56
PROJECT NO: BMD-021A			MD. MAZBUL HAQUE CAD OPERATOR CH/EL/TOO/SH/IN/EP/ JV, DAS CONSULTANT	MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CH/EL/TOO/SH/IN/EP/ JV, DAS CONSULTANT	PIYAS KUMAR SAHA Design Engineer-Embarkment CH/EL/TOO/SH/IN/EP/ JV, DAS CONSULTANT	Dr. Eng. GAZI MOHAMMAD MOHSEN PONG DEPUTY TEAM LEADER CH/EL/TOO/SH/IN/EP/ JV, DAS CONSULTANT	A.T.S. TEAM LEADER CH/EL/TOO/SH/IN/EP/ JV, DAS CONSULTANT	MOHAMMAD NURUL ISLAM Executive Engineer BMD/SH/IN/EP/ JV BMDA, Prime Minister's Office	REVISION: 00	DATE: 16 NOV 23
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




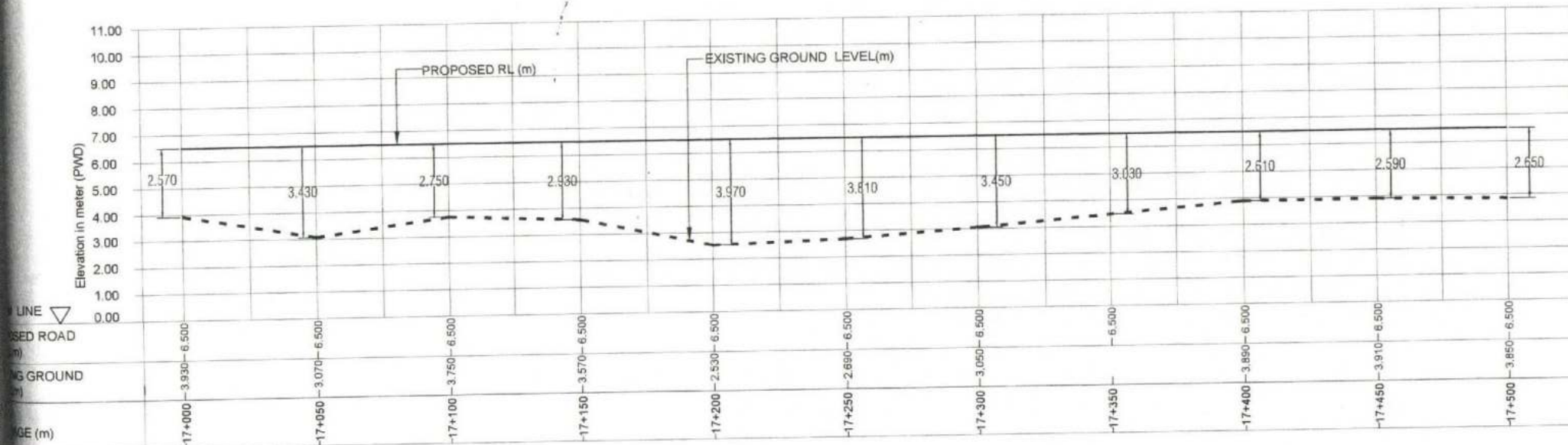
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME: Walk: Security and Support Protection Wall/ Fence, Surveillance	CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE: LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY: 	DESIGN BY: 	CHECKED BY: 	SIGNED BY: 	SIGNED BY: 	APPROVED BY: 	REMARKS:	SHEET NO: ST-57
									REVISION: 00	DATE: 16 NOV 23



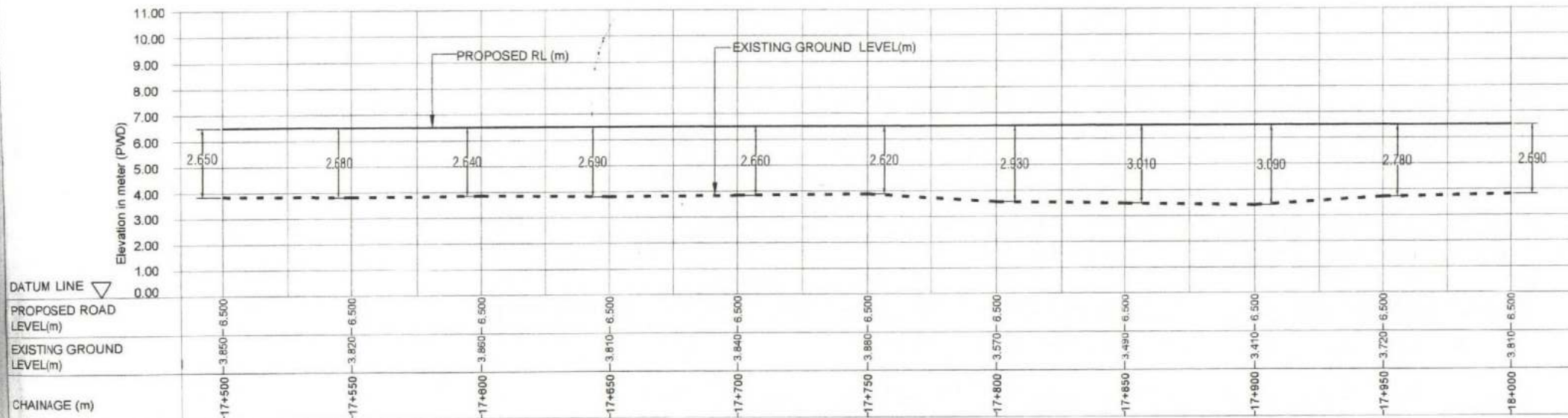
LONGITUDINAL PROFILE OF BOUNDARY WALL

CLIENT :		DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO
	BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY								ST-58
			MD. NURUL HAKIR GEO OPERATOR CHSL-YOOSHIN-EPG JV, DAS CONSULTANT	MD. SIKAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHSL-YOOSHIN-EPG JV, DAS CONSULTANT	PIYAB KUMAR SAHA Design Engineer-Embarkment CHSL-YOOSHIN-EPG JV, DAS CONSULTANT	Dr. Eng. GAZI MOHAMMAD MOHIBUDDIN DEPUTY TEAM LEADER CHSL-YOOSHIN-EPG JV, DAS CONSULTANT	Act. S. TEAM LEADER CHSL-YOOSHIN-EPG JV, DAS CONSULTANT	MOHAMMAD NURUL ISLAM Executive Engineer BAGDA Development Project BAGDA, Prime Minister's Office		
			REVISION : 00							




LONGITUDINAL PROFILE OF BOUNDARY WALL

CLIENT: BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE:	DRAWN BY:	DESIGN BY:	CHECKED BY:	SIGNED BY:	SIGNED BY:	APPROVED BY:	REMARKS:	SHEET NO.
	LONG PROFILE BOUNDARY WALL WALKWAY	MD. NAZMUL HAQUE DAD OPERATOR CHIEL-YOOSHIN-PC JV, DMS CONSULTANT	MD. OULUM SAJJAD KHAN Jr. Design Engineer-Embarkment CHIEL-YOOSHIN-PC JV, DMS CONSULTANT	PRINCE KUMAR SARKA Design Engineer-Embarkment CHIEL-YOOSHIN-PC JV, DMS CONSULTANT	Dr. Eng. SAUJ MOHAMMAD MOHSEN PERG DEPUTY TEAM LEADER CHIEL-YOOSHIN-PC JV, DMS CONSULTANT	Acg. TEAM LEADER CHIEL-YOOSHIN-PC JV, DMS CONSULTANT	MOHAMMAD NURUL BELAM Executive Engineer SAMSAT Development Project BETA, Prime Minister's Office		ST-59
REVISION : 00 DATE : 16 NOV 23 SCALE : NTS									

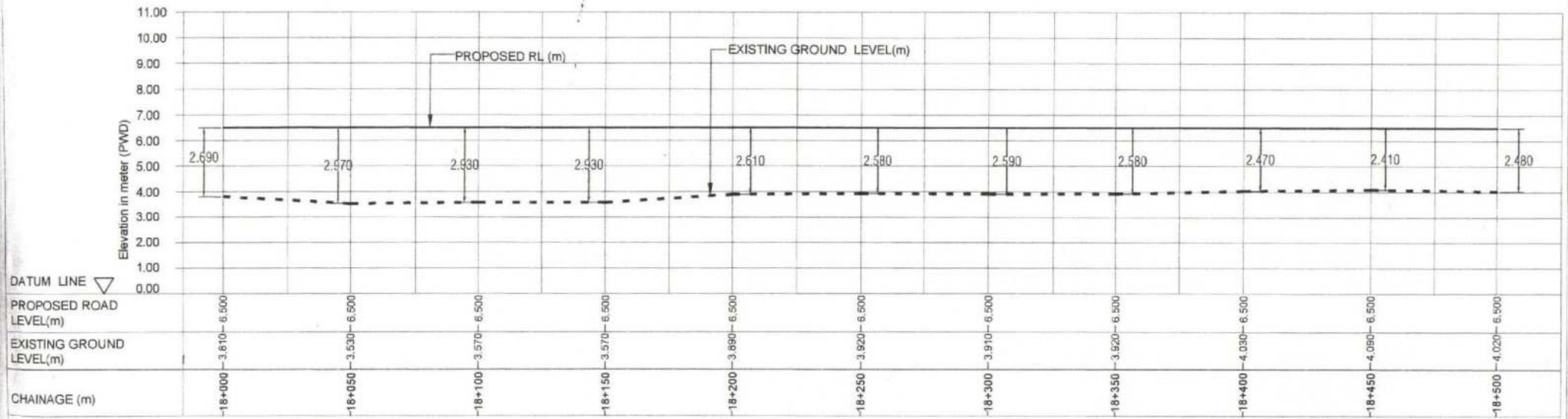


LONGITUDINAL PROFILE OF BOUNDARY WALL







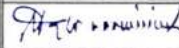
PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO :
Project Name: Security and Support Activities/Protection Wall/ Fence, Surveillance Wall	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY								ST-60
PACKAGE NO : L-64549-8E2A			MD. NAJIBUL HAQUE CAD OPERATOR CHSL/YOOSI-BW-EPG JV. DAB CONSULTANT	MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHSL/YOOSI-BW-EPG JV. DAB CONSULTANT	PPRAS KUMAR SAHA Design Engineer-Embarkment CHSL/YOOSI-BW-EPG JV. DAB CONSULTANT	Dr. Eng. (Gaz) MOHAMMAD MOHSIN Hossain DEPUTY TEAM LEADER CHSL/YOOSI-BW-EPG JV. DAB CONSULTANT	A. Ch. g. TEAM LEADER CHSL/YOOSI-BW-EPG JV. DAB CONSULTANT	MOHAMMAD NURUL ISLAM Executive Engineer SEMIER Development Project BEZA, Prime Minister's Office	REVISION : 00	DATE : 16 NOV 23

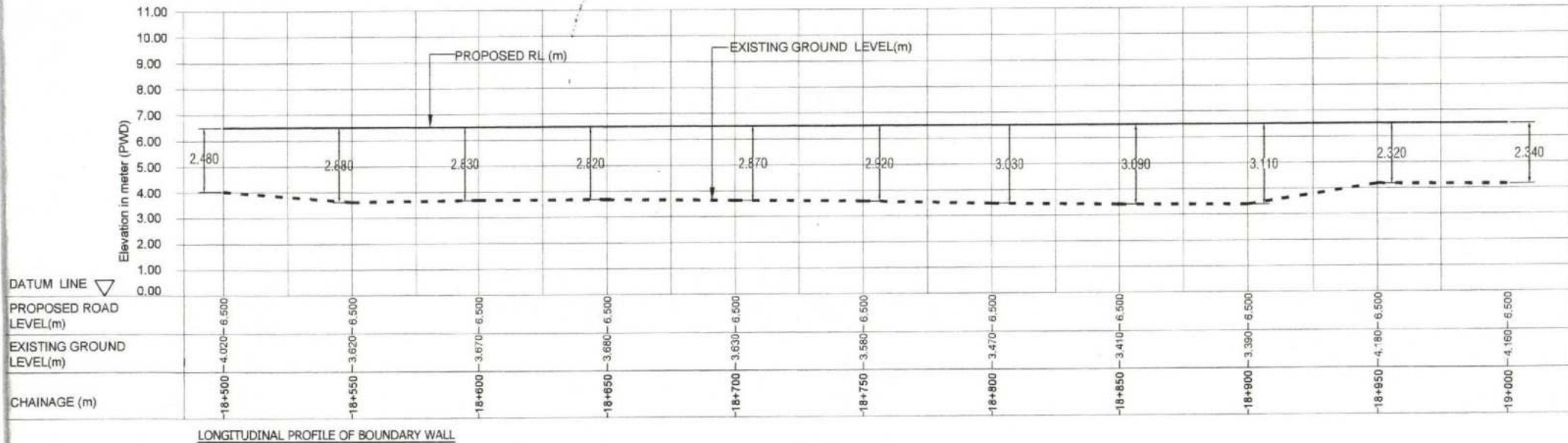
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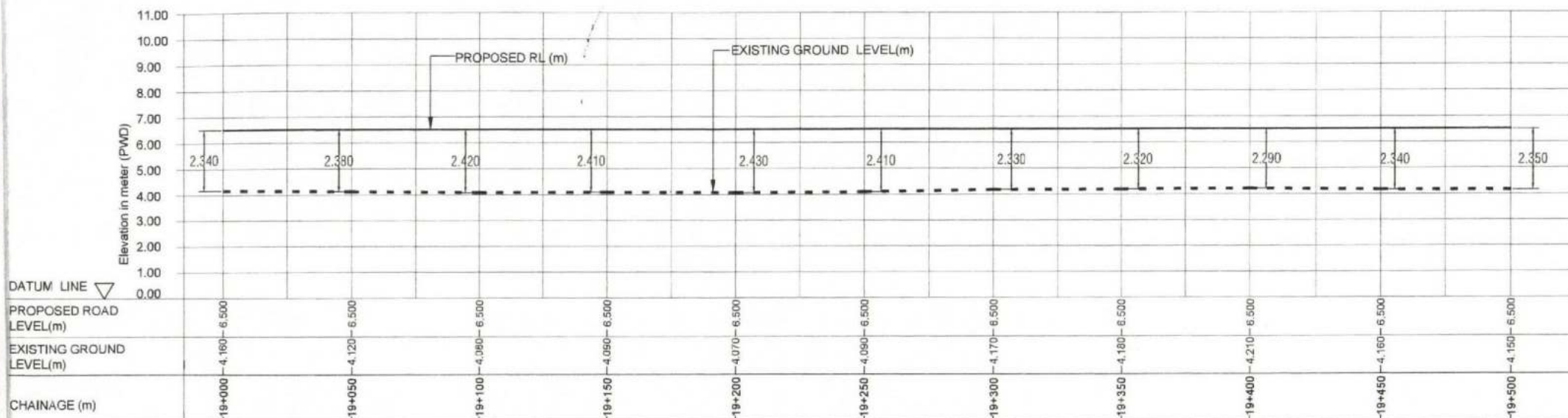


LONGITUDINAL PROFILE OF BOUNDARY WALL


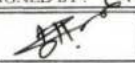
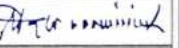
PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Project Name: Security and Support Activities (Protection Wall/ Fence, Surveillance etc.)	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY	 MD. NAZMUL HAQUE CAD OPERATOR CHIEF, VCCS-BH-EPG JV, D&S CONSULTANT	 MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHIEF, VCCS-BH-EPG JV, D&S CONSULTANT	 PRAV KUMAR SABA Design Engineer-Embarkment CHIEF, VCCS-BH-EPG JV, D&S CONSULTANT	 Dr. Eng. GAZI MOHAMMAD MOHSIN PERGO DEPUTY TEAM LEADER CHIEF, VCCS-BH-EPG JV, D&S CONSULTANT	 A.P. S. TEAM LEADER CHIEF, VCCS-BH-EPG JV, D&S CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer SAMSON Development Project SEZA, Prime Minister's Office		ST-61	
PACKAGE NO : SAMSON-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS

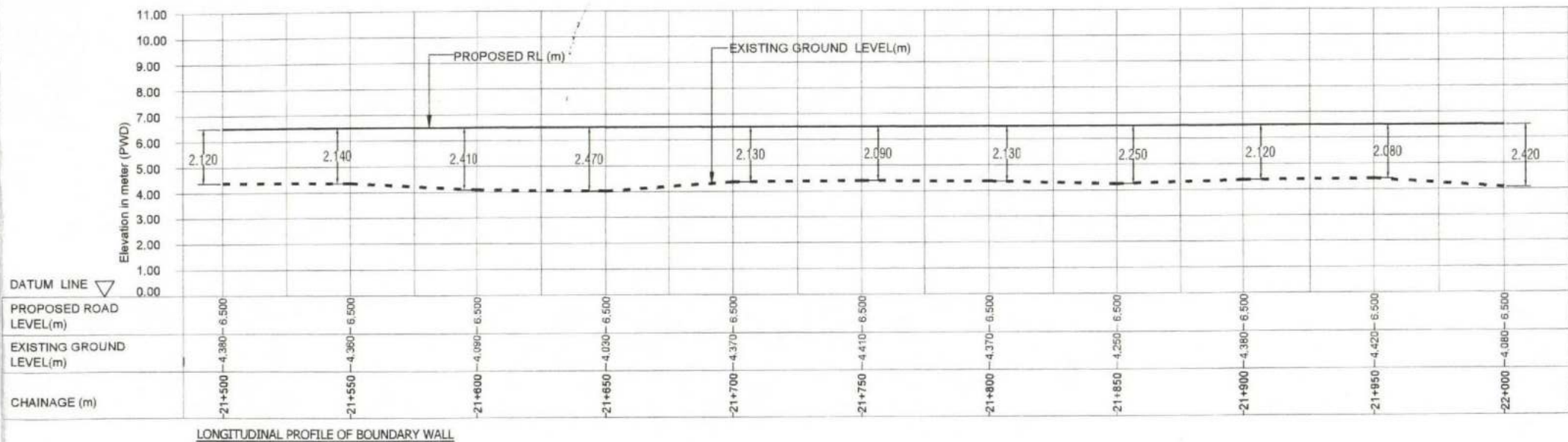


PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Project Name: Security and Support Facilities (Protection Wall/ Fence, Surveillance etc.)	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL/WALKWAY	 MD. NAZMUL HAQUE CAD OPERATOR CHSEL-YOOSHIN-EPD JV, DAS CONSULTANT	 MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Embarkment CHSEL-YOOSHIN-EPD JV, DAS CONSULTANT	 PIYAL KUMAR SANYAL Design Engineer-Embarkment CHSEL-YOOSHIN-EPD JV, DAS CONSULTANT	 Dr. Eng. QAZI MOHAMMAD MOHSIN FERAZ DEPUTY TEAM LEADER CHSEL-YOOSHIN-EPD JV, DAS CONSULTANT	 Dr. Eng. QAZI MOHAMMAD MOHSIN FERAZ TEAM LEADER CHSEL-YOOSHIN-EPD JV, DAS CONSULTANT	 MOHAMMAD NURUL ISLAM Graduate Engineer BMBN Development Project BEZA, Prime Minister's Office		ST-62	
PACKAGE NO : B-ASM2N-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS










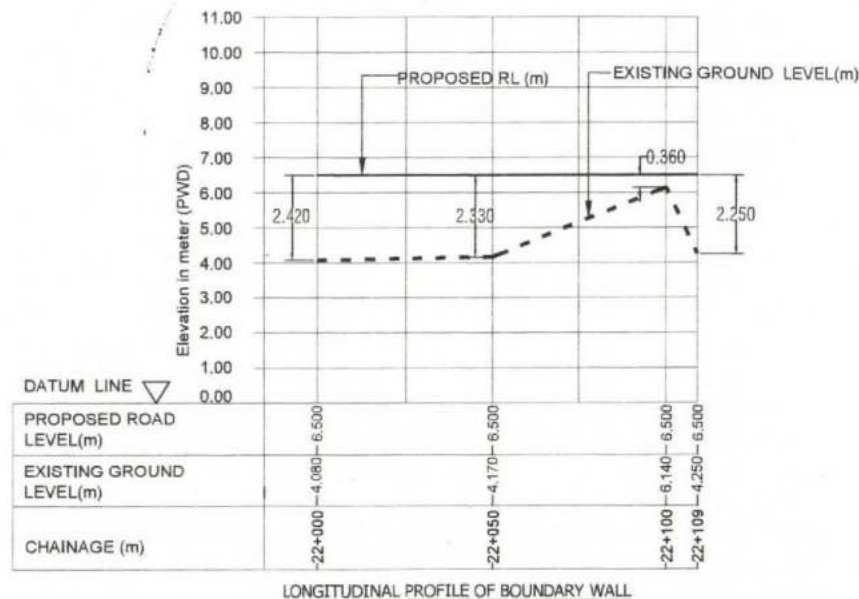
LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME : Security and Support Facilities (Protection Wall/ Fence, Surveillance System)	CLIENT :  BANGLADESH ECONOMIC ZONES AUTHORITY	DRAWING TITLE : LONG PROFILE BOUNDARY WALL WALKWAY	DRAWN BY :  MD. NAZMUL HAQUE SAD OPERATOR CHSL/YOOSHIN-EPC JV, D&S CONSULTANT	DESIGN BY :  MD. GOLAM GAFFAR KHAN Jr. Design Engineer-Structural CHSL/YOOSHIN-EPC JV, D&S CONSULTANT	CHECKED BY :  PYNIS KUMAR SAHA Design Engineer-Structural CHSL/YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY :  Dr. Eng. GAZI MOHAMMAD MOHSIN PERG DEPUTY TEAM LEADER CHSL/YOOSHIN-EPC JV, D&S CONSULTANT	SIGNED BY :  TEAM LEADER CHSL/YOOSHIN-EPC JV, D&S CONSULTANT	APPROVED BY :  MOHAMMAD NURUL ISLAM Executive Engineer BSISBY Development Project BEZA, Prime Minister's Office	REMARKS :	SHEET NO ST-63
PACKAGE NO : 01-BSMSN-BEZA									REVISION : 00	DATE : 16 NOV 23
									SCALE : NTS	



LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
Project of work: Security and Support facilities (Protection Wall/ Fence, Surveillance etc.)	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY	 MD. MAZMUL HAQUE Sr. Design Engineer-Embarkment CHSL/YOOSHIN-EPIC JV. D&S CONSULTANT	 MD. GOLAM GAFFAR KHAN Sr. Design Engineer-Embarkment CHSL/YOOSHIN-EPIC JV. D&S CONSULTANT	 PIYAS KUMAR SAHA Design Engineer-Embarkment CHSL/YOOSHIN-EPIC JV. D&S CONSULTANT	 Dr. Eng. DAB MOHAMMAD MOHSIN PENG DEPUTY TEAM LEADER CHSL/YOOSHIN-EPIC JV. D&S CONSULTANT	 Acting TEAM LEADER CHSL/YOOSHIN-EPIC JV. D&S CONSULTANT	 MOHAMMAD NURUL ILAM Executive Engineer BAMEN Development Project BEZA, Prime Minister's Office		ST-68	
PACKAGE NO : 010-BSMN-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS



LONGITUDINAL PROFILE OF BOUNDARY WALL

PROJECT NAME :	CLIENT :	DRAWING TITLE :	DRAWN BY :	DESIGN BY :	CHECKED BY :	SIGNED BY :	SIGNED BY :	APPROVED BY :	REMARKS :	SHEET NO	
ame of work: Security and Support merities(Protection Wall/ Fence, Surveillance 01-01)	 BANGLADESH ECONOMIC ZONES AUTHORITY	LONG PROFILE BOUNDARY WALL WALKWAY	 MD. NAZMUL HAQUE CAD OPERATOR CHEL.YOOSH@NEPC JV, D&S CONSULTANT	 MD. SOLAM SAIFUR KHAN Jr. Design Engineer-Embarkment CHEL.YOOSH@NEPC JV, D&S CONSULTANT	 PIYAS KUMAR SAHA Design Engineer-Embarkment CHEL.YOOSH@NEPC JV, D&S CONSULTANT	 Dr. Eng. SAIZ MOHAMMAD MOHSIN PEng. DEPUTY TEAM LEADER CHEL.YOOSH@NEPC JV, D&S CONSULTANT	 AKBAR TEAM LEADER CHEL.YOOSH@NEPC JV, D&S CONSULTANT	 MOHAMMAD NURUL ISLAM Executive Engineer BEMSN Development Project SEZA, Prime Minister's Office		ST-69	
PACKAGE NO : D10-BSMAN-BEZA									REVISION : 00	DATE : 16 NOV 23	SCALE : NTS