



Bihar Urban Infrastructure Development Corporation Limited

A Government of Bihar Undertaking

Bihar Urban Development Investment Program - Project 1

(ADB Loan No. 2861-IND)

BIDDING DOCUMENT

for

Procurement

of

**BALANCE WORKS OF EXISTING WTPs AND EMERGENCY
INTAKE WORKS FOR THE WATER SUPPLY SYSTEM IN
BHAGALPUR MUNICIPAL CORPORATION (BWSP) – BH/WS/01-
PACKAGE 04**

(Following ADB's single stage two envelope bidding procedure
under National Competitive Bidding)

Volume I

Section 1 to 9

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Invitation for Bids No.: BUIDCo/BUDIP-1/NCB/10

NCB No.: BH/WS/01-Package 04

Employer: Bihar Urban Infrastructure Development Corporation Ltd.,
Government of Bihar

Country: India

Preface

This Bidding Document for the Procurement of Works has been prepared by **Bihar Urban Infrastructure Development Corporation Ltd. (BUIDCo), A Government of Bihar Undertaking, INDIA** and is based on the Standard Bidding Document for the Procurement of Works (SBD Works) issued by the Asian Development Bank dated *January 2013*.

ADB's *SBD Works* has the structure and the provisions of the Master Procurement Document entitled "Bidding Documents for the Procurement of Works", prepared by multilateral development banks and other public international financial institutions, except where ADB-specific considerations have required a change.

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Section 1 - Instructions to Bidders

Section 1 - Instructions to Bidders

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of contract.

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Section 1 - Instructions to Bidders

A. General

1. **Scope of Bid**
 - 1.1 In connection with the Invitation for Bids indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Works as specified in Section 6 (Employer's Requirements). The name, identification, and number of contracts of the National Competitive Bidding (NCB) are provided in the BDS.
 - 1.2 Throughout this Bidding Document:
 - (a) the term "in writing" means communicated in written form and delivered against receipt;
 - (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
 - (c) "day" means calendar day.
2. **Source of Funds**
 - 2.1 The Borrower or Recipient (hereinafter called "Borrower") indicated in the BDS has applied for or received financing (hereinafter called "funds") from the Asian Development Bank (hereinafter called "ADB") toward the cost of 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 Payments by the ADB will be made only at the request of the Borrower and upon approval by the ADB in accordance with the terms and conditions of the financing agreement between the Borrower and the ADB (hereinafter called the Financing Agreement), and will be subject in all respects to the terms and conditions of that Financing Agreement. No party other than the Borrower shall derive any rights from the Financing Agreement or have any claim to the funds.
3. **Fraud and Corruption**
 - 3.1 ADB's Anticorruption Policy requires that borrowers (including beneficiaries of ADB-financed activity), as well as bidders, suppliers, and contractors under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the ADB:
 - (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
 - (ii) "fraudulent practice" means any act or Omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
 - (iii) "coercive practice" means 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;

(iv) “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

(b) will reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract; and

(c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the borrower or of a beneficiary of ADB-financing engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the execution of that contract, without the borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation; and

(d) will sanction a firm or an individual, at any time, in accordance with ADB’s Anticorruption Policy and Integrity Principles and Guidelines (both as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to participate¹ in ADB-financed or ADB-administered activities or to benefit from an ADB-financed or ADB-administered contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive or other prohibited practices.

3.2 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause 1.15 and 15.6 of the Conditions of Contract.

4. Eligible Bidders

4.1 A Bidder may be a natural person, private entity, government-owned entity—subject to ITB 4.5—or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture (JV). In the case of a JV:

(a) all partners shall be jointly and severally liable, and

(b) the JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.

4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section 5 (Eligible Countries). A Bidder shall be deemed to have the

¹Whether as a contractor, nominated sub-contractor, consultant, manufacturer or supplier, or service provider; or in any other capacity (different names are used depending on the particular bidding document). A nominated sub-contractor is one which either 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 are accounted for in the evaluation of the bidder’s pre-qualification application or the bid; or (ii) appointed by the Employer.

nationality of a country if the Bidder is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed sub-contractors or suppliers for any part of the Contract including related services.

- 4.3 Bidders shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. Bidders may be considered to be in a conflict of interest with one or more parties in the bidding process if including but not limited to:
- (a) they have controlling shareholders in common; or
 - (b) they receive or have received any direct or indirect subsidy from any of them; or
 - (c) they have the same legal representative for purposes of this bid; or
 - (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to material information about or improperly influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
 - (e) a Bidder participates in more than one bid in this bidding process, either individually or as a partner in a joint venture, except for alternative offers permitted under ITB Clause 13 of the Bidding Document. This will result in the disqualification of all Bids in which it is involved. However, subject to any finding of a conflict of interest in terms of 4.3 (a) - (d) above, this does not limit the participation of a Bidder as a Sub-contractor in another bid or of a firm as a Sub-contractor in more than one bid; or
 - (f) a Bidder or any affiliated entity, participated as a Consultant in the preparation of the design or technical specifications of the Works that are the subject of the bid; or
 - (g) a Bidder was affiliated with a firm or entity that has been hired (or is proposed to be hired) by the Employer or Borrower as Employer's Representative for the contract.
- 4.4 A firm shall not be eligible to participate in any procurement activities under an ADB-financed or ADB-supported project while under sanction by ADB pursuant to its Anticorruption Policy (see ITB 3), whether such sanction was directly imposed by ADB, or imposed by ADB pursuant to the Agreement for Mutual Enforcement of Debarment Decisions. A bid from a sanctioned or cross-debarred firm will be rejected.
- 4.5 Government-owned enterprises in the Employer's country shall be eligible only if they can establish that they (i) are legally and financially autonomous, (ii) operate under commercial law, and (iii) are not a dependent agency of the Employer.
- 4.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.
- 4.7 Firms shall be excluded if 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 contracting of Works or services from that country or any payments to persons or entities in that country.

- 4.8 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.
- 5. Eligible Materials, Equipment and Services**
- 5.1 The Materials, equipment and services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2 above and all expenditures under the Contract will be limited to such Materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of Materials, equipment and services.
- 5.2 For purposes of ITB 5.1 above, "origin" means the place where the Materials and equipment are mined, grown, produced or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.

B. Contents of Bidding Document

- 6. Sections of Bidding Document**
- 6.1 The Bidding Document consists of Parts I, II, and III, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.

PART I Bidding Procedures

Section 1 - Instructions to Bidders (ITB)

Section 2 - Bid Data Sheet (BDS)

Section 3 - Evaluation and Qualification Criteria (EQC)

Section 4 - Bidding Forms (BDF)

Section 5 - Eligible Countries (ELC)

PART II Requirements

Section 6 - Employer's Requirements (ERQ)

PART III Conditions of Contract and Contract Forms

Section 7 - General Conditions (GCC)

Section 8 - Particular Conditions (PCC)

Section 9 - Contract Forms (COF)

- 6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Document.
- 6.3 The Employer is not responsible for the completeness of the Bidding Document and their Addenda, if they were not obtained directly from the source stated by the Employer in the Invitation for Bids.
- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.
- 7. Clarification of**
- 7.1 A prospective Bidder requiring any clarification of the Bidding Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

Bidding Document, Site Visit, Pre-Bid Meeting

Document shall contact the Employer in writing at the Employer's address indicated in the BDS or raise his inquiries 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 twenty-one (21) 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. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so 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 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. 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, as far as possible, 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, including the text of the questions raised, 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. 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.
- 7.7 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.

- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, 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 envelopes submitted simultaneously, one called the Technical Bid containing the documents listed in ITB 11.2 and the other the Price Bid containing the documents listed in ITB 11.3, both envelopes enclosed together in an outer single envelope.
- 11.2 The Technical Bid shall comprise the following:
- (a) Letter of Technical Bid;
 - (b) Bid Security or Bid Securing Declaration, in accordance with ITB 19;
 - (c) alternative bids, if permissible, in accordance with ITB 13;
 - (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
 - (e) documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the contract;
 - (f) Technical Proposal in accordance with ITB 16;
 - (g) Any other document required in the BDS.
- 11.3 The Price Bid shall comprise the following:
- (a) Letter of Price Bid;
 - (b) completed Price Schedules, in accordance with ITB 12 and 14;
 - (c) alternative Price Bids, at Bidder's option and if permissible, in accordance with ITB 13;
 - (d) Any other document required in the BDS.
- 11.4 In addition to the requirements under ITB 11.2, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all partners and submitted with the bid,

- together with a copy of the proposed Agreement.
- 12. Letters of Bid, and Schedules** 12.1 The Letters of Technical Bid and Price Bid, and the Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section 4 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.
- 13. Alternative Bids** 13.1 Unless otherwise indicated 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, as will the method of evaluating different times for completion.
- 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 lowest evaluated Bidder 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. Such parts will be identified in the BDS and described in Section 6 (Employer's Requirements). The method for their evaluation will be stipulated in Section 3 (Evaluation and Qualification Criteria).
- 14. Bid Prices and Discounts** 14.1 The prices and discounts quoted by the Bidder in the Letter of Price Bid and in the Bill of Quantities shall conform to the requirements specified below.
- 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 will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.
- 14.3 The price to be quoted in the Letter of Price Bid, 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 Price Bid, in accordance with ITB 12.1.
- 14.5 Unless otherwise provided in the BDS and the 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 Tables of Adjustment Data included in Section 4 (Bidding Forms) and the Employer may require the

Bidder to justify its proposed indices and weightings.

14.6 If so indicated in ITB 1.1, bids are being invited for individual contracts or for any combination of contracts (packages). Bidders wishing to offer any price reduction 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. Price reductions or discounts shall be submitted in accordance with ITB 14.4, provided the bids for all contracts are submitted and opened at the same time.

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 unit rates and the prices shall be quoted by the bidder entirely in the currency specified in the BDS.

15.2 Bidders shall indicate the portion of the Bid Price that corresponds to expenditures incurred in the currency of the Employer's country in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).

15.3 Bidders expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's country and wishing to be paid accordingly may indicate up to three foreign currencies in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).

15.4 The rates of exchange to be used by the bidder for currency conversion during bid preparation shall be the selling rates for similar transactions prevailing on the date 28 days prior to the deadline for submission of bids published by the source specified in the BDS. If exchange rates are not so published for certain currencies, the bidder shall state the rates used and the source. Bidders should note that for the purpose of payments, the exchange rates confirmed by the source specified in the BDS as the selling rates prevailing 28 days prior to the deadline for submission of bids shall apply for the duration of the Contract so that no currency exchange risk is borne by the bidder.

15.5 Foreign currency requirements indicated by the bidders in the Schedule of Payment Currencies shall include but not limited to the specific requirements for:

- (a) expatriate staff and labor employed directly on the Works;
- (b) social, insurance, medical and other charges relating to such expatriate staff and labor, and foreign travel expenses;
- (c) imported Materials, both temporary and permanent, including fuels, oil and lubricants required for the Works;
- (d) depreciation and usage of imported Plant and Contractor's Equipment, including spare parts, required for the Works;
- (e) foreign insurance and freight charges for imported Materials, Plant and Contractor's Equipment, including spare parts; and
- (f) overhead expenses, fees, profit, and financial charges arising outside the Employer's country in connection with the

Works.

- 15.6 Bidders may be required by the Employer to clarify their foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Payment Currencies are reasonable and responsive to ITB 15.3 above, in which case a detailed breakdown of its foreign currency requirements shall be provided by the Bidder.
- 15.7 Bidders should note that during the progress of the Works, the foreign currency requirements of the outstanding balance of the Contract Price may be adjusted by agreement between the Employer and the Contractor in order to reflect any changes in foreign currency requirements for the Contract, in accordance with Sub-Clause 14.15 of the Conditions of Contract. Any such adjustment shall be effected by comparing the percentages quoted in the bid with the amounts already used in the Works and the Contractor's future needs for imported items.
- 16. Documents Comprising the Technical Proposal**
- 16.1 The Bidder shall furnish, as part of the Technical Bid, a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section 4 (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.
- 17. Documents Establishing the Qualifications of the Bidder**
- 17.1 To establish its qualifications to perform the Contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 4 (Bidding Forms).
- 17.2 Domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility as described in ITB 35.
- 18. Period of Validity of Bids**
- 18.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.
- 18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB 19, it shall also be extended twenty-eight (28) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its Bid.
- 19. Bid Security/Bid Securing Declaration**
- 19.1 Unless otherwise specified in the BDS, the Bidder shall furnish as part of its bid, in original form, either a Bid Securing Declaration or a Bid Security as specified in the BDS. In the case of a Bid Security, the amount shall be as specified in the BDS.
- 19.2 A Bid Securing Declaration shall use the form included in Section 4 (Bidding Forms). The Employer will declare a Bidder

ineligible to be awarded a Contract for a specified period of time if the Bid Securing Declaration is executed.

19.3 The Bid Security shall be, at the Bidder's option, in any of the following forms:

- (a) an unconditional bank guarantee;
- (b) an irrevocable letter of credit; or
- (c) a cashier's or certified check;

all from a reputable source from an eligible country. In the case of a bank guarantee, the Bid Security shall be submitted either using the Bid Security Form included in Section 4 (Bidding Forms) or another form acceptable to the Employer. The form must include the complete name of the Bidder. The Bid Security shall be valid for twenty-eight days (28) beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

19.4 Any Bid not accompanied by a substantially compliant Bid Security or Bid Securing Declaration, if one is required in accordance with ITB 19.1, shall be rejected by the Employer as non-responsive.

19.5 If a Bid Security is specified pursuant to ITB 19.1, the Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the performance security pursuant to ITB 42.

19.6 If a Bid Security is specified pursuant to ITB 19.1, the Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.

19.7 The Bid Security may be forfeited or the Bid Securing Declaration executed:

- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid, except as provided in ITB 18.2; or
- (b) if the successful Bidder fails to:
 - (i) sign the Contract in accordance with ITB 41; or
 - (ii) furnish a performance security in accordance with ITB 42; or
 - (iii) accept the arithmetical correction of its Bid in accordance with ITB 33; or
 - (iv) furnish a domestic preference security, if so required.

19.8 The Bid Security or 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 at the time of bidding, the Bid Security or Bid Securing Declaration shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.

20. Format and Signing of Bid

20.1 The Bidder shall prepare one original of the Technical Bid and one original of the Price Bid comprising the Bid as described in ITB 11 and clearly mark it "ORIGINAL - TECHNICAL BID" and "ORIGINAL - PRICE BID". Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE". In addition, the Bidder shall submit copies of the Technical and Price Bids, in the number specified in

theBDS, and clearly mark each of them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail.

- 20.2 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, except for unamended printed literature, shall be signed or initialed by the person signing the bid.
- 20.3 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

D. Submission and Opening of Bids

- 21. Sealing and Marking of Bids**
- 21.1 The Bidder shall enclose the original of the Technical Bid, the original of the Price Bid, and each copy of the Technical Bid and each copy of the Price Bid, in separate sealed envelopes, duly marking the envelopes as “ORIGINAL - TECHNICAL BID”, “ORIGINAL - PRICE BID” and “COPY NO... - TECHNICAL BID” and “COPY NO.... - PRICE BID.” These envelopes, the first containing the originals and the others containing copies, shall then be enclosed in one single envelope per set. If permitted in accordance with ITB 13, alternative bids shall be similarly sealed, marked and included in the sets.
- 21.2 The inner and outer envelopes shall:
- (a) bear the name and address of the Bidder;
 - (b) be addressed to the Employer in accordance with BDS 22.1; and
 - (c) bear the specific identification of this bidding process indicated in the BDS 1.1.
- 21.3 The outer envelopes and the inner envelopes containing the Technical Bid shall bear a warning not to open before the time and date for the opening of Technical Bid, in accordance with ITB Sub-Clause 25.1.
- 21.4 The inner envelopes containing the Price Bid shall bear a warning not to open until advised by the Employer in accordance with ITB Sub-Clause 25.7.
- 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 indicated 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.

- 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 – Technical or Price – 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 20.2, (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 withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” “MODIFICATION;” and
 - (b) received by the Employer no later than the deadline prescribed for submission of bids, in accordance with ITB 22.
- 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 expiration of the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid or any extension thereof.
- 25. Bid Opening** 25.1 The Employer shall open the Technical Bids in public at the address, date and time specified in the BDS in the presence of Bidders` designated representatives and anyone who chooses to attend. The Price Bids will remain unopened and will be held in custody of the Employer until the specified time of their opening. If the Technical Bid and the Price Bid are submitted together in one envelope, the Employer may reject the entire Bid. Alternatively, the Price Bid may be immediately resealed for later evaluation.
- 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 Second, outer envelopes marked “SUBSTITUTION” shall be opened. The inner envelopes containing the Substitution Technical Bid and/or Substitution Price Bid shall be exchanged for the corresponding envelopes being substituted, which are to

be returned to the Bidder unopened. Only the Substitution Technical Bid, if any, shall be opened, read out, and recorded. Substitution Price Bid will remain unopened in accordance with ITB Sub-Clause 25.1. No envelope shall be substituted unless the corresponding Substitution Notice contains a valid authorization to request the substitution and is read out and recorded at bid opening.

25.4 Next, outer envelopes marked “MODIFICATION” shall be opened. No Technical Bid and/or Price Bid shall be modified unless the corresponding Modification Notice contains a valid authorization to request the modification and is read out and recorded at the opening of Technical Bids. Only the Technical Bids, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Price Bids, both Original as well as Modification, will remain unopened in accordance with ITB Sub-Clause 25.1.

25.5 All other envelopes holding the Technical Bids shall be opened one at a time, and the following read out and recorded:

- (a) the name of the Bidder;
- (b) whether there is a modification or substitution;
- (c) the presence of a Bid Security or Bid Securing Declaration, if required; and
- (d) any other details as the Employer may consider appropriate.

Only Technical Bids and alternative Technical Bids read out and recorded at bid opening shall be considered for evaluation. No Bid shall be rejected at the opening of Technical Bids except for late bids, in accordance with ITB Sub-Clause 23.1.

25.6 The Employer shall prepare a record of the opening of Technical Bids that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; alternative proposals; and the presence or absence of a Bid Security or Bid Securing Declaration, if one was required. 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.

25.7 At the end of the evaluation of the Technical Bids, the Employer will invite bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified for award to attend the opening of the Price Bids. The date, time, and location of the opening of Price Bids will be advised in writing by the Employer. Bidders shall be given reasonable notice of the opening of Price Bids.

25.8 The Employer will notify Bidders in writing who have been rejected on the grounds of their Technical Bids being substantially non-responsive to the requirements of the Bidding Document and return their Price Bids unopened.

25.9 The Employer shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids,

in the presence of Bidders' representatives who choose to attend at the address, date and time specified by the Employer. The Bidder's representatives who are present shall be requested to sign a register evidencing their attendance.

25.10 All envelopes containing Price Bids shall be opened one at a time and the following read out and recorded:

- (a) the name of the Bidder;
- (b) whether there is a modification or substitution;
- (c) the Bid Prices, including any discounts and alternative offers; and
- (d) any other details as the Employer may consider appropriate.

Only Price Bids discounts, and alternative offers read out and recorded during the opening of Price Bids shall be considered for evaluation. No Bid shall be rejected at the opening of Price Bids.

25.11 The Employer shall prepare a record of the opening of Price Bids that shall include, as a minimum: the name of the Bidder, the Bid Price (per lot if applicable), any discounts, and alternative offers. 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.

E. Evaluation and Comparison of Bids

- 26. Confidentiality**
- 26.1 Information relating to the examination, evaluation, comparison, and post-qualification of bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.
- 26.2 Any attempt 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 any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.
- 27. Clarification of Bids**
- 27.1 To assist in the examination, evaluation, and comparison of the Technical and Price Bids, the Employer may, at its discretion, ask any Bidder for a clarification of its bid. 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 in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Price Bids, in accordance with ITB 33.
- 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. Preliminary Examination of Technical Bids**
- 29.1 The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in ITB Sub-Clause 11.2 have been provided, and to determine the completeness of each document submitted.
- 29.2 The Employer shall confirm that the following documents and information have been provided in the Technical Bid. If any of these documents or information is missing, the offer shall be rejected:
- (a) Letter of Technical Bid;
 - (b) written confirmation of authorization to commit the Bidder;
 - (c) Bid Security or Bid Securing Declaration, if applicable; and
 - (d) Technical Proposal in accordance with ITB 16.
- 30. Responsiveness of Technical Bid**
- 30.1 The Employer’s determination of a Bid’s responsiveness is to be based on the contents of the bid itself, as defined in ITB 11.
- 30.2 A substantially responsive Technical Bid is one that meets the requirements 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 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section 6 (Employer’s Requirements) have been met without any material Deviation, Reservation or Omission.
- 30.4 If a bid 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. Nonmaterial Nonconformities**
- 31.1 Provided that a bid is substantially responsive, the Employer may waive any non-conformities in the Bid that do not constitute a material Deviation, Reservation or Omission.
- 31.2 Provided that a Technical 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 Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

31.3 Provided that a Technical Bid is substantially responsive, the Employer shall rectify 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. The adjustment shall be made using the method indicated in Section 3 (Evaluation and Qualification Criteria).

32. Qualification of the Bidder 32.1 The Employer shall determine to its satisfaction during the evaluation of Technical Bids whether Bidders meet the qualifying criteria specified in Section 3 (Evaluation and Qualification Criteria).

32.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.

32.3 An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder's Price Bid. A negative determination shall result in the disqualification of the Bid, in which event the Employer shall return the unopened Price Bid to the Bidder.

33. Correction of Arithmetical Errors 33.1 During the evaluation of Price Bids, 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;
- (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;
- (c) if there is a discrepancy between the Bid Price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Price Bid, the Bid Price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Price Bid will be corrected; and
- (d) 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), (b) and (c) above.

33.2 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its Bid shall be disqualified and its Bid Security may be forfeited or its Bid Securing Declaration

- executed.
- 34. Conversion to Single Currency** 34.1 For evaluation and comparison purposes, the currency(ies) of the bid shall be converted into a single currency as specified in the BDS.
- 35. Margin of Preference** 35.1 Unless otherwise specified in the BDS, a margin of preference shall not apply.
- 36. Evaluation of Price Bids** 36.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.
- 36.2 To evaluate the Price Bid, the Employer shall consider the following:
- (a) the Bid Price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Day work items, where priced competitively;
 - (b) price adjustment for correction of arithmetic errors in accordance with ITB 33.1;
 - (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 34;
 - (e) adjustment for nonconformities in accordance with ITB 31.3;
 - (f) application of all the evaluation factors indicated in Section 3 (Evaluation and Qualification Criteria).
- 36.3 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.
- 36.4 If this Bidding Document allows Bidders to quote separate prices for different contracts, and the award to a single Bidder of multiple contracts, the methodology to determine the lowest evaluated price of the contract combinations, including any discounts offered in the Letter of Price Bid, is specified in Section 3 (Evaluation and Qualification Criteria).
- 36.5 If the Bid, which results in the lowest evaluated Bid Price, is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.
- 37. Comparison of Bids** 37.1 The Employer shall compare all substantially responsive Bids to determine the lowest evaluated bid, in accordance with ITB 36.2.

- 38. Employer's Right to Accept Any Bid, and to Reject Any or All Bids** 38.1 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.

F. Award of Contract

- 39. Award Criteria** 39.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
- 40. Notification of Award** 40.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted.
- 40.2 At the same time, the Employer will publish in an English language newspaper or well-known freely accessible website the results identifying the bid and lot numbers and the following information: (i) name of each Bidder who submitted a Bid; (ii) Bid Prices as read out at bid opening; (iii) name and evaluated prices of each Bid that was evaluated; (iv) name of bidders whose bids were rejected and the reasons for their rejection; and (v) name of the winning Bidder, and the price it offered, as well as the duration and summary scope of the contract awarded. After publication of the award, unsuccessful bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their bids were not selected. The Employer shall promptly respond in writing to any unsuccessful Bidder who, after Publication of contract award, requests a debriefing.
- 40.3 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.
- 41. Signing of Contract** 41.1 Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement.
- 41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.
- 42. Performance Security** 42.1 Within twenty-eight (28) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, subject to ITB 36.5, using for that purpose the Performance Security Form included in Section 9 (Contract Forms), or another form acceptable to the Employer.
- 42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or execution of the Bid Securing Declaration. In that event the Employer may award the Contract

to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

42.3 The above provision shall also apply to the furnishing of a domestic preference security if so required.

Section 2–Bid Data Sheet

Section 2 - Bid Data Sheet

This section consists of provisions that are specific to each stage of procurement and supplement the information or requirements included in Section 1. Instructions to Bidders.

A. General

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| ITB 1.1 | The number of the Invitation for Bids is: BUIDCo/BUDIP-1/NCB/10 (National Competitive Bidding) |
| ITB 1.1 | The Employer is: State of Bihar, acting through its Urban Development and Housing Department (UDHD), in turn acting through the Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) . The authorized representative of the Employer is Design and Supervision Consultants (DSC). |
| ITB 1.1 | The name of the NCB is: Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation (BWSP01- Package 04) The identification number of the NCB is: BH/WS/01-Package 04 The number and identification of lots comprising this NCB is: One |
| ITB 2.1 | The Borrower is: India |
| ITB 2.1 | The name of the Project is: ADB Loan No. 2861-IND; Bihar Urban Development Investment Program - Project 1 |

B. Contents of Bidding Documents

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| ITB 7.1 | For clarification purposes only, the Employer's address is: Attention: Additional Program Director, Program Management Unit, Bihar Urban Development Investment Program, Bihar Urban Infrastructure Development Corporation Ltd (BUIDCo), Street address: # West Boring Canal Road, Rajapul, Floor/Room number: First Floor City: Patna, Bihar ZIP code: 800001 Country: India Telephone: +91 612 2506109 Fax: +91 612 2210103 E-mail: apdinpmu.buidco@gmail.com |
| ITB 7.4 | A Pre-Bid meeting will take place at the Conference Hall of BUIDCo at 11:00 Hrs on 17 th February 2020. A Site visit conducted by the Employer will be organized at 11:00 Hrs on 18 th February 2020. |

C. Preparation of Bids

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| ITB 10.1 | The language of the bid is: English |
| ITB 11.2 (g) | The Bidder shall submit with its Technical Bid the following additional documents: (i) Audited and certified balance sheets of bidder (for all partners, in case of JV) for the last three financial years. (ii) In case the Bidder is a Joint Venture (JV): A valid JV Agreement |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

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| | <p>legally notarized or attested by an appropriate authority in the bidder's home country, or a formal Letter of Intent to enter into a JV, specifying the financial stakes of each of the joint venture partners.</p> <p>(iii) In case the Bidder includes a Specialist Subcontractor: A valid subcontracting agreement or a formal Letter of Intent to enter into a subcontracting agreement.</p> |
| ITB 11.3 (d) | The Bidder shall submit with its Price Bid the following additional documents: NA . |
| ITB 13.1 | Alternative bids shall not be permitted. |
| ITB 13.2 | Alternative times for completion shall not be 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: subject to price adjustment . |
| ITB 14.7 | <p>Additional Provision:</p> <p>The Employer will assist the Contractor to obtain any lawful exemptions from payment of Goods and Services Tax (GST) notified under Central Goods and Services Tax (CGST) Rules, 2017 (amended up-to-date), if available through any Government Notification.</p> <p>The responsibility for obtaining any such exemptions from the Competent Authority will remain with the Contractor and the Employer shall not in any way be responsible for admissibility of the claims or eligibility of the Contractor.</p> <p>The exemption if any availed by the contractor shall be passed on to the employer.</p> |
| ITB 15.1 | The unit rates and the prices shall be quoted by the bidder entirely in: Indian Rupee (INR) . |
| ITB 15.4 | The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by: Reserve Bank of India . |
| ITB 18.1 | The bid validity period shall be 120 days. |
| ITB 19.1 | <p>A Bid Security shall be required. Bid Securing Declaration shall not be accepted.</p> <p>The amount and currency of the Bid Security shall be: INR 3.84 million (or equivalent USD 0.05908 million).</p> |
| ITB 20.1 | In addition to the original bid, the number of copies is: One . |
| ITB 20.2 | <p>The written confirmation of authorization to sign on behalf of the Bidder shall consist of:</p> <p>An organizational document, board resolution or its equivalent, or power of attorney specifying the representative's authority to sign the Bid on behalf of the Bidder. If the Bidder is an intended or an existing joint venture, the power of attorney should be signed by all partners and specify the authority of the named representative of the joint venture to sign on behalf of the intended or existing joint venture. If the joint venture has not yet been formed, also include evidence from all proposed joint venture partners of their intent to enter into a joint venture in the event of a contract award.</p> |

D. Submission and Opening of Bids

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| ITB 22.1 | For <u>bid submission purposes</u> only, the Employer's address is: Attention: Managing Director, BUIDCo, |
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Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

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| | Street address: # West Boring Canal Road, Rajapul, Floor/Room number: First Floor City: Patna, Bihar ZIP code: 800001 Country: India Telephone: +91 612 2506109 The deadline for bid submission is: Date: 5 th March 2020 Time: 15:00 Hrs. |
| ITB 25.1 | The <u>opening of the Technical Bid</u> shall take place at/on: Conference Hall, office of BUIDCo, Street address: # West Boring Canal Road, Rajapul, Floor/Room number: First Floor City: Patna, Bihar ZIP code: 800001 Date: 5 th March 2020 Time: Immediately after the deadline for bid submission. |

E. Evaluation and Comparison of Bids

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| ITB 34.1 | The currency that shall be used for bid evaluation and comparison purposes to convert all Bid Prices expressed in various currencies into a single currency is: Indian Rupees (INR) . The source of selling exchange rate shall be: Reserve Bank of India . The date for the selling exchange rate shall be: 28 days prior to the deadline for submission of bids . |
| ITB 35.1 | A margin of preference shall not apply. |

Section 3 - Evaluation and Qualification Criteria

Section 3 - Evaluation and Qualification Criteria - Without Prequalification -

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 32 and ITB 36, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

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| 2.4.2 | Construction and Operations Experience in Key Activities | 3-7 |

1. Evaluation

In addition to the criteria listed in ITB 36.2 (a) – (e) the following criteria shall apply:

1.1. Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing as well as operations, maintenance and management in sufficient detail and fully in accordance with the requirements stipulated in Section 6 (Employer's Requirements).

Non-compliance with equipment and personnel requirements described in Section 6 (Employer's Requirements) may not be grounds for bid rejection, but such non-compliance will be subject to clarification and rectification prior to contract award..

1.2. Multiple Contracts

Pursuant to Sub-Clause 36.4 of the Instructions to Bidders, if Works are grouped in multiple contracts, evaluation will be as follows: **Not applicable.**

1.3. Completion Time

An alternative Completion Time, if permitted under ITB 13.2, will be evaluated as follows: Not applicable.

1.4. Technical Alternatives

Technical alternatives, if permitted under ITB 13.4, will be evaluated as follows: Not applicable.

1.5. Quantifiable Nonconformities, Errors and Omissions

The evaluated cost of quantifiable nonconformities, errors and/or Omissions are determined as follows:

Pursuant to ITB 31.3, the cost of all quantifiable nonmaterial nonconformities or Omissions shall be evaluated. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and Omissions for the purpose of ensuring fair comparison of bids.

1.6. Domestic Preference

If a margin of preference shall apply under ITB 35.1, the procedure will be as follows: Not applicable.

2. Qualification

Unless specifically indicated otherwise, it is the legal entity or entities comprising the Bidder, and not the Bidder's parent companies, subsidiaries or affiliates, that must satisfy the qualification criteria described below.

2.1. Eligibility

| Criteria | Compliance Requirements | | | | Documents |
|-------------|-------------------------|-----------------------|--------------|-------------|-------------------------|
| Requirement | Single Entity | Joint Venture | | | Submission Requirements |
| | | All Partners Combined | Each Partner | One Partner | |

2.1.1. Nationality

| | | | | | |
|--|-----------------------|-----------------------|-----------------------|----------------|---|
| Nationality in accordance with ITB Sub-Clause 4.2. | must meet requirement | must meet requirement | must meet requirement | not applicable | Forms ELI – 1, ELI – 2 with attachments |
|--|-----------------------|-----------------------|-----------------------|----------------|---|

2.1.2. Conflict of Interest

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|----------------|-------------------------|
| No conflicts of interest in accordance with ITB Sub-Clause 4.3. | must meet requirement | must meet requirement | must meet requirement | not applicable | Letter of Technical Bid |
|---|-----------------------|-----------------------|-----------------------|----------------|-------------------------|

2.1.3. ADB Eligibility

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|----------------|-------------------------|
| Not having been declared ineligible by ADB, as described in ITB Sub-Clause 4.4. | must meet requirement | must meet requirement | must meet requirement | not applicable | Letter of Technical Bid |
|---|-----------------------|-----------------------|-----------------------|----------------|-------------------------|

2.1.4. Government-owned Entity

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|----------------|---|
| Bidder required to meet conditions of ITB Sub-Clause 4.5. | must meet requirement | must meet requirement | must meet requirement | not applicable | Forms ELI – 1, ELI – 2 with attachments |
|---|-----------------------|-----------------------|-----------------------|----------------|---|

2.1.5. UN Eligibility

| | | | | | |
|---|-----------------------|-----------------------|-----------------------|----------------|-------------------------|
| Not having been excluded by an act of compliance with UN Security Council resolution in accordance with ITB Sub-Clause 4.7. | must meet requirement | must meet requirement | must meet requirement | not applicable | Letter of Technical Bid |
|---|-----------------------|-----------------------|-----------------------|----------------|-------------------------|

2.2. Pending Litigation

Pending Litigation criterion shall apply.

| Criteria | Compliance Requirements | | | | Documents |
|-------------|-------------------------|-----------------------|--------------|-------------|-------------------------|
| Requirement | Single Entity | Joint Venture | | | Submission Requirements |
| | | All Partners Combined | Each Partner | One Partner | |

2.2.1. Pending Litigation

| | | | | | |
|--|--|----------------|--|----------------|--------------|
| All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than 50 percent of the Bidder's net worth - calculated as the difference between total assets and total liabilities, which should be positive. | must meet requirement by itself or as partner to past or existing JV | not applicable | must meet requirement by itself or as partner to past or existing JV | not applicable | Form LIT - 1 |
|--|--|----------------|--|----------------|--------------|

2.3. Financial Situation

| Criteria | Compliance Requirements | | | | Documents |
|-------------|-------------------------|-----------------------|--------------|-------------|-------------------------|
| Requirement | Single Entity | Joint Venture | | | Submission Requirements |
| | | All Partners Combined | Each Partner | One Partner | |

2.3.1. Historical Financial Performance

| | | | | | |
|---|-----------------------|----------------|-----------------------|----------------|-------------------------------|
| Submission of audited financial statements or, if not required by the Laws of the Bidder's country, other financial statements acceptable to the Employer, for the last 3 (three) years to demonstrate the current soundness of the Bidder's financial position. As a minimum, the Bidder's net worth for the last year calculated as the difference between total assets and total liabilities should be positive. | must meet requirement | not applicable | must meet requirement | not applicable | Form FIN - 1 with attachments |
|---|-----------------------|----------------|-----------------------|----------------|-------------------------------|

2.3.2. Average Annual Construction Turnover

| | | | | | |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|--------------|
| Minimum average annual construction turnover of INR 505 million (or USD 7.76923 million) calculated as total certified payments received for contracts in progress or completed, within the last three years. | must meet requirement | must meet requirement | must meet 25% of the requirement | must meet 40% of the requirement | Form FIN - 2 |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|--------------|

2.3.3. Financial Resources

| | | | | | |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|------------------------|
| Using Forms FIN – 3 and FIN - 4 in Section 4 (Bidding Forms), the Bidder must demonstrate access to, or availability of, liquid assets ^a , lines of credit, or other financial resources (other than any contractual advance payments) to meet the Bidder's financial resources requirement indicated in Form FIN-4. of INR 127 Million (or USD 1.95385 million) | must meet requirement | must meet requirement | must meet 25% of the requirement | must meet 40% of the requirement | Form FIN – 3 & FIN – 4 |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|------------------------|

^a Liquid Assets mean cash and cash equivalents, short-term financial instruments, short term available-for-sale-securities, marketable securities, trade

receivables, short-term financing receivables and other assets that can be converted into cash within ONE YEAR.

2.4. Construction and Operations Experience

2.4.1. Contracts of Similar Size and Nature

| Criteria | Compliance Requirements | | | | Documents |
|--|-------------------------|--|----------------|----------------|-------------------------|
| Requirement | Single Entity | Joint Venture All Partners Combined | Each Partner | One Partner | Submission Requirements |
| Participation as Contractor or Sub-Contractor or Management Contractor in at least one water supply works contract with a minimum value of exceeds INR 142 million (or USD 2.18462 million) within the last seven years that are similar to the proposed Works and have been successfully or substantially completed. <i>The similarity of the Bidder's participation shall be based on the physical size, nature of works, complexity, methods, technology or other characteristics as described in Section 6, Employer's Requirements.</i> | must meet requirement | must meet requirement as follows: Either one partner must meet requirement | not applicable | not applicable | Form EXP - 1(a) |

Note:

1. In the case of a joint venture bidder, at least one of the partners must have experience in the key activity if the bidder itself (not its subcontractor) will carry out the relevant activity.
2. The bidder will submit copy of work-orders and completion certificates from the client not below the rank of Superintending Engineer or Equivalent Rank Officer in support of all claimed experiences.
3. For present price level of cost of completed and commissioned works, the previous years' value shall be given weightage of 10% per year as follows:

| S No | Financial Year* | Weightage |
|-------|-----------------|-----------|
| (i) | 2018-19 | 1.00 |
| (ii) | 2017-18 | 1.00 |
| (iii) | 2016-17 | 1.10 |
| (iv) | 2015-16 | 1.21 |
| (v) | 2014-15 | 1.33 |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

| | | |
|--------|----------|------|
| (vi) | 2013-14 | 1.46 |
| (vii) | 2012-13 | 1.61 |
| (viii) | 2011-12* | 1.77 |

**Financial Year means 01 April 2011 to 31 March 2012*

2.4.2. Construction and Operations Experience in Key Activities (May be complied by Specialist Sub-contractors. Employer shall require evidence of subcontracting agreement from the Bidder.)

| Criteria | Compliance Requirements | | | | Documents |
|--|----------------------------|--|----------------|----------------|-------------------------|
| Requirement | Single Entity | Joint Venture All Partners Combined | Each Partner | One Partner | Submission Requirements |
| For the above or other contracts executed during the period stipulated in 2.4.1 above, a minimum Construction and Operations Experience as Contractor or Sub-Contractor or Management Contractor or Water Utility Operations Company in Key Activities, as follows: | must meet all requirements | must meet all requirements | not applicable | not applicable | Form EXP - 1(b) |
| 1. Design, Construction/ Rehabilitation and Commissioning of Drinking Water Treatment Plant of minimum 20 MLD capacity with minimum one year Operation and maintenance experience within the last seven years. <i>(This criterion should be met by the bidder itself)</i> | must meet all requirements | must meet all requirements | not applicable | not applicable | |
| 2. Construction and commissioning 33kV sub-station, under a single contract, within the last seven years. <i>(This criteria can be met by the Bidder or by the Specialist Subcontractor)</i> | must meet all requirements | must meet all requirements | not applicable | not applicable | Form EXP - 1(b) |
| 3. Providing, laying, jointing and commissioning of water transmission/distribution pipelines of Ductile Iron (DI) of various sizes/ lengths as, under a single contract, within the last seven years: DI Pipes - Diameter above 500mm | must meet all requirements | must meet all requirements | not applicable | not applicable | Form EXP - 1(b) |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

| | | | | | |
|---|----------------------------|----------------------------|----------------|----------------|----------------|
| – 10 km <i>(This criteria should be met by the bidder itself)</i> | | | | | |
| 4. Supply, Erection, testing and commissioning of Centrifugal pumpsets with minimum capacity of 300 m ³ /hr x 50 m head with in last seven years <i>(This criteria can be met by the bidder or by the Specialist sub-contractor)</i> | must meet all requirements | must meet all requirements | not applicable | not applicable | Form EXP-1 (b) |
| 5. Successfully carried out the Operation and Maintenance of a Water Supply Project having water treatment plant, transmission pipelines, Distribution pipelines for at least one year, under a single contract, within the last seven years <i>(This criteria can be met by the bidder or by the Specialist sub-contractor)</i> | | | | | |

In the case of a joint venture bidder, at least one of the partners must have experience in the key activity if the bidder itself (not its subcontractor) will carry out the relevant activity.

The bidder will submit copy of work-orders and completion certificates from the client not below the rank of Superintending Engineer or Equivalent Rank Officer in support of all claimed experiences.

Section 4 - Bidding Forms

Section 4 - Bidding Forms

- Without Prequalification -

This Section contains the forms which are to be completed by the Bidder and submitted as part of his Bid.

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Letter of Technical Bid

Date:

NCB No.: BH/WS/01-Package 04

Invitation for Bid No.: BUIDCo/BUDIP-1/NCB/10

To,

Managing Director, BUIDCo,
West Boring Canal Road, Rajapul,
City: Patna, Bihar
ZIP code: 800001
Country: India

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 8;
- (b) We offer to execute in conformity with the Bidding Documents the following Works: **Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation (BWSP01- Package 04);**
- (c) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for a period of **120 days** from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (d) Our firm, including any sub-contractors or suppliers for any part of the Contract, have nationalities from eligible countries [insert the nationality of the Bidder, including that of all parties that comprise the Bidder if the Bidder is a consortium or association, and the nationality of each Sub-contractor and Supplier];
- (e) We, including any sub-contractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 4.3;
- (f) We are not participating, as a Bidder or as a sub-contractor, in more than one bid in this bidding process in accordance with ITB 4.3(e), other than alternative offers submitted in accordance with ITB 13;
- (g) Our firm, its affiliates or subsidiaries, including any Sub-contractors or Suppliers for any part of the contract, has not been declared ineligible by ADB, under the Employer's country Laws or official regulations or by an act of compliance with a decision of the United Nations Security Council;
- (h) We are not a government owned entity / We are a government owned entity but meet the requirements of ITB 4.5; *

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

- (i) We agree to permit ADB or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by ADB;
- (j) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section 6 (Employer's Requirements) and our technical proposal, or as otherwise agreed with the Employer.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

* *Use one of the two options as appropriate.*

Letter of Price Bid

Date:

NCB No.: BH/WS/01-Package 04

Invitation for Bid No.: BUIDCo/BUDIP-1/NCB/10

To,

Managing Director, BUIDCo,
West Boring Canal Road, Rajapul,
City: Patna, Bihar
ZIP code: 800001
Country: India

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 8;
- (b) We offer to execute in conformity with the Bidding Documents and the Technical Bid submitted for the following Works: **Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation (BWSP01- Package 04);**
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is:

INR _____
- (d) The discounts offered and the methodology for their application are:

- (e) Our Bid shall be valid for a period of **120 days** from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our Bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;
- (g) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: *

| Name of Recipient | Address | Reason | Amount |
|-------------------|---------|--------|--------|
| | | | |

- (h) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed;

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

- (i) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive;
- (j) We agree to permit ADB or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by ADB.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

* *If none has been paid or is to be paid, indicate “none”*

Bid Security

Bank Guarantee

Bank's Name, and Address of Issuing Branch or Office

Beneficiary: Bihar Urban Infrastructure Development Corporation Limited, (a Government of Bihar undertaking)

Date:

Bid Security No.:

We have been informed that ***name of the Bidder***. (hereinafter called "the Bidder") has submitted to you its bid dated (hereinafter called "the Bid") for the execution of ***name of contract*** under Invitation for Bids No. ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we ***name of Bank***. hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ***amount in figures*** (***amount in words***) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Letter of Technical Bid and Letter of Price Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB or (iii) fails or refuses to furnish a domestic preference security, if required.

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the Contract Agreement signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; and (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy your notification to the Bidder of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of the Bidder's bid.

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

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

. ***Bank's seal and authorized signature(s)***

Note: All italicized text is for use in preparing this form and shall be deleted from the final document

Technical Proposal

Personnel

Equipment

Site Organization

Method Statement

Mobilization Schedule

Construction Schedule

Others

Personnel

Form PER – 1: Proposed Personnel

Bidder shall provide the details of the proposed personnel and their experience records in the relevant Information Forms below for each candidate:

| | |
|-------------|---------------------------|
| 1. | Title of position* |
| | Name |
| 2. | Title of position* |
| | Name |
| 3. | Title of position* |
| | Name |
| 4. | Title of position* |
| | Name |
| 5. | Title of position* |
| | Name |
| 6. | Title of position* |
| | Name |
| etc. | Title of position* |
| | Name |
| | |

*As listed in Section 6 (Employer's Requirements).

Form PER – 2: Resume of Proposed Personnel

| | | |
|------------------------------|------------------------------------|--|
| Position | | |
| Personnel information | Name | Date of birth |
| | Professional qualifications | |
| Present employment | Name of employer | |
| | Address of employer | |
| | Telephone | Contact (manager / personnel officer) |
| | Fax | E-mail |
| | Job title | Years with present employer |

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

| From | To | Company / Project / Position / Relevant technical and management experience |
|------|----|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Equipment

Form EQU: Equipment

The Bidder shall provide adequate information and details to demonstrate clearly that it has the capability to meet the equipment requirements indicated in Section 6 (Employer's Requirements), using the Forms below. 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 | |
| | Telephone | Contact name and title |
| | Fax | Telex |
| Agreements | Details of rental / lease / manufacture agreements specific to the project | |
| | | |
| | | |

Site Organization

(Note: Evaluation of the Bidder's Site Organization will include an assessment of the Bidder's capacity to mobilize key personnel for the Contract consistent with its proposal regarding work methods, scheduling, and material sourcing as well as operations, maintenance and management in sufficient detail and fully in accordance with the requirements stipulated in Section 6 (Employer's Requirements)).

Method Statement

Mobilization Schedule

Construction Schedule

(Note: Evaluation of the Bidder's Construction Schedule will include an assessment of the Bidder's technical capacity to mobilize equipment for the Contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 6 (Employer's Requirements)).

Bidder's Qualification

To establish its qualifications to perform the contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI - 1: Bidder's Information Sheet

| Bidder's Information | |
|--|--|
| Bidder's legal name | |
| In case of JV, legal name of each partner | |
| Bidder's country of constitution | |
| Bidder's year of constitution | |
| Bidder's legal address in country of constitution | |
| Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address) | |
| <p>Attached are copies of the following original documents.</p> <p><input type="checkbox"/> 1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2.</p> <p><input type="checkbox"/> 2. Authorization to represent the firm or JV named in above, in accordance with ITB 20.2.</p> <p><input type="checkbox"/> 3. In case of JV, letter of intent to form JV or JV Agreement, in accordance with ITB 4.1.</p> <p><input type="checkbox"/> 4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 4.5.</p> | |

Form ELI - 2: JV Information Sheet

Each member of a JV must fill in this form.

| JV / Specialist Sub-contractor Information | |
|--|--|
| Bidder's legal name | |
| JV Partner's or Sub-contractor's legal name | |
| JV Partner's or Sub-contractor's country of constitution | |
| JV Partner's or Sub-contractor's year of constitution | |
| JV Partner's or Sub-contractor's legal address in country of constitution | |
| JV Partner's or Sub-contractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address) | |
| Attached are copies of the following original documents. <ul style="list-style-type: none"> <input type="checkbox"/> 1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. <input type="checkbox"/> 2. Authorization to represent the firm named above, in accordance with ITB 20.2. <input type="checkbox"/> 3. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with _____ commercial law, in accordance with ITB 4.5. | |

Form LIT – 1: Pending Litigation

Each Bidder or member of a JV must fill in this form if so required under Criterion 2.2 of Section 3 (Evaluation and Qualification Criteria).

| Pending Litigation | | | |
|---|--------------------------|---|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> No pending litigation <input type="checkbox"/> Below is a description of all pending litigation involving the Bidder (or each JV member if Bidder is a Joint Venture) | | | |
| Year | Matter in Dispute | Value of Pending Claim in INR or US\$ Equivalent | Value of Pending Claim as a Percentage of Net Worth |
| | | | |
| | | | |
| | | | |

Form FIN - 1: Historical Financial Performance

Each Bidder or member of a JV must fill in this form.

| Financial Data for Previous Years [INR or US\$ Equivalent] | | |
|---|----------------|-----------------|
| Year 1: | Year 2: | Year __: |

Information from Balance Sheet

| | | | |
|----------------------------|--|--|--|
| Total Assets | | | |
| Total Liabilities | | | |
| Net Worth | | | |
| Current Assets | | | |
| Current Liabilities | | | |

Information from Income Statement

| | | | |
|--|--|--|--|
| Total Revenues | | | |
| Profits Before Taxes | | | |
| Profits After Taxes | | | |
| <input type="checkbox"/> Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last _____ years, as indicated above, complying with the following conditions. <ul style="list-style-type: none"> • Unless otherwise required by Section 3 of the Bidding Document, all such documents reflect the financial situation of the legal entity or entities comprising the Bidder and not the Bidder's parent companies, subsidiaries or affiliates. • Historic financial statements must be audited by a certified accountant. • Historic financial statements must be complete, including all notes to the financial statements. • Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted). | | | |

Form FIN - 2: Average Annual Construction Turnover

Each Bidder or member of a JV must fill in this form.

The information supplied should be the Annual Turnover of the Bidder or each member of a JV in terms of the amounts billed to clients for each year for work in progress or completed, converted to INR at the rate of exchange at the end of the period reported.

| Annual Construction Turnover Data for the Last 3 Years | | | |
|---|----------------------------|--------------------------|-------------------------------|
| Year | Amount Currency | Exchange Rate | INR or US\$ Equivalent |
| | | | |
| | | | |
| | | | |
| Average Annual Construction Turnover | | | |

Form FIN – 3: Availability of Financial Resources

Specify proposed sources of financing, such as liquid assets¹, lines of credit, and other financial resources, other than any contractual advance payments available to meet the financial requirements of the subject contract or contracts, and the Bidder's current work commitments as indicated in Section 3 (Evaluation and Qualification Criteria).

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

¹ *Liquid Assets mean cash and cash equivalents, short-term financial instruments, short term available-for-sale-securities, marketable securities, trade receivables, short-term financing receivables and other assets that can be converted into cash within one year.*

Form FIN- 4: Financial Resources Requirement

The Bidder (or each JV partner) should provide information indicated below in order to calculate the aggregated financial resources requirement. This requirement equals the sum of: (i) the Bidder's (or each JV partner's) 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; and (ii) financial resources requirement for subject contract as determined by the Employer. The Bidder must also disclose any other financial obligations that could materially affect the implementation of subject contract if such contract were to be awarded to the Bidder.

| Financial Resources Requirement (INR or US\$ Equivalent) | | | | | | |
|---|------------------|--|--------------------------|--|---|---|
| | Name of Contract | Employer's Contact (Address, Tel, Fax) | Contract Completion Date | Remaining Contract Period in months (A) ¹ | Outstanding Contract Value (B) ² | Monthly Financial Resources Requirement (B / A) |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| A. Cumulative Financial Resources Requirement for Current Contract Commitments ³ | | | | | | |
| B. Financial Resources Requirement for Subject Contract (Employer to specify) | | | | | | |
| Financial Resources Requirement (Sum of A and B) | | | | | | |

¹ Remaining contract period to be calculated from 28 days prior to bid submission deadline.

² Remaining Outstanding Contract Values to be calculated from 28 days prior to the bid submission deadline (INR or US\$ equivalent based on the foreign exchange rate as of the same date).

³ Bidder should calculate this amount based on the following formula: $2 \times (\text{Sum of Monthly Financial Resources Requirements for Each Current Works Contract})$.

Form EXP – 1(a): Contracts of Similar Size and Nature

Fill up one (1) form per contract.

| Contract of Similar Size and Nature | | |
|--|--------------------------------|------------------------|
| Contract No.of. | Contract Identification | |
| Award Date | | Completion Date |
| Total Contract Amount | INR or US\$ Equivalent | |
| If partner in a JV or sub-contractor, specify participation of total Contract Amount | Percent of Total | Amount |
| Employer's Name Address Telephone/Fax Number E-mail | | |
| Description of the similarity in accordance with Criteria 2.4.1 of Section 3 | | |
| <p>Participation as a contractor, Joint Venture partner, or Subcontractor, in at least one contract that has been successfully or substantially completed within the last seven (7) years and that is similar to the proposed works, where the value of the Bidder's participation exceeds INR 142 million (or USD 2.18462 million). The similarity of the Bidder's participation shall be based on:</p> <p>(i) Physical size;</p> <p>(ii) Nature of works, complexity, methods, technology; and</p> <p>(iii) Other characteristics as described in Section 6, Employer's Requirements.</p> | | |

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Form EXP - 1(b): Construction Experience in Key Activities

Fill up one (1) form per contract.

| Contract with Similar Key Activities | | |
|--|--------------------------------|------------------------|
| Contract No.of. | Contract Identification | |
| Award Date | | Completion Date |
| Total Contract Amount | INR or US\$ Equivalent | |
| If partner in a JV or sub-contractor, specify participation of total Contract Amount | Percent of Total | Amount |
| Employer's Name Address Telephone Number Fax Number E-mail | | |
| Description of the key activities in accordance with Criteria 2.4.1 of Section 3 | | |
| 1. Design, Construction/ Rehabilitation and Commissioning of Drinking Water Treatment Plant of minimum 20 MLD capacity with minimum one year Operation and maintenance experience within the last seven years. <i>(This criterion should be met by the bidder itself)</i> | | |
| 2. Construction and commissioning 33kV sub-station, under a single contract, within the last seven years. <i>(This criteria can be met by the Bidder or by the Specialist Subcontractor)</i> | | |

| | |
|---|--|
| <p>3. Providing, laying, jointing and commissioning of water transmission/distribution pipelines of Ductile Iron (DI) of various sizes/ lengths as, under a single contract, within the last seven years:</p> <p>DI Pipes</p> <ul style="list-style-type: none"> - Diameter above 500mm – 10 km <p><i>(This criteria should be met by the bidder itself)</i></p> | |
| <p>4. Supply, Erection, testing and commissioning of Centrifugal pumpsets with minimum capacity of 300 m³/hr x 50 m head with in last seven years</p> <p><i>(This criteria can be met by the bidder or by the Specialist sub-contractor)</i></p> | |
| <p>5. Successfully carried out the Operation and Maintenance of a Water Supply Project having water treatment plant, transmission pipelines, Distribution pipelines for at least one year, under a single contract, within the last seven years</p> <p><i>(This criteria can be met by the bidder or by the Specialist sub-contractor)</i></p> | |

In the case of a joint venture bidder, at least one of the partners must have experience in the key activity if the bidder itself (not its subcontractor) will carry out the relevant activity.

The bidder will submit copy of work-orders and completion certificates from the client not below the rank of Superintending Engineer or Equivalent Rank Officer in support of all claimed experiences

Schedules**Schedule of Payment Currencies**

For*insert name of Section of the Works*

Separate tables may be required if the various sections of the Works (or of the Bill of Quantities) will have substantially different foreign and local currency requirements. In such a case, the Employer should prepare separate tables for each Section of the Works.

| | A | B | C | D |
|---|---------------------------|---|--|--|
| Name of Payment Currency | Amount of Currency | Rate of Exchange to Local Currency | Local Currency Equivalent $C = A \times B$ | Percentage of Net Bid Price (NBP) $\frac{100 \times C}{NBP}$ |
| Local currency | | 1.00 | | |
| Foreign Currency #1 | | | | |
| Foreign Currency #2 | | | | |
| Foreign Currency #3 | | | | |
| Net Bid Price | | | | 100.00 |
| Provisional Sums Expressed in Local Currency | | 1.00 | | |
| BID PRICE | | | | |

- Note -

The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by the source specified in BDS 15.

Tables of Adjustment Data

Not Applicable

Technical Schedule
(To be completed by the Bidder)

1.0 Introduction

Technical Schedules cover only the few technical details of equipment offered by the bidder.

Bill of Quantities

Content

The Bill of Quantities is divided into following sections:-

Preamble to Bill of Quantities; and

Bill of Quantities (Price Proposals)

Bill of Quantities

Preamble to Bill of Quantities

1.0 General

- 1.1 The Bill of Quantities is divided into separate Bills as follows:

SUMMARY OF BID PRICES

PART 1: WORKS

| | |
|-------------|--|
| Bill No. 01 | Refurbishment of WTP - Civil works |
| Bill No.02 | Refurbishment of WTP - Mechanical works |
| Bill No. 03 | Refurbishment of WTP - Electrical works |
| Bill No. 04 | Refurbishment of WTP - Instrumentation works |
| Bill No. 05 | Augmentation of Water Supply by Emergency Intake |

PART 2: OPERATION SERVICE

| | |
|-------------|--|
| Bill No. 06 | Operation and Maintenance of Water Supply System |
|-------------|--|

PART 3: PROVISIONAL SUM

| | |
|-------------|-----------------|
| Bill No. 07 | Provisional Sum |
|-------------|-----------------|

- 1.2 The Bill of Quantities (BOQ) shall be read in conjunction with the Instructions to Bidders, General and Particular Conditions of Contract, Employer's Requirements (including Safeguard Documents), Technical Specifications, and Drawings.
- 1.3 This preamble to the BOQ shall form part of the Contract. If there is inconsistency between the BOQ, Technical Specifications and Drawings and in case of conflict among different sections/heads, precedence shall be given in the following order of ascending priority:
- a) Bills of Quantities and Preamble to the Bills of Quantities;
 - b) Technical Specifications;
 - c) Drawings;
 - d) Relevant Indian or International Standards.
- 1.4 The Contractor shall be deemed to have visited the site and read and examined the Bidding Documents before completing the Bill of Quantities and the Schedule of Rates. The Drawings, Specifications, Schedules etc. are to be considered as explanatory of each other and no advantage shall be taken of any omission in tender documents.
- 1.5 The Contractor shall be deemed to be fully conversant with and to have made full allowance in his bid for the site conditions, the nature and complexity of the work to be undertaken, the other extensive development and construction work currently being or which may be executed on and around the Site and all changes in the nature and condition of the Site from that existing at the time of Tender.

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- 1.6 General directions and descriptions of work and materials given in the Specification or shown on the Drawings are not necessarily repeated in the Bill of Quantities and reference is to be made to the Specification and the Drawings for this information.

The Bill of Quantities is an estimate of the quantities of work involved and is to be used as a basis for pricing of the bid and for valuation of the work executed, in conjunction with instructions to bidders, terms and conditions of contract, general and specific technical specifications and drawings. The contractor shall quote the rates for all items including the cost of compliance of EMP and IEE. No separate cost shall be paid for compliance of EMP and IEE.

- 1.7 The quantities given in the BOQ 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 BOQ, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
- 1.8 The rates quoted in the schedule shall be the all-inclusive value for the work described and be deemed to include for all the Contractor's liabilities and obligations and all risks set forth or implied in the document and all matters and things necessary for the proper construction of the Works **including surveying, setting out, plant, labour, supervising, materials, carriage of materials from source to site, erection, maintenance, insurance, profit, taxes and duties together with all general risks liabilities and obligations set out or implied in the Contract.** The Charge for any obligation of the Contractor for proper/satisfactory completion of work for which apparently no corresponding item is given in the Bills of Quantities shall be deemed to be included in the Contract Rates and Prices entered against the billed items.
- 1.9 The contractor will have to ensure all his equipment/machinery, staff including skilled and unskilled labour and protection against damages to third party for which he will have to provide insurance policies to cover up all of above. Moreover he will renew the policies before their expiry. It is mandatory to comply with the condition, otherwise he will not be allowed to proceed with the work. A rate or price shall be entered against each item, 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 items, rates and prices entered in the BOQ.
- 1.10 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 required Items are specified in the BOQ for the particular item, the cost shall be deemed to be distributed among the Rates and Prices entered for the related Items of Work, 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.
- 1.11 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 the Conditions of Contract.

- 1.12 The method of execution and measurement of completed work for payment shall be in accordance to the respective procedures provided in the Technical Specifications or Particular Specifications under this Contract and in the absence of which shall be in accordance to the relevant BIS Standard and Standard Specification of the State of Bihar or Standard Specification published by the Central Public Works Department, Government of India as the case may be.
- 1.13 Arithmetic errors will be corrected by the Employer as follows:
- 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;
 - 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;
 - c) if there is a discrepancy between the bid price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Bid will be corrected; and
 - d) 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), (b) and (c) above.
- 1.14 Rock is defined as all material that, in the opinion of the Engineer, require blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for their removal, and that cannot be extracted by ripping with a tractor of at least 150 brake horse power (BHP) with a single, rear-mounted, heavy-duty ripper.
- 1.15 All defective works are liable to be demolished, rebuilt and defective materials replaced by the contractor at his own cost and time.
- 1.16 In view of the site location and their prevailing condition, it is mandatory to the Contractor to visit the site and make himself thoroughly familiar with the site conditions, access and account for all possible difficulties and other requirements mentioned elsewhere in his bid prior to submission. When a contractor submits his bid for this work, it will be considered that he has quoted for this work with full and complete knowledge of the site and prevailing conditions, and no claim for additional compensation shall be entertained on this account
- 1.17 Description of items in this BOQ is by itself not complete, and for a full description the BOQ should be read together with the Technical Specifications and Drawings. Rates quoted in the BOQ are deemed to have included all aspects covered in the Preamble and Technical Specifications, and all features and details shown in the Drawings.
- 1.18 The Bidder shall, in the course of studying the Contract Agreement, point out all his/her remarks on the documents and make all his/her queries to the Employer who will study these remarks and clarify any discrepancy between the Bidding Documents.

- 1.19 Submissions shall be strictly in accordance with the documents and shall not be qualified in any way. The Bidder shall not alter the text of the BOQ.
- 1.20 Extra and excess items of work shall not vitiate the Contract. The Contractor shall be bound to execute excess quantities of the items of work as directed by the Engineer at the same cost as per quoted rates in the Bid. The rates for extra items will be as per rates derived from current Bihar schedule of rate corresponding to the year proposal and it shall be decided as per Contract Conditions.
- 1.21 For the evaluation process, if requested by the Evaluation Committee, the Contractor shall provide an analysis sheet for all priced items showing how the rate entered was derived.
- 1.22 The rates shall be deemed to include all the cost of Works described in the Bidding Documents to operate, maintain and manage the water supply assets and services in Water Supply distribution service area within Bhagalpur Municipal Corporation (BMC).
- 1.23 Price adjustment as stipulated in Section 8; Schedule 5 – Contractor Payments, Particular Conditions of Contract shall apply on all items of works, Materials, and services executed under this Price Schedules and as approved in the work plan, from the date of submission of bid. The price adjustment shall be done yearly only. Individual component affected by the price indices shall alone be adjusted. Remaining indices shall which are not attributed to the component of work shall be kept constant as it is as per table of adjustment
- 1.24 The Bidder shall satisfy himself/herself as to the meaning of every item in the BOQ. The rates and prices inserted in the BOQ by the bidder shall be deemed to cover all costs, taxes, customs and import duties, levies, profits, risks, liabilities, transit insurance and obligations set forth or implied in the bid, as well as proper operation, maintenance and management of the Works including, but not limited to the following:
- (i) All labour and Materials including consumables;
 - (ii) All temporary work of every description required including over ground pumping and other requirements to avoid disruption to the service whilst maintenance or repair work is carried out;
 - (iii) The provision and use of all equipment, tools and Plant of every kind, whether mechanical or non-mechanical, required for the expeditious carrying out of the Works in their proper sequence;
 - (iv) Provision for scaffolding, staging, guard rails, temporary stairs, temporary access during execution, approach roads up to the Site for the movement of vehicles, and heavy excavation machinery with supporting transport facility;
 - (v) Provision for excavation, back-filling, bringing to the Site extra fill for back-fill, making good and reinstating surfaces, disposing of surplus material, dealing with all ground water and wastewater flows, and for work in close proximity to other utility apparatus including protecting that apparatus;

- (vi) Provision for work on pipe line corridors such as traffic control measures, safety barriers, obtaining any approvals and permits from authorities, and signage and reinstatement of surfaces;
 - (vii) Cooperation and coordination of the work with related authorities, other contractors and utilities, including obtaining their permission before starting the related Works if required; and
 - (viii) Providing security arrangements to guard the Site and premises at all times and to maintain strict control on the movement of Materials and labour until the completion of the work.
- 1.25 All electricity costs associated with operations and maintenance of facilities during operation service period shall be paid by BMC directly to the electricity service provider. The power connections shall be obtained in the name of BMC, the charges of which will be paid by BMC directly to electricity service provider or reimbursed under provisional sum if paid by the Contractor.
- 1.26 The serviceable materials, recovered while shifting of utilities as ascertained by the Engineer, shall be deposited at designated store yards or as directed by the Engineer. No payment shall be made to the Contractor in this regard.
- 1.27 Works itemized in the BOQ will be subject to measurement. Such measurement will be in the unit of measurement shown the BOQ and payment shall be made on the measured quantities.
- 1.28 Any item of work which is specified and required for the proper operation, maintenance and management of Works, and not included or itemized in the BOQ, shall not be measured nor paid for separately but shall be deemed to have been allowed for by the Contractor as part of their Price Bid.
- 1.29 All rules and regulations of the labour department, contract labor Laws, provident fund and employee state insurance and connected Laws, and all other Laws of the land are to be complied with by the Bidder within the quoted rates.
- 1.30 The bidder is expected to inspect the Site to investigate the following items before quoting their rates in the tender:
- a) Nature and type of soil proposed for excavation and safety of excavation;
 - b) Availability of power for execution;
 - c) Availability of water for execution;
 - d) Means of disposal of storm water/bailing out water from the Site;
 - e) Means of disposal of water due to de-watering at the Site;
 - f) Nature and type of protection required for neighbouring property to ensure full safety during construction activities in progress; and
 - g) Place for disposal of serviceable / unserviceable material obtained during construction activities in progress.
- 1.31 BMC will provide required space for construction of service centers, office and stores in campuses or at suitable locations. No land will be provided by the Employer to the Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

Contractor for constructing any structure for his labor, workman and supervisory camps, un-authorized hutments, canteen or teashops at the Site or within the premises. The Contractor shall make his/her own arrangements for the same outside the premises/boundary. These, if any, shall be with the knowledge of and prior approval of the Engineer.

- 1.32 The word “Ditto” mean the repetition of all or part of the preceding items as applicable to complete the sense of the items.

2.0 Provisional Sums

- 2.1 The Provisional Sum included and so designated in the BOQ shall be utilised in whole or in part at the direction and discretion of the Employer/Engineer in accordance with the Conditions of Contract. It will be used by the Employer/Engineer for nominated sub-contractors, line agencies, third party inspecting agencies, charges levied by statutory electrical, telephone, or other authorities, or for other miscellaneous works. The use of the Provisional Sum will also be for relocation of utilities above or under the ground that conflict with the existing or permanent line or level of the Works, independent sampling and laboratory testing, as directed by the Employer/Engineer, replacement or compensation for plants and trees removed due to the Works, and permanent reinstatement of asphalt roads, etc., as directed by the Employer/Engineer.

3.0 Measurements:

- 3.1 It is to be expressly understood that the measured work is to be taken net (not withstanding any system or practice to the contrary) according to the actual quantities wherein finished according to the Drawings or as may be ordered from time to time by the Engineer and the cost calculated at the respective prices, without any additional charges for any necessary or contingent works connected therewith. The rates quoted are for works in situ and complete in every respect. Unless the Bill of Quantities specially indicates to the Contrary, the constructional plant and temporary works will not be measured.
- 3.2 Unless otherwise stated, all items are measured net and no allowance will be made for wastage, working space, bulking or shrinkage, overlaps and the like.
- 3.3 The method of measurement of completed works for payment shall generally be in accordance with the relevant Indian Standard Specifications. IS: 1200 (Part XVI) - 1979 Method of Measurement of Building and Civil Engineering Works. Laying of Water and Sewer Lines Including Appurtenant Items (Third Revision) and Part XIX - 1981 Water Supply, Plumbing and Drains (Third Revision) unless described otherwise in the following clauses.
- 3.4 The unit rate should be entered against each item in the Bill of Quantities and shall be written in ink in figures and words. Any item left blank or un-priced, will be deemed to be included for elsewhere in the Bill of Quantities or the Schedule and hence the rate for that item will be taken as NIL.

- 3.5 In case any discrepancy is found between the quoted rates and the amounts, the rates will be taken as correct. In case any discrepancy is found between figures and words quoted for rates, then the rates quoted in words will be taken as correct. The rate column should be filled in figures and words legibly while the amount column should be filled in figures legibly.

4.0 **Earthworks**

- 4.1 The unit of measurement for earthworks where measured separately shall be Cubic Meters. Earth work excavation shall be done as per approved construction drawings for the foundation area alone. The quantity of earth work shall be calculated for area required to be executed and will be decided by the Engineer in charge of the Project. No further allowance shall allowed. If the contractor feels more area required for his workability of the concreting and same can be allowed and such cost of additional earth work and refilling shall be borne by the contractor. The rates for excavation shall include for all plant, materials and labour required for excavation, irrespective of depth in any material and in any location and shall also include for all temporary diversions, support and protection of any existing services and utilities, temporary support and maintenance of the excavation, dewatering, any additional excavation necessary to provide working space, refilling to any over excavation with materials as required by the Specification or shown on the Drawings, multiple handling and stack piling materials required for filling anywhere on the Site, backfilling with materials as required by the Specification or shown on the Drawings (including the cost of outside material) compaction. Disposal of surplus earth has been included in excavation item. After earth work, if any water collected in the pit due to rain etc shall be dewatered from the pit before the PCC to be laid. All such cost of dewatering shall be borne by the contractor. The earth work in undulating ground shall be measured by Simpson's Rule.

5.0 **Pipe Lines**

- 5.1 All pipe lengths shall be measured in linear meters and the Engineer will certify the total Effective Length laid, this length being measured along the centre-line of the pipeline excluding valves. Valve chambers shall be measured separately by number for sluice Valves & Air valves.
- 5.2 The rates for supply of pipes, Rubber Rings, mechanical joints, fittings and valves shall include for all costs of manufacture, inspection, testing, packing, consigning, transport, insurance, port charges, import dues, taxes, delivery to the stockpile or Temporary Storage Building and assistance to the Engineer for purposes of inspection.
- 5.3 The contractor shall have to provide SS bolts and nuts at his own cost. Payment for specials shall be made on the basis of weight which shall not include weights of rubber rings and nuts and bolts.
- 5.4 The rates for laying of buried pipes shall include for all costs of setting out, transporting pipes from stockpile, cutting to length if required, supervision, laying, jointing, protecting internally and externally, testing, flushing and disinfecting pipelines, traffic

control and diversion and restoration of ground levels. The rates shall include for local widening of trenches for bends, deflections and jointing.

- 5.5 The rates for laying pipes shall be applied over the full length of laid pipe.
- 5.6 The rate for supply and installation of pipes, specials, valves and fittings shall include for all costs of collection from stockpile or store, repair of coating if necessary, installation in chamber or trench, as the case may be, jointing, support, testing, protection, disinfection and flushing.
- 5.7 The Engineer will certify the rates inserted in the Bill of Quantities for items relating to pipe laying where the pipes are laid and not tested. Payment shall be made as per Schedule of Payment and Full Payment shall be made only when the pipes laid are tested and found satisfactory; and record drawings submitted.

6.0 Concrete

- 6.1 The rate for mass concrete for thrust blocks and pipe surrounds shall be measured net as the volume shown on the Drawings or ordered by the Engineer, but account shall not be taken of volume occupied by openings and recesses less than 0.15 cum. in net volume.

7.0 Valve Chambers

- 7.1 The item includes all the work such as excavation in soil or rock, backfilling etc., disposal of surplus earth, Brick Masonry, Plastering, R.C.C. works, drain arrangements, etc. complete. No payment will be made for any of the items, all items of work are considered to be included in the item of work and shall be measured in number.

8.0 Road Restorations

The road which are to be dismantled for laying the pipes shall be made good and rates will be given as per the quantity of road which are to be restored.

9.0 Barricading

- 9.1 Proper barricading has to be done during earth work, laying of pipes and up to the backfilling the trench completely for production arrangement wherever required and as per the direction of Engineer and Payment will be made for the quantity of work done by the contractor.

10.0 Extra Items

- 10.1 If the contractor feels that certain items are not covered in the bills of quantities to complete the job he may give them as additional items in the Bill of Quantities complete with rates and quantities. The cost of this will be included during evaluation.

11.0 Approach to Work Site

- 11.1 Provision for access and approach to all construction sites is the responsibility of contractor and no payment will be made on this account.

12.0 Safety

- 12.1 The contract rates shall be deemed to include all costs of compliance with safety requirements in the Specification.

13.0 Layout

- 13.1 The contractor has to ascertain the existing services like water lines, sewers, telephone and electric lines/ cables by putting trial pits at his own cost. In the event of some services coming in the alignment of lines to be laid, the contractor shall inform well in advance to the Employer to get these shifted through line departments and the payment will be made from Provisional Sum. The contractor shall take all due care to avoid damage to any such services and, in case of any damage occurring to them in progressing the work, the Contractor shall make good the same at his own cost/he will have to pay the demurrages demanded by the concerned line Departments. No additional time shall, however, be allowed on this account.

14.0 Coordination and Interfaces with other Contracts

- 14.1 The contractor shall carryout his work in close coordination with the other contractor's works of concurrent packages in the Project area. Work under this package may have interface with other works of concurrent Packages for the works like construction of Service Reservoirs, rising mains and distribution lines and rehabilitation of existing infrastructures like tube-wells and reservoirs, and other infrastructures either existing or laid through other packages and the contractor shall ensure that lines laid under this package are properly and timely connected to works under other packages.

15.0 Operations Services

- 15.1 The Contractor shall be eligible for payment for Operation Service from the Operation Service Commencement Date. The payment for Operation Service shall comprise the following but are not limited to:

- Wages for Contractor personnel;
- Cost of chemicals utilized in the disinfection of water;
- Consumables for preventive and corrective maintenance of all existing and new infrastructure assets being operated and maintained by the Contractor;
- All cost of repairs undertaken as part of preventive and corrective maintenance, both on the distribution network and the service connections;
- All cost of furnishing, equipping and operation of offices for BMC staff and of Customer Service Centres;
- All cost related to administration, management, customer relations, monitoring, reporting, accounts, regulatory compliance and incidental charges if any; and
- All cost related to training of Personnel of MMC .

It is expressly clarified that all charges related to electricity payments, raw water extraction cost if any, shall be paid directly by the Employer, in accordance with provisions of the Contract.

15.2 The BOQ for Operation Services have been divided in two parts:

- Operation of water production, Water Treatment Plant and transmission;

15.3 The Contractor is free to distribute and allocate its non-technical operation cost such as for administration, management, customer services, training etc. over the three parts.

16.0 Metric System and Abbreviations

| | |
|------------------------|-----------------|
| Millilitre | ml |
| Million Litres per Day | mld or MLD |
| Million Litre | ML |
| Litre | ltr |
| Linear meter | m |
| Gram | gm |
| Square metre | m ² |
| Cubic metre | m ³ |
| Number | No. |
| Kilogram | kg |
| Lump Sum | LS |
| Indian Rupees | Rs |
| Millimetre | mm |
| Square Centimetre | cm ² |
| Square Millimetre | mm ² |

17.0 The abbreviations used in the Specification and BOQ shall be read as follows:

| | |
|-------------------|----------------------------|
| BIS or IS | Indian Standard |
| BHP | Brake Horsepower |
| BS | British Standard |
| Cm or CM or cm | Centimeter |
| Cum or CUM or cum | Cubic Meter |
| MM or mm | Millimeter /s |
| Rm or RM or RMT | Running Meters |
| Sqm | Square Meters |
| SqKm or sqkm | Square Kilometers |
| Qtl. | Quintal |
| Qty. | Quantity |
| Drg. | Drawing |
| No. or Nos. | Number or Numbers |
| PCC | Plain Cement Concrete |
| RCC | Reinforced Cement Concrete |
| Rs. | Indian Rupees |

Bill of Quantities

Bill of Quantities (Price Proposals)

| PRICE PROPOSALS - SUMMARY OF BID PRICES | | | | |
|---|----------------|---|------------------|--|
| Name of Project | | Bihar Urban Development Investment Program – Project 1 (ADB Loan No: 2861 -IND) | | |
| Name of Employer: | | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) | | |
| Contract Title: | | Balance Works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation | | |
| Contract Package No: | | BH/WS/01-Package 04 | | |
| Bidder's Name: | | | | |
| Nos. | Bill No | Item Description | Amount | |
| PART 1: CONSTRUCTION WORKS | | | | |
| 1 | Bill No. 01 | Refurbishment of WTPs – Civil works | | |
| 2 | Bill No. 02 | Refurbishment of WTPs – Mechanical works | | |
| 3 | Bill No. 03 | Refurbishment of WTPs – Electrical works | | |
| 4 | Bill No. 04 | Refurbishment of WTPs – Instrumentation works | | |
| 5 | Bill No. 05 | Augmentation of Water Supply by Emergency Intake | | |
| Total of Part A (Sum of Bill No 01 to Bill No 05) | | | | |
| PART 2: OPERATION SERVICES | | | | |
| 6 | Bill No. 06 | Operation and Maintenance | | |
| PART 3: PROVISIONAL SUM | | | | |
| 7 | Bill No. 07 | Provisional Sum | 80,00,000 | |
| Grand Total (PART A + PART B+PART C) | | In Figures | | |
| | | In Words | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

| PRICE PROPOSALS - PART 1: CONSTRUCTION WORKS | |
|---|---|
| Name of Project | Bihar Urban Development Investment Program |
| Name of Employer: | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) |
| Contract Title: | Balance Works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation |
| Contract Package No: | BH/WS/01-Package 04 |
| Bidder's Name : | |

| |
|--|
| Bill No. 01. Refurbishment of WTP - Civil Works |
|--|

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1 | Refurbishment of WTP - Civil Works | | | | | |
| 1 | Chemical House Building 3 Nos (1 New + 2 Partially Completed) | | | | | |
| 1.1 | Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m including getting out the excavated | | | | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|--------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | soil and disposal of surplus excavated soil as directed, within a lead of 50 m. | | | | | |
| 1.1.1 | 0 to 1.50M | cum | 60.09 | | | |
| 1.1.2 | 1.50M to 3.0M | cum | 4.51 | | | |
| 1.2 | Supplying and Filling in plinth with available excavated earth | | | | | |
| 1.2.1 | Filling with available earth (excluding rock) in trenches, plinth, sides of foundations etc, in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering lead | cum | 23.37 | | | |
| 1.3 | Backfilling of soil with approved excavated soil | | | | | |
| 1.3.1 | Filling with available earth (excluding rock) in trenches, plinth, sides of foundations etc, in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering lead | cum | 34.50 | | | |
| 1.4 | Removal of unserviceable soil | | | | | |
| 1.4.1 | Removal of unserviceable soil with Disposal above 8 Km etc. complete and as per direction of engineer in | cum | 6.73 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | charge. | | | | | |
| 1.5 | PCC | | | | | |
| 1.5.1 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering-all work up to plinth level and including finishing the surfaces ; M 15 | cum | 13.42 | | | |
| 1.5.2 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering-all work up to plinth level and including finishing the surfaces ; M 10 | cum | 2.78 | | | |
| 1.6 | Providing and laying damp-proof Course 50 mm thick with cement concrete 1:2:4 (1cement :2 coarse sand :4 graded stone aggregate 20mm nominal size) | sqm | 19.28 | | | |
| 1.7 | Brickwork | | | | | |
| 1.7.1 | Brick work with bricks of class designation 100A in foundations and plinth in: Cement mortar 1:4 (1 cement: 4 coarse sand) in foundation and plinth. Extra for Brick work in | cum | 60.52 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | superstructure above plinth level upto floor Vth level. | | | | | |
| 1.7.2 | Brick work with bricks of class designation 100A in foundations and plinth in : Cement mortar 1:6 (1 cement: 6 coarse sand) | cum | 13.09 | | | |
| 1.8 | RCC Work | | | | | |
| 1.8.1 | Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, and reinforcement but including finishing the surfaces: M20. All work upto Plinth level | cum | 10.49 | | | |
| 1.8.2 | Reinforced cement concrete work in wall (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts, etc. upto floor five level excluding cost of centring, shuttering, finishing and reinforcement.M30 | cum | 35.93 | | | |
| 1.9 | Centering and shuttering including strutting, propping, bracing etc. complete and removal of form for: | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.9.1 | Foundations, footings, bases of columns etc. for mass concrete. | sqm | 27.90 | | | |
| 1.9.2 | Suspended floors, roofs, landings, balconies and access platform. | sqm | 105.70 | | | |
| 1.9.3 | Lintels, beams, plinth beams, girders, and cantilevers. | sqm | 123.33 | | | |
| 1.9.4 | Columns, Pillars, Piers, Abutments, Posts and Struts | sqm | 42.43 | | | |
| 1.9.5 | Weather shade, Chajjas, corbels etc. including edges | sqm | 14.78 | | | |
| 1.10 | Cement plaster | | | | | |
| 1.10.1 | 12 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement and providing and mixing water proofing material in proportion recommended by the manufacturers: for inner surfaces | sqm | 466.32 | | | |
| 1.10.2 | 20 mm thick cement plaster in coarse sand in 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement Including providing and mixing water proofing material in proportion recommended by the | sqm | 423.22 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | manufacturers for outer surfaces | | | | | |
| 1.11 | Applying one coat of cement primer of approved brand and manufacture on wall surface: | | | | | |
| 1.11.1 | Cement primer | sqm | 466.32 | | | |
| 1.11.2 | Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade: Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture | sqm | 466.32 | | | |
| 1.12 | Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade : | | | | | |
| 1.12.1 | New work (Two or more coat applied @ 1.43 ltr/ 10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm) | sqm | 634.83 | | | |
| 1.13 | Providing and fixing M.S. grills of requirement pattern in frames of windows etc. with M.S. flats, square or round bars etc. complete. Fixed to steel windows by welding. The cost | MT | 2.275 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | includes GST charges | | | | | |
| 1.14 | Supplying and fixing-rolling shutters of approved make. made of required size of M.S.laths inter locked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete including the cost of providing and fixing necessary 27.5 cm long wire springs grade no. 2 and M.S. top cover of required thickness for rolling shutters. 80x1.25mmM.S. Laths with 1.25mm thick top cover. | sqm | 63.00 | | | |
| 1.14.1 | Rolling Shutters and its parts ball bearing for rolling shutters | each | 6.00 | | | |
| 1.15 | Providing and fixing steel glazed doors, windows and ventilators of standard rolled steel sections, joints mitred and welded with 15x3 mm lugs 10 cm long with steel lugs embedded in cement concrete blocks 15x10x10 cm of 1:3:6 (1 cement: 3 | sqm | 34.02 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|--------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | coarse sand : 6 graded stone aggregate 20 mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with fixing clips or with bolts and nuts as required, including providing and fixing of glass panes with glazing clips and special metal-sash putty of approved make complete including applying a priming coat of approved steel primer; including the cost of metal beading and other fitting except necessary hinges or pivots as required. The cost includes GST charges | | | | | |
| 1.16 | Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers. Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/ 10 sqm over an under coat of primer applied @ 0.80 ltr/ 10 sqm of approved brand and manufacture. | sqm | 85.68 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|-----------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.17 | Flooring & wall tiles | | | | | |
| 1.17.1 | 62 mm thick cement concrete flooring with metallic concrete hardener topping under layer 50 mm thick cement concrete 1:2:4(1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) and top layer 12mm thick metallic cement hardener consisting of mix 1:2(1 cement hardener mix:2 stone aggregate 6 mm nominal size) by volume hardening compound is mixed @ 2 liter per 50 kg of cement or as per manufacture specification. This includes cost of cement slurry, etc. but excluding the cost of nosing of steps etc. complete | sqm | 157.50 | | | |
| 1.18 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | kg | 3,643.97 | | | |
| 1.19 | Weathering Course | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.19.1 | Surkhi | cum | 30.96 | | | |
| 1.19.2 | Providing and laying pressed clay tiles (as per approved pattern 20 mm nominal thickness and of approved size) on roofs jointed with cement mortar 1:4(1 cement :4 coarse sand)mixed with 2% integral water proofing compound laid over a bed of 20 mm thick cement mortar 1:4(1 cement::4 coarse sand)and finished neat complete | sqm | 206.49 | | | |
| 1.20 | Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require : White Vitreous China Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps | Nos. | 3 | | | |
| 1.21 | Providing and fixing on wall face un-plasticized-PVC (working pressure 4 kgf per sqm) rain water pipes conforming to IS :4985 including jointing with seal ring conforming to | m | 108.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter. | | | | | |
| 1.22 | Providing and fixing on wall face unplasticized-PVC (working pressure 4 kgf per sqm) waste water pipes conforming to IS :4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter. | m | 30.00 | | | |
| 1.23 | Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good. | | | | | |
| 1.23.1 | 15 mm nominal outer dia Pipes | m | 30 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------|---|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.24 | Electrification of Chemical House Building | Job | 3 | | | |
| 1.25 | Alum Dosing- 6 Nos | | | | | |
| | Construction of Alum Dosing | | | | | |
| 1.25.1 | Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. | | | | | |
| 1.25.1.1 | 0 to 1.50M | cum | 122.85 | | | |
| 1.25..1.2 | 1.50M to 3.0M | cum | 106.47 | | | |
| 1.25.2 | Removal of unserviceable soil with Disposal above 8 Km etc. complete and as per direction of engineer in charge. | cum | 162.34 | | | |
| 1.25.3 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering-all work up to plinth level and including finishing the surfaces ; | cum | 12.29 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | M 15 | | | | | |
| 1.25.4 | Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, and reinforcement but including finishing the surfaces: M30. All work up to plinth level: | | | | | |
| 1.25.4.1 | All work up to plinth level | cum | 56.01 | | | |
| 1.25.5 | Centering and shuttering including strutting, propping, bracing etc. complete and removal of form for: | | | | | |
| 1.25.5.1 | Walls (any thickness) including attached pilasters. Buttresses, plinth and string courses etc. | sqm | 325.85 | | | |
| 1.25.6 | Cement plaster | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------|---|------|------------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.25.6.1 | 20 mm thick cement plaster in coarse sand in 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement Including providing and mixing water proofing material in proportion recommended by the manufacturers for outer surfaces | sqm | 170.04 | | | |
| 1.25.7 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | kg | 26,884.89 | | | |
| 1.26 | Flash Mixer- 3 Nos New | | | | | |
| | Construction of Flash Mixer | | | | | |
| 1.26.1 | Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|--------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.26.1.1 | 0 to 1.50M | cum | 61.43 | | | |
| 1.26.1.2 | 1.50M to 3.0M | cum | 53.24 | | | |
| 1.26.2 | Removal of unserviceable soil with Disposal above 8 Km etc. complete and as per direction of engineer in charge. | cum | 81.17 | | | |
| 1.26.3 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering-all work up to plinth level and including finishing the surfaces ; M 15 | cum | 6.14 | | | |
| 1.26.4 | Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, and reinforcement but including finishing the surfaces: M30. All work up to plinth level: | | | | | |
| 1.26.4.1 | All work up to plinth level | cum | 28.01 | | | |
| 1.26.5 | Centering and shuttering including strutting, propping, bracing etc. complete and removal of form for: | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.26.5.1 | Walls (any thickness) including attached pilasters. Butteresses, plinth and string courses etc. | sqm | 162.92 | | | |
| 1.26.6 | Cement plaster | | | | | |
| 1.26.6.1 | 20 mm thick cement plaster in coarse sand in 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement Including providing and mixing water proofing material in proportion recommended by the manufacturers for outer surfaces | sqm | 85.02 | | | |
| 1.26.7 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | kg | 2,240.41 | | | |
| 1.27 | Flash Mixer-3 Nos (2 Nos New+ 1 No Partially completed) | | | | | |
| | Construction of Flash Mixer | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|--------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.27.1 | Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. | | | | | |
| 1.27.1.1 | 0 to 1.50M | cum | 47.24 | | | |
| 1.27.1.2 | 1.50M to 3.0M | cum | 37.79 | | | |
| 1.27.2 | Removal of unserviceable soil with Disposal above 8 Km etc. complete and as per direction of engineer in charge. | cum | 57.05 | | | |
| 1.27.3 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering-all work up to plinth level and including finishing the surfaces ; M 15 | cum | 4.72 | | | |
| 1.27.4 | Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, and | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | reinforcement but including finishing the surfaces: M30. All work up to plinth level: | | | | | |
| 1.27.4.1 | All work up to plinth level | cum | 23.25 | | | |
| 1.27.5 | Centering and shuttering including strutting, propping, bracing etc. complete and removal of form for: | | | | | |
| 1.27.5.1 | Walls (any thickness) including attached pilasters. Butteresses, plinth and string courses etc. | sqm | 158.66 | | | |
| 1.27.6 | Cement plaster | | | | | |
| 1.27.6.1 | 20 mm thick cement plaster in coarse sand in 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement Including providing and mixing water proofing material in proportion recommended by the manufacturers for outer surfaces | sqm | 107.83 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.27.7 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | kg | 1,860.16 | | | |
| 1.28 | SLUDGE DRYING BED (Partially Completed) | | | | | |
| 1.28.1 | Brick work with bricks of class designation 100A in foundations and plinth in: Cement mortar 1:4 (1 cement: 4 coarse sand) in foundation and plinth. Extra for Brick work in superstructure above plinth level upto floor Vth level. | cum | 14.67 | | | |
| 1.28.2 | Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, and reinforcement but including finishing the surfaces: M30. All work up to plinth level: | | | | | |
| 1.28.2.1 | All work up to plinth level | cum | 884.36 | | | |
| 1.28.3 | Centering and shuttering including | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|------------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | strutting, propping, bracing etc. complete and removal of form for: | | | | | |
| 1.28.3.1 | Foundations, footings, bases of columns etc. for mass concrete. | sqm | 2,178.72 | | | |
| 1.28.4 | Cement plaster | | | | | |
| 1.28.4.1 | 12 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement and providing and mixing water proofing material in proportion recommended by the manufacturers: for inner surfaces | sqm | 131.10 | | | |
| 1.28.5 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | kg | 71,611.14 | | | |
| 1.28.6 | RCC Precast Slab in Size of 600x1000x200 | Nos. | 208.00 | | | |
| 1.28.7 | RCC Hume pipe 300mm dia for connection of Chambers | Rmt | 114.00 | | | |
| 1.28.8 | Gravel filling , Spreading & levelling of size (5mm - 10mm) range | cum | 860.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------|---|------|--------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.29 | Replacement of Filter Media for JEWEL, Mechanical and Patterson Filters | | | | | |
| | Replacement of filter Media including all necessary cost of Supply of Gravel, Cost of Manpower, in Existing Water Treatment Plant Barari - Patterson, Mechanical & Jewel Filter upto 3M depth in each layer in different type, Size of Gravel as per under Direction of Engineer In-Charge. | | | | | |
| 1.29.1 | WTP Patterson | | | | | |
| 1.29.1.1 | For Size 7.30m x 5.50m -01Nos. | | | | | |
| 1.29.1.1.1 | Filter Media filling upto 0.9m to 1.2m (Filling of 05mm to 10mm size of Gravel at bottom layer) | cum | 14.45 | | | |
| 1.29.1.1.2 | Filter Media filling upto 0.6m to 0.9m (Filling of 03mm to 6mm size of Gravel at middle layer) | cum | 14.45 | | | |
| 1.29.1.1.3 | Filter Media filling upto 0.0m to 0.6m (Filling of course sand media of effective size 0.35 mm to 0.50 mm and UC 1.6 at top layer) | cum | 28.91 | | | |
| 1.29.1.2 | For Size 7.0m x 5.50m - 01Nos. | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.29.1.2.1 | Filter Media filling upto 0.9m to 1.2m (Filling of 05mm to 10mm size of Gravel at bottom layer) | cum | 13.86 | | | |
| 1.29.1.2.2 | Filter Media filling upto 0.6m to 0.9m (Filling of 03mm to 6mm size of Gravel at middle layer) | cum | 13.86 | | | |
| 1.29.1.2.3 | Filter Media filling upto 0.0m to 0.6m (Filling of course sand media of effective size 0.35 mm to 0.50 mm and UC 1.6 at top layer) | cum | 27.72 | | | |
| 1.29.2 | WTP Mechanical | | | | | |
| 1.29.2.1 | Filter Bed - 5.50m x 3.10m - 02Nos. In MS Plate | | | | | |
| 1.29.2.1.1 | Filter Media filling upto 0.9m to 1.2m (Filling of 05mm to 10mm size of Gravel at bottom layer) | cum | 6.14 | | | |
| 1.29.2.1.2 | Filter Media filling upto 0.6m to 0.9m (Filling of 03mm to 6mm size of Gravel at middle layer) | cum | 6.14 | | | |
| 1.29.2.1.3 | Filter Media filling upto 0.0m to 0.6m (Filling of course sand media of effective size 0.35 to 0.50 mm and UC 1.6 at top layer) | cum | 12.28 | | | |
| 1.29.3 | WTP-Jewel | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | Filter House - 18.70m x 10.60m | | | | | |
| | Filter Bed - 6.40m x 6.10m - 2Nos. | | | | | |
| | For Size 6.40m x 6.10m - 2Nos. | | | | | |
| 1.29.3.1 | Filter Media filling upto 0.9m to 1.2m (Filling of 05mm to 10mm size of Gravel at bottom layer) | cum | 14.05 | | | |
| 1.29.3.2 | Filter Media filling upto 0.6m to 0.9m (Filling of 03mm to 6mm size of Gravel at middle layer) | cum | 14.05 | | | |
| 1.29.3.3 | Filter Media filling upto 0.0m to 0.6m (Filling of coarse sand media of effective size 0.35 to 0.50 mm and UC 1.6 at top layer) | cum | 28.11 | | | |
| 1.30 | Chlorination Building (1 No Partially Completed & 1 No New) | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.30.1 | Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. | | | | | |
| 1.30.1.1 | 0 to 1.50M | cum | 169.38 | | | |
| 1.30.1.2 | 1.50M to 3.0M | cum | 11.83 | | | |
| 1.30.2 | Backfilling of soil with approved excavated soil | | | | | |
| 1.30.2.1 | Filling with available earth (excluding rock) in trenches, plinth, sides of foundations etc, in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering lead | cum | 123.85 | | | |
| 1.30.3 | Removal of unserviceable soil with Disposal above 8 Km etc. complete and as per direction of engineer in charge. | cum | 36.25 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.30.4 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering-all work up to plinth level and including finishing the surfaces ; M 10 | cum | 21.11 | | | |
| 1.30.5 | Providing and laying damp-proof Course 50 mm thick with cement concrete 1:2:4 (1cement :2 coarse sand :4 graded stone aggregate 20mm nominal size) | sqm | 19.28 | | | |
| 1.30.6 | Brick Work | | | | | |
| 1.30.6.1 | Brick work with bricks of class designation 100A in foundations and plinth in : Cement mortar 1:6 (1 cement: 6 coarse sand) in foundation and plinth. | cum | 34.22 | | | |
| 1.30.6.2 | Brick work with bricks of class designation 100A in foundations and plinth in : Cement mortar 1:4 (1 cement: 4 coarse sand) in foundation and plinth. Extra for Brick work in superstructure above plinth level upto floor Vth level. | cum | 93.87 | | | |
| 1.30.7 | Providing and laying in position | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, and reinforcement but including finishing the surfaces: M20. All work up to plinth level: | | | | | |
| 1.30.7.1 | All work up to plinth level | cum | 54.92 | | | |
| 1.30.7.2 | All work above plinth level upto floor V level | cum | 67.72 | | | |
| 1.30.8 | Centering and shuttering including strutting, propping, bracing etc. complete and removal of form for: | | | | | |
| 1.30.8.1 | Foundations, footings, bases of columns etc. for mass concrete. | sqm | 120.32 | | | |
| 1.30.8.2 | Suspended floors, roofs, landings, balconies and access platform. | sqm | 321.15 | | | |
| 1.30.8.3 | Lintels, beams, plinth beams, girders, and cantilevers. | sqm | 132.34 | | | |
| 1.30.8.4 | Columns, Pillars, Piers, Abutments, Posts and Struts | sqm | 384.11 | | | |
| 1.30.8.5 | Stairs and staircases. | sqm | 18.53 | | | |
| 1.30.9 | Cement plaster | | | | | |
| 1.30.9.1 | 12 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement and | sqm | 373.48 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | providing and mixing water proofing material in proportion recommended by the manufacturers: for inner surfaces | | | | | |
| 1.30.9.2 | 20 mm thick cement plaster in coarse sand in 1:3 (1 cement: 3 coarse sand) finished with a floating coat of near cement Including providing and mixing water proofing material in proportion recommended by the manufacturers for outer surfaces | sqm | 352.73 | | | |
| 1.30.10 | Providing and applying white cement based putty of average thickness 2 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete. | sqm | 373.48 | | | |
| 1.30.11 | Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade: Two or more coats on new work. | sqm | 373.48 | | | |
| 1.30.12 | Finishing walls with textured exterior paint (weather coat) of required shade :New work (Two or more coats | sqm | 352.73 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | applied @ 3.28 liter/ 10 sqm) over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm. | | | | | |
| 1.30.13 | Providing and fixing steel glazed doors, windows and ventilators of standard rolled steel sections, joints mitered and welded with 15x3 mm lugs 10 cm long with steel lugs embedded in cement concrete blocks 15x10x10 cm of 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with fixing clips or with bolts and nuts as required, including providing and fixing of glass panes with glazing clips and special metal-sash putty of approved make complete including applying a priming coat of approved steel primer; including the cost of metal beading and other fitting except necessary hinges or pivots as required. The cost includes GST charges | sqm | 31.60 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|------|---------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.30.14 | Finishing with Deluxe Multi surface paint system for interiors and exteriors using Primer as per manufacturers. Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/ 10 sqm over an under coat of primer applied @ 0.80 ltr/ 10 sqm of approved brand and manufacture. | sqm | 63.20 | | | |
| 1.30.15 | Flooring & wall tiles | | | | | |
| 1.30.15.1 | Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick bed of cement mortar 1:4 (1 Cement : 4 Coarse sand), including pointing the joints with white cement and matching pigments etc., complete. | sqm | 250.52 | | | |
| 1.30.15.2 | Providing and fixing 1st quality ceramic glazed wall tiles conforming | sqm | 43.68 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|------------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | to IS:15622 (Thickness to be specified by the manufacture) of approved make in all colours, shades except burgundy , bottle green , black of any size as approved by Engineer-in-charge in skirting , risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per sqm including pointing in white cement mixed with pigment of matching shade complete. | | | | | |
| 1.30.16 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | kg | 14,205.75 | | | |
| 1.30.17 | Weathering Course | | | | | |
| 1.30.17.1 | Surkhi | cum | 46.63 | | | |
| 1.30.17.2 | Providing and laying pressed clay tiles (as per approved pattern 20 mm nominal thickness and of approved size) on roofs jointed with cement | sqm | 310.86 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | mortar 1:4(1 cement :4 coarse sand)mixed with 2% integral water proofing compound laid over a bed of 20 mm thick cement mortar 1:4(1 cement::4 coarse sand)and finished neat complete | | | | | |
| 1.30.18 | Bathroom and toilet fittings (stop cock, bib cock, mirror, soap stand, towel rail, toilet paper holder, gratings, traps etc complete as per technical specification | Job | 2 | | | |
| 1.30.19 | Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100 mm sand cast Iron P or S trap, 10 liter low fixtures complete, including cutting and making good the walls and level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and floors wherever required : White Vitreous china Orissa pattern W.C. pan of size 580x440 mm with integral type foot rests. | Nos. | 2 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|--------------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.30.20 | Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require : White Vitreous China Wash basin size 630x450 mm with a pair of 15 mm C.P. brass pillar taps | Nos. | 4 | | | |
| 1.30.21 | Providing and fixing on wall face un-plasticized-PVC (working pressure 4 kgf per sqm) rain water pipes conforming to IS :4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter. | m | 28.00 | | | |
| 1.30.22 | Providing and fixing on wall face un-plasticized-PVC (working pressure 4 kgf per sqm) waste water pipes conforming to IS :4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter. | m | 40.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.30.23 | Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good. | | | | | |
| 1.30.23.1 | 15 mm nominal outer dia Pipes | m | 50 | | | |
| 1.30.24 | Polyethylene water storage tank with cover and suitable locking arrangement (each building 1000 liter capacity such 2 Nos) | lit | 2,000 | | | |
| 1.30.25 | ISMB 200 Gantry Beam | Qtl | 7.46 | | | |
| 1.30.26 | Mono Rail single girder crane for 3 Tonne capacity for lift upto 9 m with chain pulley block and travelling trolley excluding girder. | Nos. | 2.00 | | | |
| 1.30.27 | Electrification of Chlorination Building | each | 2 | | | |
| 1.31 | EQUIPMENTS, TESTs REQUIRED | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | FOR SAFETY MEASURES | | | | | |
| 1.31.1 | Safety Helmets for labours involved in the Construction and Maintenance activities | Nos. | 10 | | | |
| 1.31.2 | Safety shoes for labours involved in the Construction and Maintenance activities | Pair | 10 | | | |
| 1.31.3 | Safety Florescent jackets for labours involved in the Construction and Maintenance activities | Nos. | 10 | | | |
| 1.31.4 | Portable Fire Extinguishers | Nos. | 5 | | | |
| 1.31.5 | Drinking water quality monitoring by conducting physical, chemical and Bacteriological analysis including E.coli test NABL/MOEFCC certified Lab once in a month for project duration | Nos. | 10 | | | |
| 1.31.6 | Supplying and fixing of Rubber Mats of size 1 m x 5 m in all the pump rooms | Nos. | 0 | | | |
| 1.31.7 | Safety gloves for Electricians | Nos. | 10 | | | |
| 1.31.8 | Air, water and noise quality monitoring through NABL Lab/MOEFCC certified Lab at all construction sites on quarterly basis | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|-------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 1.31.9 | In All the major building sites (3 month duration shall be considered for construction) | Nos. | 5 | | | |
| 1.31.10 | Water sprinkling system for dust trap at all construction sites | | | | | |
| 1.31.10.1 | Building sites | Month | 3 | | | |
| 1.31.11 | Providing sal ballah barricading with departmental sal ballah average 150 dia. And 2M long sal ballah post at interval of 2.5 M C/C fixed 0.5 M average below ground, packed with earth and Brick bats, well-watered and rammed with three rows of average 100mm dia. Sal ballah horizontal runners fixed with iron spikes and wires, white washing one coat to exposed surface, dismantling the barricade after function, filling the holes, excluding carriage of sal ballah from and to godown up to 5K.M. lead, stacking them in countable stacks in godown including cost of all labour and materials and taxes all complete job as per specification and direction of E/I. in all SR sites | Per m | 200 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------------------|-------------|-------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| Subtotal for Bill No.1 | | Total | | Figures | | |
| | | | | Words | | |

| PRICE PROPOSALS - PART 1: WORKS | |
|---------------------------------|---|
| Name of Project | Bihar Urban Development Investment Program |
| Name of Employer: | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) |
| Contract Title: | Balance Works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation |
| Contract Package No: | BH/WS/01- Package 04 |
| Bidder's Name : | |

| |
|---|
| Bill No. 02: Refurbishment of WTP - Mechanical Works |
|---|

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 2 | Refurbishment of WTP - Mechanical Works | | | | | |
| 2.1 | Dismantling of existing pumping units, accessories and other equipment, including safe storage, handing over to the Employer | Lot | 1 | | | |
| 2.2 | Design, supply, install, testing commissioning and painting at the Site of following equipment | | | | | |
| 2.2.1 | Pumping Station (Raw Water) | | | | | |
| a | Centrifugal Pumps | | | | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01- Package 04

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 2.2.1.1. | Horizontal centrifugal pumps, complete with electric motor and all accessories, of discharge-250 m ³ /hr; head 70 m (only erection) | Nos. | 2 | | | |
| 2.2.2 | Valves | | | | | |
| 2.2.2.1 | Sluice valves- 150 mm size | Nos. | 2 | | | |
| 2.2.2.2 | Sluice valves- 200 mm size | Nos. | 2 | | | |
| 2.2.2.3 | Non Return Valves - 150 mm size | Nos. | 2 | | | |
| 2.2.2.4 | Non Return Valves - 200 mm size | Nos. | 2 | | | |
| 2.2.2.5 | Foot Valves - 200 mm size | Nos. | 2 | | | |
| 2.2.3 | Piping & Fittings | | | | | |
| 2.2.3.1 | Complete DF piping, DF bends, DF radial tees, DF dismantling joints, packing and nut-bolts etc. | Lot | 1 | | | |
| 2.3 | Water Treatment Plants | | | | | |
| 2.3.1 | Air Blowers for Filters | | | | | |
| 2.3.1.1 | For Patterson Filter WTP (only erection) | Nos. | 1 | | | |
| 2.3.1.2 | For Mechanical Filter WTP (only erection) | Nos. | 1 | | | |
| 2.3.1.3 | For Jewel Filter WTP (only erection) | Nos. | 1 | | | |
| 2.3.1.4 | Piping & Valves in connection with air line | Set | 3 | | | |
| 2.3.1.5 | Acoustic enclosures for existing air | Nos. | 3 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | blowers | | | | | |
| 2.3.2 | Chemical Mixing & Metering System | | | | | |
| 2.3.2.1 | Mixing Units for Alum solution (only erection) | Nos. | 6 | | | |
| 2.3.2.2 | Alum dosing system (metering pumps) 1 working + 1 standby | | | | | |
| 2.3.3 | Supply & Erection | Nos. | 3 | | | |
| 2.3.4 | Only Erection | Nos. | 3 | | | |
| 2.3.5 | Piping & Valves in connection with Alum & Lime Dosing | Lot | 1 | | | |
| 2.3.6 | Flash Mixing System | | | | | |
| 2.3.6.1 | Flash mixing system complete in all respects (only erection) | Nos. | 3 | | | |
| 2.3.7 | Filters | | | | | |
| 2.3.7.1 | Rate of Flow Controller Arrangement | Nos. | 4 | | | |
| 2.3.8 | Chlorinating System | | | | | |
| 2.3.8.1 | Vacuum feed type chlorinators of 1.5 kg/hr capacity for Jewel filter plant for pre- and post-chlorination, complete with motive water pumps, piping and valves etc., including standby | Sets | 2 | | | |
| 2.3.8.2 | Vacuum feed type chlorinators of 1.0 kg/hr capacity for the remaining two plants for pre- and post-chlorination, | Sets | 4 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | complete with motive water pumps, piping and valves etc., including standby | | | | | |
| 2.3.8.3 | All accessories including Chlorine Cylinder Weighing system etc. Complete | Set | 3 | | | |
| 2.3.8.4 | Safety Equipment Complete | Lot | 2 | | | |
| 2.3.8.5 | Ventilation System for chlorinators room and Chlorine Cylinder room Complete | Set | 2 | | | |
| 2.3.8.6 | Servicing and refurbishment of all existing electro-mechanical equipment other than supplied and installed by Contractor | Lot | 1 | | | |
| 2.4 | Fire extinguishers including fitting & fixing complete | Nos. | 20 | | | |
| 2.5 | First Aid Kits | Nos. | 3 | | | |
| 2.6 | Any other item and accessories not specified above but required to complete the Works Note: 1. Bidder to provide a separate list with breakup of item, quantity, units, unit rate and cost separately and give the total price of these items. At the | Nos. | 1 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | time of bidding | | | | | |
| 2.7 | By pass arrangement for settling unit to clear water reservoir | | | | | |
| 2.7.1 | Mechanical Filter 2.7 MLD- 200 mm ø DI Pipe K-7 | m | 260 | | | |
| 2.7.2 | Jewel Filter 9.1 MLD- 400mm ø DI Pipe K-7 | m | 220 | | | |
| 2.7.3 | Patterson filter 5.5 MLD- 300mm ø DI Pipe K-7 | m | 200 | | | |
| 2.7.4 | Piping arrangement for sludge Disposal from Sludge sum to Sludge Drying Bed | | | | | |
| 2.7.4.1 | Filter- 300 mm ø DI Pipe K-7 | m | 50 | | | |
| 2.8 | Piping arrangement for Disposal of waste water from filter bed to Sludge Drying Bed | | | | | |
| 2.8.1 | Mechanical Filter - 50mm ø DI Pipe K-7 | m | 360 | | | |
| 2.8.2 | Jewel Filter -80mm ø DI Pipe K-7 | m | 410 | | | |
| 2.8.3 | Patterson Filter - 50 mm ø DI Pipe K-7 | m | 500 | | | |
| 2.9 | Piping arrangement for back wash water tank/pond to filter bed | | | | | |
| 2.9.1 | Mechanical filter -50 mm ø DI Pipe K-7 | m | 80 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------------------------|--|--------------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 2.9.2 | Jewel Filter -80mm ø DI Pipe K-7 | m | 60 | | | |
| 2.9.3 | Patterson Filter - 50 mm ø DI Pipe K-7 | m | 40 | | | |
| 2.10 | Sludge Pumpset from Sludge sum to Sludge Drying Bed | | | | | |
| 2.10.1 | Jewel Filter Discharge- ø 120.138 lps, Head- 10m, Power- 30 HP | set | 2 | | | |
| 2.11 | Back wash water Pumpset for | | | | | |
| 2.11.1 | Mechanical Filter Discharge- ø 7.5 lps, Head- 10m, Power- 2 HP | set | 1 | | | |
| 2.11.2 | Jewel Filter Discharge- ø 25.272 lps, Head- 10m, Power- 7.5 HP | set | 1 | | | |
| 2.11.3 | Patterson Filter Discharge- ø 15.276 lps, Head- 10m, Power- 5 HP | set | 1 | | | |
| Subtotal for Bill No.2 | | Total | | Figures | | |
| | | | | Words | | |

| PRICE PROPOSALS - PART 1: WORKS | |
|---------------------------------|---|
| Name of Project | Bihar Urban Development Investment Program |
| Name of Employer: | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) |
| Contract Title: | Balance Works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation |
| Contract Package No: | BH/WS/01 – Package 04 |
| Bidder's Name : | |

| |
|---|
| Bill No. 03: Refurbishment of WTP - Electrical Works |
|---|

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 3 | Refurbishment of WTP - Electrical Works | | | | | |
| 3.1 | Panel - New Intake Pump House (Dry Well) 3 Pumps | | | | | |
| 3.1.1 | Supplying and fixing wall/floor mounted cubical panel board, fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnector, including bus-bar | Sqft | 50 | | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-
Package 04

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | chamber, insulator and painting etc. as required. (but without busbar copper strip) | | | | | |
| 3.1.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | Kg | 80 | | | |
| 3.1.3 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required. 630A | no | 1 | | | |
| 3.1.4 | Outgoing | | | | | |
| 3.1.4.1 | SITC of Soft Starters with panel supplied by manufacturer conforming to applicable standards with logic inputs & outputs, relay outputs and analogue outputs, plug in I/O connections, display of electrical | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | parameters, state of load & operating time, RS 485 serial link for connections to Modbus. | | | | | |
| 3.1.4.1.1 | 60 HP (41kW) | no | 3 | | | |
| 3.1.5 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required. 32 - 100A | no | 5 | | | |
| 3.2 | Panel - Old Intake Pump House (Wet Well) 4 Pumps | | | | | |
| 3.2.1 | Supplying and fixing wall/floor mounted cubical panel board, fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnector, including bus-bar chamber, insulator and painting etc. as required. (but without busbar copper strip) | Sqft | 55 | | | |
| 3.2.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers | Kg | 100 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | | | | | |
| 3.2.3 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required.630A | no | 1 | | | |
| 3. 2.4 | Outgoing | | | | | |
| 3. 2.4.1 | SITC of Soft Starters with panel supplied by manufacturer conforming to applicable standards with logic inputs & outputs, relay outputs and analogue outputs, plug in I/O connections, display of electrical parameters, state of load & operating time, RS 485 serial link for connections to Modbus. | | | | | |
| 3.2.4.1.1 | 100HP (75kW) | no | 1 | | | |
| 3.2.4.1.2 | 80 HP (65kW) | no | 1 | | | |
| 3. 2.4.1.3 | 60 HP (41kW) | no | 2 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 3.2.5 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required. 32 - 100A | no | 5 | | | |
| 3.3 | Panel - New Clear Water Pump House (Jewel) | | | | | |
| 3.3.1 | Supplying and fixing wall/floor mounted cubical panel board, fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnector, including bus-bar chamber, insulator and painting etc. as required. (but without busbar copper strip) | Sqft | 90 | | | |
| 3.3.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | Kg | 160 | | | |
| 3.3.3 | Providing and fixing following rating | no | 1 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required.630A | | | | | |
| 3.3.4 | Outgoing | | | | | |
| 3.3.4.1 | SITC of Soft Starters with panel supplied by manufacturer conforming to applicable standards with logic inputs & outputs, relay outputs and analogue outputs, plug in I/O connections, display of electrical parameters, state of load & operating time, RS 485 serial link for connections to Modbus. | | | | | |
| 3.3.4.1.1 | 100HP (75kW) | no | 4 | | | |
| 3.3.4.1.2 | 80 HP (65kW) | no | 1 | | | |
| 3.3.4.1.3 | 20 HP (15kW) With Star Delta Starter | no | 1 | | | |
| | | | | | | |
| 3.3.5 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle | no | 5 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | panel board including drilling holes in cubicle panel, making connections etc. as required.32 - 100A | | | | | |
| 3.4 | Panel - Old Clear Water Pump House | | | | | |
| 3.4.1 | Supplying and fixing wall/floor mounted cubical panel board, fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnector, including bus-bar chamber, insulator and painting etc. as required. (but without busbar copper strip) | Sqft | 75 | | | |
| 3.4.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | Kg | 140 | | | |
| 3.4.3 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc.as required.630A | no | 1 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 3.4.4 | Outgoing | | | | | |
| 3.4.4.1 | SITC of Soft Starters with panel supplied by manufacturer conforming to applicable standards with logic inputs & outputs, relay outputs and analogue outputs, plug in I/O connections, display of electrical parameters, state of load & operating time, RS 485 serial link for connections to Modbus. | | | | | |
| 3.4.4.1.1 | 150HP | no | 1 | | | |
| 3.4.4.1.2 | 125HP | no | 1 | | | |
| 3.4.4.1.3 | 85HP | no | 2 | | | |
| 3.4.4.1.4 | 40HP | no | 1 | | | |
| 3.4.5 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required.32 - 100A | no | 5 | | | |
| 3.5 | Panel - Jewel Filter WTP | | | | | |
| 3.5.1 | Supplying and fixing wall/floor mounted cubical panel board, | Sqft | 150 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnector, including bus-bar chamber, insulator and painting etc. as required. (but without busbar copper strip) | | | | | |
| 3.5.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | Kg | 200 | | | |
| 3.5.3 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc.as required.250A | no | 1 | | | |
| 3.5.4 | Outgoing | | | | | |
| 3.5.4.1 | SITC of Soft Starters with panel supplied by manufacturer conforming to applicable standards with logic inputs & outputs, relay outputs and analogue outputs, plug in I/O connections, display of electrical | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | parameters, state of load & operating time, RS 485 serial link for connections to Modbus. | | | | | |
| 3.5.4.1.1 | 75HP | no | 2 | | | |
| 3.5.5 | DOL Starter Feeder with MCB, Main and Aux Contactor, O/L Relay, L/R Selector Switch, 3 Indicating lamps, Start- Stop Push Button, Control MCB Size : 600 (W) x 400 (H) x 600 (D) | no | 10 | | | |
| 3.5.6 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required. 32 - 100A | no | 10 | | | |
| 3.6 | Panel - Patterson Filter WTP | | | | | |
| 3.6.1 | Supplying and fixing wall/floor mounted cubical panel board, fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnector, including bus-bar chamber, insulator and painting etc. | Sqft | 150 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | as required. (but without busbar copper strip) | | | | | |
| 3.6.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | Kg | 200 | | | |
| 3.6.3 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc.as required.250A | no | 1 | | | |
| 3.6.4 | Outgoing | | | | | |
| 3.6.4.1 | SITC of ASD Starters with panel supplied by manufacturer conforming to applicable standards with logic inputs & outputs, relay outputs and analogue outputs, plug in I/O connections, display of electrical parameters, state of load & operating time, RS 485 serial link for connections to Modbus. | | | | | |
| 3.6.4.1.1 | 20 HP (15kW) With Star Delta | no | 5 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | Starter | | | | | |
| 3.6.5 | DOL Starter Feeder with MCB, Main and Aux Contactor, O/L Relay, L/R Selector Switch, 3 Indicating lamps, Start- Stop Push Button, Control MCB Size : 600 (W) x 400 (H) x 600 (D) | no | 10 | | | |
| 3.6.6 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required. 32 - 100A | no | 10 | | | |
| 3.7 | Panel - Mechanical WTP | | | | | |
| 3.7.1 | Supplying and fixing wall/floor mounted cubical panel board, fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnector, including bus-bar chamber, insulator and painting etc. as required. (but without busbar copper strip) | Sqft | 130 | | | |
| 3.7.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC | Kg | 180 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | | | | | |
| 3.7.3 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc.as required.200A | no | 1 | | | |
| 3.7.4 | Outgoing | | | | | |
| 3.7.4.1 | SITC of ASD Starters with panel supplied by manufacturer conforming to applicable standards with logic inputs & outputs, relay outputs and analogue outputs, plug in I/O connections, display of electrical parameters, state of load & operating time, RS 485 serial link for connections to Modbus. | | | | | |
| 3.7.4.1.1 | 20 HP (15kW) With Star Delta Starter | no | 3 | | | |
| 3.7.5 | DOL Starter Feeder with MCB,Main and Aux Contactor,O/L Relay,L/R Selector Switch,3 Indicating | no | 10 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | lamps,Start- Stop Push Button ,Control MCB Size : 600 (W) x 400 (H) x 600 (D) | | | | | |
| 3.7.6 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required.32 - 100A | no | 10 | | | |
| 3.8 | Panel - Chlorination System | | | | | |
| 3.8.1 | Supplying and fixing wall/floor mounted cubical panel board, fabricated with 16 gauge iron sheet, suitable for panel mounted switch disconnect, including bus-bar chamber, insulator and painting etc. as required. (but without busbar copper strip) | Sqft | 60 | | | |
| 3.8.2 | Supplying and fixing of Aluminium bus bar by means of SMC / DMC type insulator, high tensile nuts and bolts spring washers in existing panel including bending , cutting in required shape and size and colour coding with heat shrinkable PVC sleeves. | Kg | 60 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 3.8.3 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc.as required.100A | no | 1 | | | |
| 3.8.4 | Outgoing | | | | | |
| 3.8.4.1 | DOL Starter Feeder with MCB,Main and Aux Contactor,O/L Relay,L/R Selector Switch,3 Indicating lamps,Start- Stop Push Button ,Control MCB Size : 600 (W) x 400 (H) x 600 (D) | no | 9 | | | |
| 3.8.5 | Providing and fixing following rating and breaking capacity MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections etc. as required.32 - 100A | no | 5 | | | |
| 3.8.6 | Providing & Laying XLPE insulated / P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor Armoured of IS:7098-I/1554-1 approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | under layer of sand, second Class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size. | | | | | |
| 3.8.6.1 | 120 Sqmm | m | 100 | | | |
| 3.8.6.2 | 70 Sqmm | m | 100 | | | |
| 3.8.6.3 | 16 Sqmm | m | 200 | | | |
| 3.8.7 | Supplying and making one end termination with heavy duty double compression brass gland SIBG type, heavy duty copper lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size. | | | | | |
| 3.8.7.1 | 120 Sqmm | No. | 20 | | | |
| 3.8.7.2 | 70 Sqmm | No. | 20 | | | |
| 3.8.7.3 | 10 Sqmm | No. | 40 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------------------------|--|--------------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 3.8.8 | Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required. | No. | 10 | | | |
| 3.8.9 | Supplying and laying 25 mm X 6 mm G.I. strip at 0.50 metre below ground as strip earth electrode, including connection/ termination with GI nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping with 2 sets of G.I. nut bolt & spring washer spaced at 50 mm) | M | 150 | | | |
| Subtotal for Bill No.3 | | Total | | Figures | | |
| | | | | Words | | |

| PRICE PROPOSALS - PART 1: CONSTRUCTION WORKS | |
|---|---|
| Name of Project | Bihar Urban Development Investment Program |
| Name of Employer: | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) |
| Contract Title: | Balance Works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation |
| Contract Package No: | BH/WS/01 – Package 04 |
| Bidder's Name : | |

| |
|--|
| Bill No. 04: Refurbishment of WTP - Instrumentation Works |
|--|

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 4 | Refurbishment of WTP - Instrumentation Works | | | | | |
| 4.1 | Pumping Stations | | | | | |
| 4.1.1 | Electro- magnetic Flow meter | | | | | |
| | Supply, Installation, testing and commissioning of Direct on line electro-magnetic Flow meter complete with converter, transmitting device and digital flow indicator & integrator etc. for following sizes: | | | | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-
Package 04

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 4.1.2. | DN 500 | Nos. | 2 | | | |
| 4.1.3 | DN 250 | Nos. | 1 | | | |
| 4.1.4 | Ultrasonic Type Level Indicator | | | | | |
| 4.1.2 | Supply, Installation, testing and commissioning of Ultrasonic type Level transmitter with indicator shall be provided for measuring the water level as per following details. The indicator shall be digital type showing depth in meters. | | | | | |
| 4.1.2.1 | For Intake-wells Ultrasonic/Radar type | Nos. | 2 | | | |
| 4.1.2.2 | For clear water reservoirs Ultrasonic/Radar type | Nos. | 2 | | | |
| 4.1.3 | Pressure Measuring Device | | | | | |
| 4.1.3.1 | Supply, Installation, Testing and Commissioning of PRESSURE TRANSMITTER for Water Application: Range: 0-10 Bar / Power Supply: 24 V DC / Output: 4-20 mA with HART / Diaphragm: SS316L / Process Connection: 1/2 "NPT (M) / Accuracy: 0.15% Protection: IP67 in common delivery pipe complete with all accessories | Nos. | 12 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | and digital pressure indicator as per contract specifications. | | | | | |
| 4.1.3.2 | Supply, Installation, testing and commissioning of Diaphragm type pressure gauges suitable for pressure measurements of water flow in suction and delivery pipe complete with piping & hardwares as per contract specifications. | Nos. | 36 | | | |
| 4.2 | Water Treatment Plants | | | | | |
| 4.2.1 | Filters | | | | | |
| 4.2.1.1 | Supply, Installation, testing and commissioning of Rate of Flow Indicator with sensor, transmitter and digital display arrangement as per contract specifications. | Nos. | 6 | | | |
| 4.2.1.2 | Supply, Installation, testing and commissioning of Loss of Head Indicator with probe, transmitter and digital display arrangement as per contract specifications. | Nos. | 6 | | | |
| 4.2.2 | Chlorinators | | | | | |
| 4.2.2.1 | Supply, Installation, testing and commissioning of On line Residual Chlorine Monitoring System as per | Nos. | 3 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------------------------|---|--------------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | contract specifications. | | | | | |
| 4.3 | Cables and Accessories | | | | | |
| 4.3.1 | Supply, laying, termination and commissioning of power and instrumentation cables for all above facilities complete with all accessories like lugs, glands, cable trays etc., complete as per specifications. | Lot | 1 | | | |
| Subtotal for Bill No.4 | | Total | | Figures | | |
| | | | | Words | | |

| PRICE PROPOSALS - PART 1: CONSTRUCTION WORKS | |
|---|---|
| Name of Project | Bihar Urban Development Investment Program |
| Name of Employer: | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) |
| Contract Title: | Balance Works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation |
| Contract Package No: | BH/WS/01- Package 04 |
| Bidder's Name : | |

| |
|--|
| Bill No. 05: Augmentation of Water Supply by Emergency Intake |
|--|

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5 | Augmentation of Water Supply by Emergency Intake | | | | | |
| 5.1 | Detachable Pumping Station | | | | | |
| 5.1.1 | Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, service connections masonry work, etc. in all kinds of ordinary soils such as murum, sand, sandy silt, clay silt with kankar, brick pieces etc. or in combination. Excavation shall include | | | | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01- Package 04

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | the removal of concrete road surfaces, WBM roadway surfaces, brick surfacing, including dressing, compaction of the bottoms of the excavation, shoring and strutting wherever required, dewatering whenever required, removal of the excavated soil, stockpiling and disposal of surplus excavated soil off-site as directed by the Employer's Representative. | | | | | |
| 5.1.1.1 | 0 to 1.5 m from GL | CUM | 11.4 | | | |
| 5.1.1.2 | 0 to 1.5 m from GL (pillar foundation) | cum | 0.18 | | | |
| 5.1.1.3 | Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, service connections masonry work, etc. in all kinds of ordinary soils such as murum, sand, sandy silt, clay silt with kankar, brick pieces etc. or in combination. Excavation shall include the removal of concrete road surfaces, WBM roadway surfaces, brick surfacing, including dressing, compaction of the bottoms of the | CUM | 4.14 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | excavation, shoring and strutting wherever required, dewatering whenever required, removal of the excavated soil, stockpiling and disposal of surplus excavated soil off-site as directed by the Employer's Representative. 0.00 m to 1.5 m (for steps) | | | | | |
| 5.1.2 | Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level. 1:3:6 (1 Cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) | cum | 3.42 | | | |
| 5.1.2.1 | Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level. For Steps from river bank top to intermediate pump base level 1:3:6 (1 Cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) | cum | 3.66 | | | |
| 5.1.3 | Providing and laying in position | cum | 6 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | cement concrete of specified grade excluding the cost of centering and shuttering and including finishing the surfaces -all work up to plinth level for Pumpset Platform. M20 grade | | | | | |
| 5.1.4 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering and including finishing the surfaces -all work up to plinth level for pillar foundation. M20 grade | cum | 0.18 | | | |
| 5.1.5 | Lintels, beams, plinth beams, griders, bressumers and contilevers. (for sides of waist slab of steps) | sqm | 4.88 | | | |
| 5.1.6 | Brick work with bricks of class designation 100A in foundations and plinth in : Cement mortar 1:6 (1 cement: 6 coarse sand) | cum | 1.63 | | | |
| 5.1.7 | Supply, Installation of RJS frame for support to pumping machinery with welding partly embedded in the concrete (ISMB 300X140) | kg | 184 | | | |
| 5.1.8 | Supplying, Installation of 80 mm dia class B G.I pipes for supporting the roofs with nut bolts etc to remove | RM | 39 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | from before monsoon including suitable foundation etc complete as directed by Engineer incharge | | | | | |
| 5.1.9 | Providing and Installing 40 mm dia G.I pipes to support the roofs sheet with nut bolts etc to fix with vertical post and roof sheets (PVC) etc complete | RM | 39 | | | |
| 5.1.10 | Providing and installing Fiber glass/PVC sheets as a roof to the pump room with suitable removing arrangement before on set of mansoon etc complete as directed by Engineer Incharge | sqm | 29.627 | | | |
| 5.1.11 | Erection charges of fibre glass/PVC roofing 30% | | | | | |
| 5.1.12 | Electrification | | | | | |
| 5.1.12.1 | Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|---|---------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | recessed ISI marked medium duty PVC conduit & it's accessories, round tiles, 18 SWG M.S. box with earth terminal, screwless cage connectors for neutral looping in switch board & false ceiling point. 6 A switch, 3.0 mm thick phenolic laminated sheet, zinc plated / brass screws, cup washers, making connections, testing etc. as required. (From operator room to Pumping Station shed) | | | | | |
| 5.1.12.1.1 | Light Point/Fan Points - | Nos | 4 | | | |
| 5.1.12.2 | Encasing Pipe for cable | m | 50 | | | |
| 5.2 | Conveyance System from Intake Well to Inlet of WTP | | | | | |
| 5.2.1 | Clearing Grass and Removal of Rubbish | Hectare | 1 | | | |
| 5.2.2 | Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 meters). Bituminous course (by mechanical means) | cum | 1008 | | | |
| 5.2.3 | Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to | cum | 504 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials up to a lead of 1000 meters. | | | | | |
| 5.2.4 | Earth work for excavation of foundations, pipe trenches, valve chambers, thrust blocks, service connections masonry work, etc. in all kinds of ordinary soils such as murum, sand, sandy silt, clay silt with kankar, brick pieces etc. or in combination. Excavation shall include the removal of concrete road surfaces, WBM roadway surfaces, brick surfacing, including dressing, compaction of the bottoms of the excavation, shoring and strutting wherever required, dewatering whenever required, removal of the excavated soil, stockpiling and disposal of surplus excavated soil off-site as directed by the Employer's Representative. | | | | | |
| 5.2.4.1 | 0 to 1.5 m from GL | CUM | 10192 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.2.4.2 | above 1.5 m to 3.0 m depth from GL | CUM | 3136 | | | |
| 5.2.5 | Removal of Unserviceable Soil | | | | | |
| | Removal of unserviceable soil with Disposal above 8 Km etc. complete and as per direction of engineer in charge. | cum | 5072.76 | | | |
| 5.2.6 | Transportation & Conveying of pipe at site by head load or any other manual mean (600 mm dia) in the river bed portion | Nos. | 60.00 | | | |
| 5.2.7 | Providing, laying, jointing, testing and commissioning of S&S Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS : 8329 : including Disinfecting water mains by flushing with water containing bleaching powder @ 0.5 gms per litre of water and cleaning the same with fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory. The cost includes Hydraulic testing of D.I. pipe line to specified pressure including cost of all materials and | RM | 7100 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|---------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | labour and water for testing for specified length including cutting, placing end cap making arrangement for filling safe water using reciprocating type pumps which should be able to provide specified test pressure gauges and other necessary equipments, labour, operation charges, etc. required for testing. The rate under this item shall also include cost of retesting, if necessary and reinstating to original position using water supplied by the contractor. The cost also includes the GST charges. Ductile Iron Class K-9 pipes. 900 mm dia | | | | | |
| 5.2.8 | Supply, Laying, jointing, hydraulic testing, disinfecting and commissioning DI Specials of K12 Class and fittings with plain, double socket, socket & flanged and double flanged end connections or S&S as required, with lining and coating as per the specification, and relevant IS standard with EPDM rubber gaskets | Quintal | 802.75 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | as per IS 5382 as required for successful completion of the Works above 600 mm size | | | | | |
| 5.2.9 | Open timbering in trenches including strutting and shoring complete (Measurements to be taken of the face area timbered).Depth exceeding 1.5 m but not exceeding 3 m | Sqm | 940.8 | | | |
| 5.2.10 | Providing, lowering, laying, aligning, fixing in position in pipe line, Resilient Seated D/F DI Butterfly valves of approved make and design standard of following dia complete (including jointing & jointing material) including all material, labour, testing and commissioning along with pipe line as per Technical Specification & as per direction of Engineer. The cost also includes the GST charges. Manually operated (PN 1 class) | | | | | |
| 5.2.10.1 | 900 mm dia PN1.0 | Nos. | 7 | | | |
| 5.2.11 | Providing, lowering, laying, aligning, fixing in position in pipe line, manually operated DI D/F Sluice valves & butterfly valve of approved make PN | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | 1.0 class of following dia complete (including jointing and jointing material) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer. | | | | | |
| 5.2.11.1 | 500 mm dia (Scour valve location) | Nos. | 2 | | | |
| 5.2.11.2 | 150 mm dia (Isolation valve for Air value location) | Nos. | 14 | | | |
| 5.2.12 | Supply installation and commissioning of single chamber compact design air valve 150 mm dia PN1.0 or equivalent model directly operated by the flow medium and 100% tamper proof, light weight, automatic air venting of working fluid for feed, main and supply lines, one big orifice and one small orifice to expel the air continuously from the pipe lines, designed for air admission during draining of pipe line, venting during pump starting and continuous venting during pump operation. Ends: Flanged to DIN 2501, Pressure test: | Nos. | 14 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | per DIN 3230 Part 4, Surface protection: Electrostatic epoxy powder coating (EP-P) inside | | | | | |
| 5.2.13 | Constructing masonry Chamber in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for valve, with C.I. surface box 100 mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) , i/c necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard design : With common burnt clay F.P.S.(non modular) bricks of class designation 100A | | | | | |
| 5.2.13.1 | 60cm x 60cm for 150 mm dia valve | Nos. | 14 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|-----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 2.13.2 | 120cm x 120cm for 500 mm dia valve | Nos. | 2 | | | |
| 2.13.3 | 175cm x 190cm for 900 mm dia valve | Nos. | 7 | | | |
| 5.2.14 | MS pipe crossing (Providing & laying)Fabrication, supply of flanged/ plain ended MS pipe made from MS sheet strips of relevant IS specification of approved thickness by welding, lowering, laying, aligning, fixing in position at all level/ depths in trenches complete (excluding flanged jointing wherever required) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer .MS pipe 1200mm dia with minimum 6.3 mm thickness sheet including laying jointing etc complete. | KG | 30,766.75 | | | |
| 5.2.15 | Fabrication, supply of flanged/ plain ended MS pipe made from MS sheet strips of relevant IS specification of approved thickness by welding, lowering, laying, aligning, fixing in position at all level/depths in trenches complete excluding flanged jointing | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | wherever required) including all material, labour, testing and commissioning along with pipe line as per Technical Specifications and as per direction of Engineer. Note : E/w to be measured and paid separately. | | | | | |
| 5.2.15.1 | MS pipe specials upto 600mm dia (with minimum 6.3 mm thickness sheet) | KG | 1538.34 | | | |
| 5.2.16 | Lowering, laying, jointing, testing, commissioning DI/CI/MS pipe by horizontal bore method or any other suitable technology below ground at required depth including carriage of material, etc complete with construction of thrust pit and receiving pit of required size including soil investigation, traffic diversion etc complete as directed by Engineer incharge and as per specifications | | | | | |
| 5.2.16.1 | 900 mm dia | RM | 1500.00 | | | |
| 5.2.17 | Providing and installing bladder vessel of 6 cum volume with 15 kg/cm2 design pressure including | Nos. | 1 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|---------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | testing, commissioning and maintaining the same for the period of 3 months from the commissioning of scheme including GST and all taxes of 18% for surge protection | | | | | |
| 5.2.18 | Dewatering 5 KW pump 15 days | per day | 15 | | | |
| 5.2.19 | Backfilling of pipe trenches, foundations, etc. with excavated earth, including placing in layers not exceeding 15 cm in depth each, and compacting each layer, complete as per the specification and standard drawings and as directed by the Employer's Representative. | CUM | 6743.24 | | | |
| 5.2.20 | Providing sal ballah barricading with sal ballah average 150 dia. And 2M long sal ballah post at interval of 2.5 M C/C fixed 0.5 M average below ground, packed with earth and Brick bats, well-watered and rammed with three rows of average 100mm dia. Sal ballah horizontal runners fixed with iron spikes and wires, white washing one coat to exposed | RM | 1,400 | | | |

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|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | surface, dismantling the barricade after function, filling the holes, excluding carriage of sal ballah from and to godown up to 5K.M. lead, stacking them in countable stacks in godown including cost of all labour and materials and taxes all complete job as per specification and direction of E/I. This barricading arrangement should be shifted to next location once the work is over. | | | | | |
| 5.2.21 | Road Restoration | | | | | |
| 5.2.21.1 | Water Bound Macadam: (Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with vibratory roller 8-10 tones / Smooth 3 wheeled Steel Roller in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | required density). By manual means | | | | | |
| 5.2.21.1.1 | Using Screening Crushable type such as Moorum or Gravel (with Vibratory Roller)(160 mm thick WBM and 25 mm thick Bituminuous course at top) Grading:II | cum | 806.4 | | | |
| 5.2.21.1.2 | Bituminous Macadam (Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tones per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction) for Grading I (40 mm nominal size); thickness 40 mm | cum | 201.6 | | | |
| 5.2.22 | Cement Concrete Road | | | | | |
| 5.2.22.1 | Cement Concrete Pavement (Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, deboning strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing). M20 grade (100 mm thick flat soling of fly ash brick and 200 mm thick PCC) | | | | | |
| 5.2.22.1.1 | 200 mm thick | cum | 504 | | | |
| 5.2.23 | Inter-connection of 600 mm dia pumping main to the inlet chamber at WTP of Barari water works with all necessary labour, material, etc | Nos. | 1 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | complete as per the direction of Engineer Incharge | | | | | |
| 5.2.24 | Supply and Pushing of MS casing pipe of specified thickness by trenchless method adopting any suitable technology below ground at required depth under running traffic condition as per railway standard including carrying out survey work at the job site for determining underground cable trenches like telephone, cable, water & sanitary lines and resistivity test for finding the soil strata using necessary equipments for completion of works, mobilizing of machineries and specialized crew at the job site complete in all respect, including excavation of driven pit and exit pit (upto 3 metre depth) with proper protection at three sites with shoring sheets and ISMB's. Providing MS cutting edges for front shield and Constructing thrust bed at designated level. Necessary de-watering and | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | providing concrete foundation at the base of the driven pit, PVC/Rubber saddle as per the requirement of Railway Authority, crane for handing of pipe and any other machinery, tools, and tackles required, construction of temporary works as per requirement and as per approved by railway authorities, specification and the direction of the Engineer. (Protective coating/ lining if done that will be paid extra) | | | | | |
| 5.2.24.1 | 1200 mm dia 16 mm thick casing pipe | RM | 60 | | | |
| 5.2.25 | Thrust Block in Rising main | | | | | |
| 5.2.25.1 | Excavation in ordinary soil | | | | | |
| 5.2.25.1.1 | Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------------|---|------|-----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.2.25.1.1. 1 | 0-1.5m | cum | 119.9 | | | |
| 5.2.25.2 | RCC for Thrust Block | | | | | |
| 5.2.25.2.1 | Reinforced cement concrete work in wall (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts, etc. up to floor five level excluding cost of centring, shuttering and reinforcement and including the finishing the surfaces.M-20 grade | cum | 223.2 | | | |
| 5.2.25.3 | Centering and shuttering including strutting, propping etc. and removal of form for: | | | | | |
| 5.2.25.3.1 | Foundations, footings, bases of columns etc. for mass concrete. | sqm | 484 | | | |
| 5.2.25.4 | Thermo-Mechanically Treated bars | | | | | |
| 5.2.25.4.1 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | cum | 17,521.20 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|--------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | Providing, lowering, laying, aligning, fixing in position and jointing DI dismantling joint (suitable for sluice valves etc.) as per IS specifications complete of the following sizes including all jointing material, cost of all labour, testing and commissioning as per Technical Specifications and as per direction of Engineer. DI Dismantaling joints - PN-1.0 | | | | | |
| 5.2.25.4.1.1 | 150mm | Nos. | 14 | | | |
| 5.2.25.4.1.2 | 500 mm | Nos. | 2 | | | |
| 5.2.25.4.1.3 | 900 mm | Nos. | 7 | | | |
| 5.3 | Construction of Operator Room and Meter room at Intake works | | | | | |
| 5.3.1 | Earthwork | | | | | |
| 5.3.1.1 | Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m including getting out the excavated | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | soil and disposal of surplus excavated soil as directed, within a lead of 50 m. | | | | | |
| 5.3.1.1.1 | 0-1.5 m | cum | 26.01 | | | |
| 5.3.1.2.1 | 1.5 -3.0m | cum | 1.73 | | | |
| 5.3.2 | Supplying and Filling in plinth with available excavated earth | | | | | |
| 5.3.2.1 | Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead. | cum | 4.06 | | | |
| 5.3.3 | Backfilling of soil with approved excavated soil | | | | | |
| 5.3.3.1 | Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead. | cum | 20.72 | | | |
| 5.3.4 | Removal of unserviceable soil | | | | | |
| 5.3.4.1 | Removal of unserviceable soil with Disposal beyond 8 Km etc. complete | cum | 2.97 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | and as per direction of engineer in charge. | | | | | |
| 5.3.5 | Local Sand Filling | | | | | |
| 5.3.5.1 | Supplying and Filling in plinth with local sand and under floors including, watering, ramming consolidating and dressing complete. | cum | 6.09 | | | |
| 5.3.6 | Damp Proof Course | | | | | |
| 5.3.6.1 | Providing and laying damp-proof Course 50 mm thick with cement concrete 1:2:4 (1cement :2 coarse sand :4 graded stone aggregate 20mm nominal size) | sqm | 4.38 | | | |
| 5.3.7 | Brick work with bricks of class designation 100A in foundations and plinth in : Cement mortar 1:4 (1 cement: 4 coarse sand) in foundation and plinth. Extra for Brick work in superstructure above plinth level upto floor Vth level. | cum | 11.27 | | | |
| 5.3.8 | Centering and shuttering including strutting, propping etc. and removal of form for: | | | | | |
| 5.3.8.1 | Foundations, footings, bases of columns etc. for mass concrete. | sqm | 24.24 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.3.8.2 | Suspended floors, roofs, landings, balconies and access platform. | sqm | 30.03 | | | |
| 5.3.8.3 | Lintels, beams, plinth beams, girders, resumes and cantilevers. | sqm | 50.51 | | | |
| 5.3.8.4 | Columns, Pillars, Piers, Abutments, Posts and Struts | sqm | 28.98 | | | |
| 5.3.8.5 | Weather shade, Chajjas, corbels etc. including edges | sqm | 6.81 | | | |
| 5.3.9 | PCC in M 15 | | | | | |
| 5.3.9.1 | Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering and including finishing the surfaces -all work up to plinth level | cum | 3.48 | | | |
| 5.3.10 | RCC Work upto Plinth level- M 20 | | | | | |
| 5.3.10.1 | Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering and reinforcement and including finishing the surfaces- All work up to plinth level | cum | 5.29 | | | |
| 5.3.11 | RCC Work above Plinth Level upto floor five level - M 20 | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.3.11.1 | Reinforced cement concrete work in wall (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts, etc. up to floor five level excluding cost of centring, shuttering and reinforcement and including finishing the surfaces. | cum | 12.93 | | | |
| 5.3.12 | Thermo-Mechanically Treated bars | | | | | |
| 5.3.12.1 | Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500. The cost includes GST charges | kg | 2,145.41 | | | |
| 5.3.13 | Cement Plaster | | | | | |
| 5.3.13.1 | 12 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement and providing and mixing water proofing material in proportion recommended by the manufacturers: for inner surfaces | sqm | 83.78 | | | |
| 5.3.13.2 | 20 mm cement plaster of mix in 1:3 | sqm | 87.2 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | (1 cement: 3 coarse sand) finished with a floating coat of neat cement and providing and mixing water proofing material in proportion recommended by the manufacturers for outer surfaces | | | | | |
| 5.3.14 | Painting Works | | | | | |
| 5.3.14.1 | Applying one coat of cement primer of approved brand and manufacture on wall surface: | | | | | |
| 5.3.14.1.1 | Cement primer | sqm | 83.78 | | | |
| 5.3.14.2 | Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade:Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture | sqm | 83.78 | | | |
| 5.3.14.3 | Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade : | | | | | |
| 5.3.14.3.1 | New work (Two or more coat applied @ 1.43 ltr/ 10 sqm over and including priming coat of exterior | sqm | 87.2 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | primer applied @ 2.20 kg/ 10 sqm) | | | | | |
| 5.3.15 | Doors, Windows and Ventilators | | | | | |
| 5.3.16 | Providing and fixing steel glazed doors/gate, windows and ventilators of standard rolled steel sections, joints mitered and welded with 15x3 mm lugs 10 cm long with steel lugs embedded in cement concrete blocks 15x10x10 cm of 1:3:6 (1 cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with fixing clips or with bolts and nuts as required, including providing and fixing of glass panes with glazing clips and special metal-sash putty of approved make complete including applying a priming coat of approved steel primer; including the cost of metal beading and other fitting except necessary hinges or pivots as required. | sqm | 8.4 | | | |
| 5.3.17 | Providing and fixing T-iron frames for | kg | 132.05 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | doors. windows and ventilators of mild steel Tee-sections, joints milled and welded with 15x3 mm lugs 10 cm long embedded in cement concrete blocks 15x10x10 cm of 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with fixing clips or with bolts and nuts as required including | | | | | |
| 5.3.18 | Extra for providing and fixing steel beading of approved shape and section with screws instead of glazing clips and met. Sash putty in steel doors, windows, Ventilators and composite units. | | | | | |
| 5.3.18.1 | Steel Doors | sqm | 3.15 | | | |
| 5.3.18.2 | Steel Windows | sqm | 5.4 | | | |
| 5.3.18.3 | Steel Ventilators | sqm | 0.48 | | | |
| 5.3.19 | Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, | sqm | 16.8 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | etc. complete on steel work | | | | | |
| 5.3.20 | Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) with a floating coat of neat cement including cement slurry but excluding the cost of nosing of steps etc complete. 40 mm thick with 20 mm nominal size stone. | sqm | 20.3 | | | |
| 5.3.21 | Providing and fixing on wall face unplasticized-PVC (working pressure 4 kgf per sqm) rain water pipes conforming to IS :4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter. | m | 12 | | | |
| 5.3.22 | Roofing Work | | | | | |
| 5.3.22.1 | Providing and laying in situ five course water proofing treatment with glass fiber tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg per sq m. 2nd & 4th courses of bonding materials @ 1.60 kg per sq m which shall consist of blown type bitumen of | sqm | 34.8 | | | |

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|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | grade 85/25 confirming to IS 702, third layer of glass fiber tissue course as specified, fifth, the top most layer of stone grit 6mm and down size or pea-sized gravel spread @ 6dm ³ per sq m including preparation of surface excluding grading for slope etc all complete., On Roof Slab | | | | | |
| 5.3.23 | Electrification charges | No | 1 | | | |
| 5.4 | Approach Road to Intake Well | | | | | |
| 5.4.1 | Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2. | cum | 285 | | | |
| 5.4.2 | Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | desired density, complete as per clause 401(Plant Mix Method) For Grading-I Material | | | | | |
| 5.4.2.1 | For Grading-I Material | cum | 42.75 | | | |
| 5.4.2.2 | For Grading-I Material | cum | 35.625 | | | |
| 5.4.3 | Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with 3 wheeled steel/ vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.(By Mechanical Means)Grading-I Material & Screening Type-A | cum | 35.625 | | | |
| 5.4.4 | Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm | sqm | 240 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | using mechanical means. | | | | | |
| 5.4.5 | Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom. | sqm | 240 | | | |
| 5.4.6 | Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction.For GradingII(19 mm nominal size) | cum | 12 | | | |
| 5.4.7 | Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A and B seal coats (Case - II : Type B) | sqm | 240 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|------------|---|---------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.5 | Intake Switch yard | | | | | |
| 5.5.1 | Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 meters including removal and disposal of top organic soil not exceeding 150 mm in thickness. In area of light jungle | hectare | 0.015 | | | |
| 5.5.2 | Earthwork for foundation for Two pole Transformer | cum | 0.2025 | | | |
| 5.5.2.1 | Transformer block (concrete M20) | cum | 0.405 | | | |
| 5.5.3 | Providing and laying of 40mm aggregate in switch yard | cum | 1.35 | | | |
| 5.5.4 | Chain link fabric fencing mesh of size 50x50mm made of G.I wire of dia. 4mm, pvc coated to outer dia. 5mm. Including gate of 2.5 m wide etc complete as directed by Engineer Incharge | sqm | 240 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.6 | Electro Mechanical Works | | | | | |
| | Design, Supply, Testing, Installations and Commissioning of the following Items | | | | | |
| 5.6.1 | Raw water pump, motor, starter and connecting pipe | | | | | |
| 5.6.1.1 | Clear water pumps, motors, starter and connecting pipes | | | | | |
| 5.6.1.1.1 | Raw Water pump, Horizontal Centrifugal Pumpset, 264 LPS 37m Head | No. | 2.00 | | | |
| 5.6.1.1.2 | Horizontal Solid Shaft Motor, 1440rpm, 125 kW | No. | 2.00 | | | |
| 5.6.1.1.3 | Providing and fixing of Soft Starter - 125kW | No. | 2.00 | | | |
| 5.6.2 | Supplying, laying, jointing, testing and commissioning of DF MS Suction pipe and DF MS Delivery pipe and special | kg | 7,098.92 | | | |
| 5.6.2.1 | Support Arrangement for the Suction Pipe | | | | | |
| 5.6.2.1.1 | Wooden ballies 8" Dia and 9 m long - Sal | 1 | 20 | | | |
| 5.6.2.2.2 | Wooden ballies 2" Dia for bracing (Sal) | 1 | 20 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.6.3 | Butterfly valve and Dismantling Joint | | | | | |
| 5.6.3.1 | Providing, lowering, laying, aligning, fixing in position in pipe line, Resilient Seated D/F DI Butterfly valves of approved make and design standard of following dia complete (including jointing & jointing material) including all material, labour, testing and commissioning along with pipe line as per Technical Specification & as per direction of Engineer. The cost also includes the GST charges. Manually operated (PN 1 class) | | | | | |
| 5.6.3.1.1 | 400mm | No. | 2.00 | | | |
| 5.6.3.2 | Providing, lowering, laying, aligning, fixing in position and jointing DI dismantling joint (suitable for sluice valves etc.) as per IS specifications complete of the following sizes including all jointing material, cost of all labour, testing and commissioning as per Technical Specifications and as per direction of Engineer. Dismantling joints - PN-1.0 | | | | | |
| 5.6.3.2.1 | 400 mm dia | No. | 4.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 5.6.3.3 | Providing, lowering, laying, aligning, fixing in position and jointing in pipe line, dual plate check valves as per API:594 and API:598 of PN 1.0 rating of following dia (including jointing and jointing material), including all material, labour, testing and commissioning as per Technical Specifications and as per direction of Engineer. | | | | | |
| 5.6.3.3.1 | NRV 400mm | No. | 2.00 | | | |
| 5.6.3.4 | Providing, installation, testing and commissioning of glycerin filled Pressure gauge of following ranges with isolation valve and tap off pipe complete in all respect as per technical specification and as per direction of Engineer. Glycerine filled Pressure Gauge 0 to 10kg/cm ² | No. | 2.00 | | | |
| 5.6.3.5 | Providing, installation, testing and commissioning of Electromagnetic Flow Meter etc. including all materials (excluding CI/DI fittings) and making connection with existing pipeline | No. | 2.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | required for Electromagnetic Flow Meter including cutting the existing pipe line etc. complete in all respect as per technical specification and as per direction of Engineer. EMF 900 for DN 900 mm (1 No at Initial and 1 No at terminal point of Pumping main) | | | | | |
| 5.6.4 | Electrical Substation and system | | | | | |
| 5.6.4.1 | Supply, Installation, testing and commissioning of 0.415 kV Double Pole structure suitable for intake pumping machinery. | set | 1.00 | | | |
| 5.6.4.2 | Supply, Installation, Testing and commissioning of copper wound Transformers 33/0.433 KV, Three Phase, 50 Hz, DYN 11, ONAN type , Standard accessories with off load tap changer (+5% to -10% in steps of 2.5%), winding / Top --- temperature rise of 45°C/40°C first fill oil, having permissible total loss values not exceeding 7.5% of the maximum total loss values for 11 KV as per energy efficiency level - | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | 2 at basic Insulation level conforming to ISS 2026 (Part- I to Part - II), latest amended and IS 1180 Part-I : 2014. | | | | | |
| 5.6.4.2.1 | 400 kVA | No. | 1.00 | | | |
| 5.6.4.3 | Capacitor Bank | | | | | |
| 5.6.4.3.1 | Self healing MPP/MP type shunt capacitor (banks) conforming to IS:13340-41 / IEC :831-1&2 in existing panel or parallel with load terminals , the capacitor shall be fitted with discharge resistors, pressure sensitive disconnecter (PSD) and shall have dissipation factor less than 0.0025 at 50 Hz and total wattage loss less than 0.5 Watt per kVA including making connections with suitable capacity conductors/cables testing as required. Heavy Duty 3- phase Short circuit withstand current - 25 kA for 3 secs | kVAr | 80.00 | | | |
| 5.6.4.3.2 | SITC of Microprocessor based intelligent power factor correction relay having sensitivity up to 50 milli amp secondary current following way, | No. | 1.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | self analysing auto c/k setting according to targeted power factor setting, relay shall have minimum three digit display unit of real power factor correction 6 to 14 stage relay Max. operating time - less than 3 cycles | | | | | |
| 5.6.4.3.3 | P & F of 440 Volt 3 pole capacitor (AC 6 B) duty contactor with 3 no. early make and post break auxiliary contacts in series with quick discharge damping resistors/ reactors to limit the inrush current, conforming to IS:13947-4-1/IEC:947-4-1, Din rail mounting type including making connections, testing etc. as required. suitable for following capacity capacitor bank.Minimum operations at full rated short circuit breaking currents - 100 Rated Breaking capacity | No. | 1.00 | | | |
| 5.6.4.3.4 | 440 Volt 3 pole capacitor (AC 6 B) duty contactor with 3 no. early make and post break auxiliary contacts in series with quick discharge damping | No. | 1.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|---|----------------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | resistors/ reactors to limit the inrush current , conforming to IS:13947-4-1/IEC:947-4-1, Din rail mounting type including making connections, testing etc. as required. suitable for following capacity capacitor bank. Symmetrical - 25 kA | | | | | |
| 5.6.4.3.5 | 440 Volt 3 pole capacitor (AC 6 B) duty contactor with 3 no. early make and post break auxiliary contacts in series with quick discharge damping resistors/ reactors to limit the inrush current , conforming to IS:13947-4-1/IEC:947-4-1, Din rail mounting type including making connections, testing etc. as required. suitable for following capacity capacitor bank. Asymmetrical - As per relevant standards | No. | 3.00 | | | |
| 5.6.4.3.6 | SF Rubber matting with one side corrugated as per IS specification 15652/2006 Rated making capacity - 2.5x25 kA | m ² | 4.00 | | | |
| 5.6.4.4 | Cubical panel and its accessories | | | | | |
| 5.6.4.4.1 | SITC of wall/free standing floor | m ² | 15.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | mounted dust and vermin proof compartmentalised cubical panel made out of CRCA sheet, required hardware, duly painted by two coats of zinc/red oxide primer followed by Powder coated / epoxy / PU painted with phosphatisation in grey or required shade after rinsing. The panel having PU/Neoprene rubber gasket of not less than 3mm thickness, separate detachable, gland plate M.S. base channel, hinged door with locking arrangement for equipment/switchgear. Thickness of sheet shall not be less than 1.6mm up to 600mm length/width of any compartment and be of 2.0mm above 600mm. Load bearing structure shall be of 2.0mm thick sheet supported by base M.S. channel if required. Side walls and cable alley compartments having bolted type doors with detachable extension type structure (only outer area on all sides shall be measured and panel to be fabricated | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | from CPRI approved fabricator). | | | | | |
| 5.6.4.5 | XLPE Cables | | | | | |
| 5.6.4.5.1 | P/Laying XLPE insulated / P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor Armoured of IS:7098-I/1554-1 approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, IInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size. LT cable Different sizes | | | | | |
| 5.6.4.5.1.1 | 3Cx400Sq.mm 1.1kV XLPE | m | 120.00 | | | |
| 5.6.4.5.1.2 | 3.5Cx400Sq.mm 1.1kV XLPE | mtr | 80.00 | | | |
| 5.6.4.5.1.3 | 3.5Cx 400Sq.mm 1.1kV XLPE | mtr | 40.00 | | | |
| 5.6.4.5.1.4 | 3Cx 25Sq.mm 1.1kV XLPE | mtr | 60.00 | | | |
| 5.6.4.6 | SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 13947-2 / IEC | No. | 3.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | 60947- 2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders etc. as required. 500 Amp , 35KA adjustable O/L & adjustable S/C setting | | | | | |
| | Supply and fixing of following accessories for ACB | | | | | |
| 5.6.4.6.1 | Shunt Trip Release | No. | 3.00 | | | |
| 5.6.4.6.2 | Under Voltage Release | No. | 3.00 | | | |
| 5.6.4.6.3 | Earth Fault Release | No. | 3.00 | | | |
| 5.6.4.6.4 | Mechanical Interlocking | No. | 3.00 | | | |
| 5.6.4.7 | Outgoing - MCCB Feeder for APFC Panel, Non peak pumps, Spare and other accessories: SITC of quick make and quick break 4 POLE current limiting MCCB having following current rating, short circuit breaking capacity at 440/415 V, 50 Hz; O/L & S/C settings and conforming to IS 13947-2 / IEC | Nos | 2.00 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | 60947- 2 with front face and centralised adjustable, line load interchangeability, having positive isolation capability, provision for UVR , shunt trip ,earth fault trip, push (test) to trip , including making connections with lugs / spreaders etc. as required. 150 Amp , 35KA adjustable O/L & adjustable S/C setting | | | | | |
| 5.6.4.8 | Under Voltage Release | Nos | 1.00 | | | |
| 5.6.4.9 | Earthing | | | | | |
| 5.6.4.9.1 | Pipe Earthing as per IS:3043 with perforated 3.0 Mtr. Long, 40 mm dia. ' B ' class G.I. Pipe including all accessories like nut, bolts, reducer, nipple, wire meshed funnel, and C.C. finished chamber covered with hinged type with locking arrangement C.I. Cover, C.I. Frame of size 300mm x 300 mm and embodying the pipe complete with alternate layers salt and coke/ charcoal, testing of earth resistance as required. | Set | 2.00 | | | |
| 5.6.4.10 | S & Laying following size earth wire/strip in horizontal or vertical run | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------------------------|--|--------------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | in ground/surface/recess including riveting, soldering, saddles, making connection etc. as required. | | | | | |
| 5.6.4.10.1 | 25X 6 mm GI Strip | m | 50.00 | | | |
| Subtotal for Bill No.5 | | Total | | Figures | | |
| | | | | Words | | |

| PRICE PROPOSALS - PART 2: OPERATIONS | |
|--------------------------------------|---|
| Name of Project | Bihar Urban Development Investment Program |
| Name of Employer: | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) |
| Contract Title: | Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation |
| Contract Package No: | BH/WS/01 – Package 04 |
| Bidder's Name : | |

| |
|--|
| Bill No. 06: OPERATION AND MAINTENANCE OF WATER SUPPLY SYSTEM |
|--|

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 6 | Operation & Maintenance | | | | | |
| | Operations, Maintenance and Management of Water Supply and all related infrastructure for approximate average production of 18 MLD from the three existing Intake wells at Barari water works, raw water pumping main up to the treatment plants and treating the water in the existing renovated water treatment | ML | 6,570 | | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-
Package 04

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 6.1 | Plants at Barari water works and supply to the reservoirs through clear water pumping main up to the reservoirs and operation of emergency intake works at DPS school and conveying raw water main from DPS school to Barari water works during summer periods and if necessary it shall be operated for full year period for First year during defect liability period including water quality testing and monitoring, flow and pressure measurement including all necessary preventive and reactive maintenance of all civil, mechanical, electrical and instrumentation units, administration, transport, communications, management information systems, reporting, including cost of all wages, chemicals, consumables, spares, replacement of pumpset , panel board, Transformers etc and administration, transport, spares, insurance, taxes levies etc., complete for producing and supplying potable water conforming to the relevant CPHEEO Standards but excluding cost of electricity | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|---|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | charges . The quantity shall be measured at the inlet of the Service Reservoirs for payment.(All the repairs, replacement any needed spare parts for all the components under this package shall be done by the contractor at free of cost during the defect liability period). Only rate for Man Power and Chemicals cost for 18 MLD has to be quoted | | | | | |
| 6.2 | Operations, Maintenance and Management of Water Supply and all related infrastructure for approximate average production of 18 MLD from the three existing Intake wells at Barari water works, raw water pumping main up to the treatment plants and treating the water in the existing renovated water treatment Plants at Barari water works and supply to the reservoirs through clear water pumping main up to the reservoirs and operation of emergency intake works at DPS school and conveying raw water main from DPS school to Barari water works during summer periods and if necessary it shall be operated for full year period for | | | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|----------|--|------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| | Second year to fifth year including water quality testing and monitoring, flow and pressure measurement including all necessary preventive and reactive maintenance of all civil, mechanical, electrical and instrumentation units, administration, transport, communications, management information systems, reporting, including cost of all wages, chemicals, consumables, spares, replacement of pumpset , panel board, Transformers etc and administration, transport, spares, insurance, taxes levies etc., complete for producing and supplying potable water conforming to the relevant CPHEEO Standards but excluding cost of electricity charges . The quantity shall be measured at the inlet of the Service Reservoirs for payment.(All the repairs, replacement any needed spare parts for all the components under this package shall be done by the contractor and cost shall be included in the quoted cost. | | | | | |
| 6.2.1 | 2 nd year | ML | 6570 | | | |
| 6.2.2 | 3 rd Year | ML | 6570 | | | |

| Item No. | Description | Unit | Quantity | Rate to be Quoted by Bidder (INR) | | Amount (INR) |
|-------------------------------|----------------------|--------------|----------|-----------------------------------|-------|--------------|
| | | | | Figures | Words | |
| 6.2.3 | 4 th Year | ML | 6570 | | | |
| 6.2.4 | 5 th Year | ML | 6570 | | | |
| 6.3 | GST Charges | | | | | |
| Subtotal for Bill No.6 | | Total | | Figures | | |
| | | | | Words | | |

Note: The Bidder shall separately provide a break-up of salaries, wages, consumables, maintenance for civil, mechanical, electrical and instrumentation, training of BMC staff, administration, management, insurance and all other costs such as establishment and operation of offices in a separate sheet for analysis by the Employer

| PRICE PROPOSALS - PART 3: PROVISIONAL SUM | |
|---|---|
| Name of Project | Bihar Urban Development Investment Program |
| Name of Employer: | Bihar Urban Infrastructure Development Corporation Limited (BUIDCo) |
| Contract Title: | Balance works of Existing WTPs and Emergency Intake Works for Water Supply System of Bhagalpur Municipal Corporation |
| Contract Package No: | BH/WS/01 – Package 04 |
| Bidder's Name : | |

| |
|-------------------------------------|
| Bill No. 07: PROVISIONAL SUM |
|-------------------------------------|

| S.No. | Item Description | Unit | Quantity | Rate To be Quoted by Bidder (INR) | | AMOUNT to be Quoted by Bidder (INR) |
|---------------------------------|------------------------|-------------------|----------|-----------------------------------|-------|-------------------------------------|
| | | | | Figures | Words | |
| 07 | Provisional Sum | - | LS | 8,000,000 (Not to be quoted) | | |
| Subtotal for Bill No. 07 | | In Figures | | 8,000,000 | | |
| | | In Words | | Eight million only | | |

Balance works of Existing WTPs and Emergency Intake Works for the Water Supply System in Bhagalpur Municipal Corporation – BH/WS/01-Package 04

Section 5 – Eligible Countries

Section 5 - Eligible Countries

This section contains the list of eligible countries.

| | | | | | |
|-----|-----|-------------------------------|-----|-----|------------------|
| 1. | AFG | Afghanistan | 36 | MON | Mongolia |
| 2. | ARM | Armenia | 37. | MYA | Myanmar |
| 3. | AUS | Australia | 38. | NAU | Nauru |
| 4. | AUT | Austria | 39. | NEP | Nepal |
| 5. | AZE | Azerbaijan | 40. | NET | The Netherlands |
| 6. | BAN | Bangladesh | 41. | NZL | New Zealand |
| 7. | BEL | Belgium | 42. | NOR | Norway |
| 8. | BHU | Bhutan | 43. | PAK | Pakistan |
| 9. | BRU | Brunei Darussalam | 44. | PAL | Palau |
| 10. | CAM | Cambodia | 45 | PNG | Papua New Guinea |
| 11. | CAN | Canada | 46. | PHI | Philippines |
| 12. | PRC | China, People's Republic of | 47. | POR | Portugal |
| 13. | COO | Cook Islands | 48. | SAM | Samoa |
| 14. | DEN | Denmark | 49. | SIN | Singapore |
| 15. | FIJ | Fiji | 50. | SOL | Solomon Islands |
| 16. | FIN | Finland | 51. | SPA | Spain |
| 17. | FRA | France | 52. | SRI | Sri Lanka |
| 18. | GER | Georgia | 53. | SWE | Sweden |
| 19. | GEO | Germany | 54 | SWI | Switzerland |
| 20. | HKG | Hong Kong, China | 55. | TAJ | Tajikistan |
| 21. | IND | India | 56. | TAP | Taipei, China |
| 22. | INO | Indonesia | 57. | THA | Thailand |
| 23. | IRE | Ireland | 58. | TIM | Timor-Leste |
| 24. | ITA | Italy | 59. | TON | Tonga |
| 25. | JPN | Japan | 60. | TUR | Turkey |
| 26. | KAZ | Kazakhstan | 61. | TKM | Turkmenistan |
| 27. | KIR | Kiribati | 62. | TUV | Tuvalu |
| 28. | KOR | Korea, Republic of | 63. | UKG | United Kingdom |
| 29. | KGZ | Kyrgyz Republic | 64. | USA | United States |
| 30. | LAO | Lao PDR | 65. | UZB | Uzbekistan |
| 31. | LUX | Luxembourg | 66. | VAN | Vanuatu |
| 32. | MAL | Malaysia | 67. | VIE | Viet Nam |
| 33. | MLD | Maldives | 68 | NIU | NIUE |
| 34. | RMI | Marshall Islands | | | |
| 35. | FSM | Micronesia, Federal States of | | | |

Section 6 – Employer’s Requirements

Section 6 – Employer’s Requirements

This Section contains the Scope of Services, Specifications, Drawings, and supplementary information that describe the existing system, Personnel Requirements and Equipment Requirements.

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6.1 Scope of Services

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Annex B: Scope of Works for Rehabilitation

Annex C: Draft Initial Environmental Examination and Environmental Management Plan

Annex D: Draft Resettlement Plan

6.2 Specifications

6.2.1 Technical Specifications for Works

6.2.2 Technical Specifications for Operations

6.3 Drawings

6.4 Supplementary Information Regarding the Existing System

6.5 Personnel Requirements

6.6 Equipment Requirements

6.1 Scope of Services

INTRODUCTION

1.1 PREAMBLE

1. The overall objective of the Bhagalpur Water Supply Project (BWSP) is to deliver a continuous, pressurized supply of safe water to the entire population of Bhagalpur town. BWSP will be executed in two packages (and under two separate contracts) under the Bihar Urban Development Investment Program (BUDIP)². The Scope of Services under Phase 1, Improvement of Water Supply in Bhagalpur (BWSP1), Rehabilitation of 3 existing water treatment plant, construction of new overhead storage tanks, Construction of 33KV sub stations, construction of distribution pipelines and providing all authorized connections with water meters, as well as the operation, maintenance and management of the entire water supply system except for the works constructed under Phase 2.
2. Phase 2 will provide new water source works, water treatment plant and transmission mains for the supply of Bulk Water to the Bhagalpur water distribution system. The construction periods of Phase 1 and 2 are expected to be coterminous, such that bulk water extracted from the new water source works under Package 2 will be supplied to the water supply system developed under Phase 01
3. The work of BWSP 01 was awarded to Pan India Infrastructure Ltd, Mumbai during 2014 for taking up the work. The contractor has completed only 29% of work within 3.5 years and the work was terminated due to poor progress of work. For speedy execution it was decided by the GoB to spilt the balance work into four packages.
4. The four packages scope are as below.
5. (i) BWSP-01/01: Balance work of three OHSRs, Distribution System, HSC and Tube Well etc. at Housing Board, Thakurbari & TMBU OHSRs Zones including new tube well with pumping machinery under Bhagalpur Municipal Corporation.
6. (ii) BWSP-01/02: Balance work of ten (3 pc + 5 new + 2 old) OHSRs, Distribution System, HSC, Tube Wells and Refurbishment of old OHSR etc. at Anand Nagar, BMC Godown, Lajpat Park, Aliganj, Manik Sarkar, Mugalpura, Sikandarpur, Mahashay Deodhi-1, Goshala and Gantaghar OHSR Zones including new Tube Wells with Pumping Machinery under Bhagalpur Municipal Corporation.
7. (iii) BWSP-01/03: Balance work of ten (3 pc + 5 new + 2 old) OHSRs, Distribution System, HSC, Tube Wells and Refurbishment of old OHSR etc. at RCD Adampur, Bazar Samiti, Surkhikal, Jaglal High School, Mahashay Deodhi-2, Bahrapura, Abhir Mishra, CTS-P, CTS-E and Isachak OHSR Zones including new Tube Wells with Pumping Machinery under Bhagalpur Municipal Corporation.
8. (iv) BWSP-01/04: Balance work for renovation of existing WTP at Barari, Dedicated Power Transmission line from Sabour to Barari, sub-station base and emergency temporary intake at DPS School at Babupur with Pump & Raw Water Main to Barari WTP under Bhagalpur Municipal Corporation.

9. The specific objectives of BWSP 01 package 4 are:
- Creation of new water sources by constructing Emergency Intake near DPS School at Ganga River Bank for surface water sources and convey main from Intake works to existing Water treatment plants at Barari water works. Supplying of water as per the standard of CHHEEO manual.
 - Refurbishment of Existing WTPS three units and intake wells.
 - Efficient supply of water both with respect to the quantities of water supplied as well as the energy used for water supply from the newly created water sources to all the storage reservoirs.
 - A reliable supply of good quality drinking water compliant with Indian water quality standards
10. Supplying the surface water from the Existing WTPs (from Surface water source at Barari water works and Surface water from emergency intake at DPS school) for the present requirement, until BWSP 02 shall be ready for supplying Ganga water
11. The Scope of Services shall include all technical, managerial, administrative, commercial, environmental, and social interventions as required in accordance with acceptable, prudent water utility construction and management practices, ensuring safe and sustainable drinking water supply services to the Consumers in the Service Area.

1.2 DEFINITIONS

12. The words, terms and expressions beginning with capital letters and defined under this Section 6, Chapter 1.2 including those in Section 7 - General Conditions of Contract and those in Section 8 – Particular Conditions of Contract shall, unless the context otherwise requires, have the meanings ascribed thereto/herein;
- 12.1. “Boundary Limits” shall mean the boundary within which the Contractor has the responsibility of providing Services in accordance to the terms and conditions under this Contract;
- 12.2. “BUDIP” means Bihar Urban Development Investment Program;
- 12.3. “BUIDCo” means Bihar Urban Infrastructure Development Corporation Limited;
- 12.4. “Bulk Water” means the treated bulk water supplied by the Employer through contract BWSP Package 2 to specific supply points;
- 12.5. “Consumer” or “Customer” means all entities (including individuals) to which/whom BMC provides water services through the existing water distribution system and will supply through the newly developed system and includes all existing customers at the time of the Commencement Date and entities which become customers after the Commencement Date;
- 12.6. “Construction Completion Date” is the date when all construction works have been completed and taken over by employer.
- 12.7. “Construction Plan” means the Contractor’s Plan for implementation of construction works.

- 12.8. “CPHEEO” means the Central Public Health and Environmental Engineering Organization under the Ministry of Urban Development, Government of India;
- 12.9. “Critical Measurement Points” shall mean the locations as agreed by the Employer in the Construction Plan and also as added during the term of the Contract for undertaking measurement of flow and pressure in the water supply system for facilitating the monitoring of Minimum Service Levels stipulated in Chapter 3 – Performance Standards of this Section 6;
- 12.10. “DPR” means the Detailed Project Report of Bhagalpur Water Supply Project (BWSP I) prepared and approved by the Employer;
- 12.11. “Design and Supervision Consultant” or “DSC”, the agency appointed by the Employer to provide design and construction supervision services under a separate Contract;
- 12.12. “Electricity Department” means the local service provider supplying electrical energy for operation service of the facilities;
- 12.13. “Existing Assets” means those infrastructure components, plant, machinery, equipment and any other units existing in the Service Area as on the Commencement Date;
- 12.14. “Minimum Service Levels: means the levels of service to be maintained in the operations, maintenance and management and service delivery to consumers more so described in Chapter3 – Performance Standards in this Section 6;
- 12.15. “New Assets” means those infrastructure components, plant, machinery, equipment and any other units procured, supplied, installed, erected and commissioned by the Contractor during the Contract Period other than those existing on the Commencement Date;
- 12.16. “Operation and Maintenance Plan” means the plan for operating and maintaining the water supply system, submitted by the Contractor, and agreed by the Engineer
- 12.17. “Performance Related Payment” means payment to the Contractor based upon achievement of Performance Standards.
- 12.18. “Performance Standards” mean the Minimum Service Levels to be achieved and maintained by the Contractor during each period of the Contract as set forth in Chapter 3 – Performance Standards in this Section 6;
- 12.19. “Potable Water Specification” means the water quality requirements of potable water to be supplied to the Consumers as stipulated in Table 2.2 Recommended Guidelines for Physical and Chemical Parameters and Table 2.3 Bacteriological Quality of Drinking Water, in the Manual on Water Supply and Treatment, CPHEEO, Government of India, Ministry of Urban Development, New Delhi;
- 12.20. “Preparation Phase” is the period between the Commencement Date and the date the Contractor takes over operations of the entire water supply system from the BMC;
- 12.21. “Project Facilities” or “Facilities” means all existing and proposed infrastructure facilities including open lands, buildings, structures, plant, machinery, and equipment under BWSP;

- 12.22. “Project Information Memorandum” or “PIM” shall mean the reports prepared by the Employer detailing the Project as provided in Chapter 6 - Supplementary Information and available at the e-data room set up by the Employer;
- 12.23. “Program Management Consultant” or “PMC” means the agency appointed by the Employer to provide project management advisory services to the Employer under a separate contract;
- 12.24. “PHED” means Public Health Engineering Department of the Government of Bihar;
- 12.25. “PRV” means Pressure Reducing Valve;
- 12.26. “Scope of Services” shall mean all those services to be provided by the Contractor in accordance to the obligations, activities, responsibilities and tasks in implementing the Project to achieve the Minimum Service Levels in accordance to the Chapter 3– Performance Standards;
- 12.27. “Services” means all those activities, interventions, actions and tasks required as part of the implementation of BWSP II including all planning, design, verification of detailed engineering design, procurement, construction, operations, maintenance, in providing continuous pressurized water supply to the Bhagalpur
- 12.28. “Service Area” means the area covered by the current BMC administrative municipal boundaries;
- 12.29. “Supply Points” means the points where the Employer will supply Bulk Water to the Contractor;

2 SCOPE OF SERVICES

2.1 IMPLEMENTATION SCHEDULE

2.1.1 COMPONENTS AND PHASING OF THE PROJECT

13. The Contract consists of two parts:

- (i) Construction Works
- (ii) Operations, including Operation Services

13.1. The Construction Works part consists of 3 sub-parts or Sections:

- Section 1: Creation of Surface water source in the Bank of River Ganga near DPS school including construction of detachable shed , Laying of 900 mm DI K9 pumping main, Installation of Pump sets and Electro Chlorinators
- Section 2: Completion of all the Civil works of Refurbishment of three WTPs at Barari Water works.
- Section 3. Completion of all the Electrical and mechanical equipment needed for the refurbishment of three WTPs. ,
- Section 4 Trial and commissioning

13.2. The Operation Services part consists of 3 subparts:

- Section 5: Operation of Emergency intake works and conveying main from emergency intake work to Barai water works.
- Section 6: Operation of existing renovated three WTPS and conveying main from WTP to Reservoirs.
- Section 7: Training

14. Two parallel phases in project implementation are distinguished:

14.1. Phase 1 – **Construction Phase** will take off from 1st months onwards and will be up to 6 months

.Phase 2 – **Operation of Assets created and it is of 60 months**

14.2. Figure 2.1.1 summarizes the phasing of project implementation graphically.

Figure 2.1.1 schematization of project implementation

[illegible]

2.1.2 CONTRACT KEY DATES

15. The following key dates govern the terms of the Contract:

15.1. The Commencement Date shall be as per General Conditions of Contract, Clause 8.1 [*Commencement of Works*].

15.2. Preparatory works shall start at the Commencement Date;

15.3. Section 1 shall be completed within 6 months from the commencement date

15.4. Works shall start at the completion of preparatory works i.e 7 days from the Commencement Date;

15.5. The Construction Completion Date shall be the date **5 months** from the Commencement Date when all Works shall be finalized with the following provisions:

- Section 2 shall be completed within 5 months from the Commencement Date;
- Section 3 shall be completed within 5 months from the Commencement Date;
- Section 4 shall be completed within 6 months from the Commencement Date;

15.6. The Operations Commencement Date shall be the date **7th month** from the Commencement Date, from which date the Contractor shall be responsible for operations and maintenance of the entire water supply system;

15.7. The Contract Completion Date shall be **66 months from the Commencement Date.**

2.1.3 CONTRACT MILE STONE

| S No | Components | Total Qty to be executed | 1 st Quarter Milestone | Cumulative 2 nd Quarter milestone | Remarks |
|------|---|--------------------------|-----------------------------------|--|---------|
| 1 | Refurbishment of existing WTPs | 3Nos | 3Nos | | |
| 2 | Flash Mixer | 6 Nos | 6 Nos | | |
| 3 | Alum Dosing units | 6 Nos | 6 Nos | | |
| 4 | Lime Dosing units | 6 Nos | 6 Nos | | |
| 5 | Chlorination Buildings | 3 Nos | 3 Nos | | |
| 6 | Chlorination arrangements for all 3 WTPs (Pre and Post chlorination) | 1 Nos | 1 Nos | | |
| 7 | Customer service center | 2 Nos | 2 No- | | |
| 8 | Sludge Drying bed | 1 No | 1 No | | |
| 9 | Mechanical equipment for | 1 Set | 50% | 100% | |

| S No | Components | Total Qty to be executed | 1 st Quarter Milestone | Cumulative 2 nd Quarter milestone | Remarks |
|------|--|--------------------------|-----------------------------------|--|---------|
| | WTPs | | | | |
| 10 | Electrical Equipment for WTP | 1 Set | 50% | 100% | |
| 11 | Emergency intake works | 1 No | 1 No | | |
| 12 | Electro Mechanical for new intake at DPS school | 1 Set | 25% | 100% | |
| 13 | Pumping main | 7.20 KM | | | |
| 13.1 | Supply | 7.20 km | 3.20 km | 7.2 km | |
| 13.2 | Laying and jointing | 7.20 km | 3.2 km | 7.20 km | |
| 13.3 | Testing | 7.20 km | 3.2 km | 7.20 km | |
| 13.4 | Road restoration | 7.20 km | 3.2 km | 7.20 km | |
| 14 | Commissioning of Emergency intake , Pumping main | 100% | | 100% | |

2.2 BOUNDARY LIMITS

16. The Boundary Limits for undertaking planning, verification of drawing, construction, operations, maintenance and management by the Contractor, include the entire water supply chain starting from Creating new source in River Ganga by providing Approach channel in River Ganga, Intake well , Connecting pipe from intake well to Jack well, Raw water main, Water Treatment plant and Clear water mains to the Reservoirs in the Bhagalpur Town
17. Facilities to be constructed and operated under BWSP 01 package 1,3, 4 and BWSP 02 are not included in the Contractor’s Scope of Services.
18. The project area is within the existing jurisdiction of Bhagalpur Municipal Corporation. In case the jurisdiction, during the course of the Contract, is extended beyond the existing boundary limits, then it shall not be the responsibility of the Contractor to provide water services to these extension areas.

2.3 PREPARATION ACTIVITIES

19. The Contractor shall establish contact with all relevant stakeholders, including consultants under the Bihar Urban Development Investment Program (BUDIP), and become familiar with the Bhagalpur water supply system, and the applicable standards and guidelines for water supply design, and with past and current on-going works in the Service Area.

20. The Contractor shall read, familiarize itself with and understand the relevant institutional arrangements and governing laws to determine in detail which roles the Bhagalpur Municipal Corporation (BMC), as the asset holding and operating entity play or intends to play.
21. The Contractor shall satisfy itself to the nature and scope of work and the prevailing site conditions.
22. The Contractor shall liaise with the BMC, the local traffic police and other Government Agencies regarding governing laws and regulations in order to undertake studies and construction activities under the Contract such as:
 - Environmental and social impact assessments and prevention, mitigation and monitoring of impacts during construction;
 - Compensation for damages to property;
 - Occupational health and safety including workers compensation;
 - Consultation of beneficiary populations; and
 - Signage for construction works.
23. There are several other water supply related works on-going or have been recently been completed by BMC, Public Health Engineering Department (PHED) or Bihar Urban Infrastructure Development Corporation (BUIDCo). The Contractor shall review all the reports and ensure that the Construction Plan, the Operation and Maintenance Plan and the to be prepared by the Contractor do not duplicate any measure already financed and implemented, or proposed to be implemented under contract package 2. The Contractor shall also ensure that investments proposed as part of the Construction Plan are well coordinated and scheduled so that it can be adequately implemented, constructed, managed, supervised, monitored and finally be evaluated in terms of its impact. However, these investments shall be complimentary to the outcomes of the previous or other ongoing interventions.
24. The Contractor will prepare two Plans, of which the details of their contents are specified in Paragraph 2.8[*Reporting*]:
 - Construction Plan describing implementation of all Works Sections and with emphasis on the time sequence followed for the implementation and completion of Works in the different Sections, taking into account the water production, storage and supply chains formed by the various Sections of Works;
 - Operation and Maintenance Plan, describing all water supply operations and maintenance services to be provided by the Contractor;
25. A preliminary draft of the Construction Plan shall be submitted by the Contractor with the detailed time program as required under the Section 7 [*General Conditions of Contract*], Clause 8.3 [*Programme*] in sufficient detail to support the detailed time programme.
26. The construction plan shall be submitted by the contractor to the Engineer before 7 days from the commencement date for review and comments by the Employer and has to be approved within 15 days from the commencement date. However shall start the work as per the target mentioned in section 6 and first month milestone shall be completed without waiting for the approval of work plan. The operation and maintenance plan shall be

submitted by the contractor within one months from the commencement date and it has to be approved within two months from the commencement date.

2.4 TYPES OF OFFICE SPACE TO BE PROVIDED:

27. For all Works-related Services: The Contractor shall make its own arrangements for renting and acquiring sufficient land for erection of its own offices, facilities, as required, for carrying out test at site and of stores plus parking / maintenance area for vehicles and equipment to be used for the Works at its own expenses. It shall include provisions for the Engineer as further detailed in the Technical Specifications.
28. For the Operation Services: The contractor shall make its own arrangements for renting office facilities to accommodate the Contractor's operation staff. The Contractor shall provide office furniture and equipment as required by their own cost. The cost of operations maintenance of the office shall be included in the Contractor's Operation fees.

The Contractor shall avail of existing facilities at the Barari waterworks compound for its stores, workshop, and laboratory requirements during Operations.

2.5 TECHNICAL STANDARDS AND REGULATION TO BE FOLLOWED

29. Except where otherwise specified plant, materials and workmanship shall comply with the requirements of the relevant Indian Standards (herein after referred to as IS) issued by the Bureau of Indian standards. Other equivalent National or International Standard Specifications such as those issued by the International Organization for Standardization (ISO) or the International Electro technical commission (IEC) may be submitted by the Contractor (so long as they are more stringent than the equivalent IS) at the sole discretion of the Engineer as may have been agreed in the Contract. All Standards used shall be the current version.
30. The electricity installation shall comply with all relevant statutory regulations and standards current at date bids, unless otherwise indicated within the Employers Requirement. Electrical installations shall where relevant be in accordance with the Indian Standards Code of Practice for Electrical Wiring Installations IS 732.
31. All materials and workmanship not fully specified herein or covered by an approved standard shall be of such kind as is used in first class work and suitable to the climate in the Project area.
32. Where the requirement of any such standard specification or regulation conflict with the requirements of the Employer's Requirements or any item on the Drawings, then the contractor should refer to the Engineer for clarification before proceeding with that section of the works.
33. If Relevant BIS standards are not available then at the discretion of the Engineer, Contractors will be allowed to use international standards such as AWWA/DIN/JIS/BS.
34. Ministry of Road Transport & Highway (MORTH), Government of India Specifications for Roads and bridge works and relevant IRC specification should be allowed for the relevant items.

2.6 SUBMITTAL & SAMPLE OF MATERIALS

- 35.** Vendors, suppliers of all construction materials including samples, test reports of samples required to be submitted for approval. Samples of materials requiring prior approval, such as cement, aggregates, asphalt cement building specialties, and backfill materials, in large enough quantities (at least 0.1 m³ each) with descriptive data shall be furnished by the Contractor to the Engineer. Samples shall be properly marked to show the name of the material, name of the manufacturer, applicable Specification.
- 36.** Only upon approval by the Engineer, the materials shall be brought to site. Samples once approved shall be on exhibition at all times, properly stored and prevented from deterioration for the purpose of comparison with the materials brought to site of work from time for use in the work.

2.7 TRIAL RUN OF THE SYSTEM

- 37.** After execution of the works, the Contractor shall make trial runs of the individual components. A continuous operation of each component for a period of 30 days, to the satisfaction of the Engineer will be deemed to demonstrate satisfactory completion of the trial run for that individual component. The cost of electricity, chemicals and other consumables for operation and maintenance of the system during the period of this run will be borne by the contractor. The costs are associated for the Contractor's and other operating non Employer personal during the period of the trial run, along with costs of tools and spare parts, which are required for operation and maintenance of the plant and equipment during the trial run period shall also be borne by the contractor and shall be included in the contract Price.
- 38.** In the event that any system or facilities do not satisfactorily achieve the required performance standards during the period, the trial run period shall be extended until such time as the contractor has satisfactorily rectified any deficiencies as may be necessary to satisfy the performance requirements, at the risk and cost to the contractor.

2.8 COMMISSIONING OF THE SYSTEM

- 39.** On completion of the trial run, commissioning of the system shall be performed by the contractor. The total time allotted for commissioning over (i.e., running of entire plant at optimum efficient) shall be of 15 days minimum, before the system is deemed ready for commissioning. The commissioning of any system shall be considered as fully achieved after the entire system has run continuously for a period of 15 days without any breakdown to the satisfaction of the employer's representative. If a continuous run is not achieved fully to the satisfaction of Engineer, the contractor has to complete the required repair and modifications required to achieve the same at his cost. All the cost thereof, including the cost of contractor's personnel, maintenance, and any consumables for operation and maintenance of the system during the pre- handing over period shall be borne by the contractor. The contractor has to bear the cost of chemical, Electricity charges etc during testing and commissioning, trial run period. During commissioning period,

the water sample shall be collected and tested to know the quality of raw water and treated water. Sampling procedure and duration adopted for O&M period shall also be adopted for commissioning period also.

2.9 HANDING OVER FOR MAINTENANCE

- 40.** On completion of commissioning, the system will be handed over to the employer when completion certificate will be issued. Then again the system shall be handed over to the contractor for maintenance period of 5 years. All the cost of personnel, maintenance, and other consumables for operation and maintenance of the system, except for the electricity consumed shall be borne by contractor. The cost of electricity will be borne by employer/BMC. From this date of completion certificate the period of 5 year for O&M of the system will start. The defect liability period of 365 days start from the date of issue of taking over certificate.

2.10 OPERATION AND MAINTENANCE

- 41.** The Contractor shall be responsible for operation and Maintenance of the system as per part of the contract, along with spares as on required basis for the period of 2 years from the date of commissioning. Notwithstanding the above, the Contractor shall be required to rectify any deficiencies/or replacement which are attributable to defects in the workmanship or quality of materials, plant or equipment and due to any worn-out due to long run etc during the entire contract period and such cost shall be deemed to be included in the rate quoted by the bidder for operation and maintenance. The list of spares required for further 2 years as per manufacturers specification shall be provided by the Contractor. The schedule from trial run to operation and Maintenance

- Time limit for completion of works : 05 months
- Trial run : 15 days after completion of works
- Pre-handing over : 15days after completion of works
- Handing over : After completion of pre handing over date
- Defect liability period : 1 year After issue of taking over certificate
- Operation and Maintenance : From the date of handing over of this contract till the 5 years

The 1 year defect notice period is included in Operation service period.

- 42.** As Built drawing the Contractor shall submit the as built drawings as per instruction of Employers representative. The drawings shall be in 3 (Three) sets of hard copy (including one copy of reproducible tracings) and 1 one electronic copy.

2.11 QUALITY ASSURANCE

- 43.** The Contractor shall prepare a detailed plan for this contract for Quality Assurance and Quality Control and have it be approved by the Engineer. The contractor shall deploy an adequate number of suitable staff whose sole responsibility shall be to strictly implement QA/QC plan and conduct necessary tests to ensure the highest quality standards are being

met. All other measures that the contractor may feel necessary or as may be directed by the Engineer shall also to be followed.

44. Procurement method:

- 44.1.** The contractor shall submit the vendor list along with their credentials for approval before placing the supply order for procurement of any materials. The Engineer in charge shall approve the vendor for placing supply order within 14 days from the date of submission.
- 44.2.** The contractor shall submit the quality assurance plan for each material/equipment obtained from the approved vendor. The quality assurance plan shall have all the details about the make of the material, specification of the materials, testing procedure as per IS codes and the personnel responsible for witness the quality test etc.,
- 44.3.** On getting approval of QAP from the Engineer in charge, the contractor shall place the supply order to the approved vendor.
- 44.4.** Third party shall be approved by the BUIDCo authorities for conducting the test for the materials as per IS specifications and the contractor shall inform the Third party inspection date to the Engineer in charge well in advance for witness the tests. The Engineer in charge or his representatives shall inspect the vendor premises to witness the test. The Third party inspection shall be carried out in presence of the third party agency and the Engineer in charge or his representatives. All the cost of third party inspection shall be borne by the contractor.
- 44.5.** After satisfactory test, necessary stamping shall be made on the materials to know the test details.
- 44.6.** After satisfactory test results as per IS specifications, the Engineer in charge shall issue the clearance certificate for dispatching the materials to the site.
- 44.7.** The Materials shall be dispatched to the site only after getting the clearance certificate from the Engineer in Charge. The materials supplied without the clearance certificate by the Engineer in charge shall be summarily rejected.
- 44.8.** Supply payment shall be paid only after production of Third party test results and witness certificate issued by the Engineer in charge or his representative.

45. Mix Design:

- 45.1.** The vendor for coarse aggregate, fine aggregates and cement shall be got approved by the Engineer in charge before the contractor placing supply order for procurement.
- 45.2.** All the test for coarse aggregate, fine aggregates and cement shall be tested in approved Accredited laboratory as per IS specification in presence of Engineer in charge or his representative and Engineers of PIU, Bhagalpur.
- 45.3.** Based on the test results, the design mix calculation shall be prepared and adequate number of concrete cubes shall be prepared for different mix conditions in presence of Engineer in charge or his representative and Engineers of PIU, Bhagalpur.
- 45.4.** 7 day and 21 day compressive strength shall be tested in presence of Engineer in charge or his representative and Engineers of PIU, Bhagalpur for the cubes and the mix proportion which suitable for IS condition shall be tabulated and the test result shall be submitted to the Engineer in charge for approval.

45.5. Only after satisfactory test results, the Engineer in charge shall approve the Mix design and the approved mix design shall be adopted throughout the project period for same source of aggregates, and cement.

45.6. If the contractor wish to change the quarry for aggregates or brand of cement, then again Mix design calculations and testing has to be carried out. The same procedure shall be followed again. All the testing charges and charge for Design Mix calculation etc shall be borne by the contractor.

45.7. The contractor is advised to do the mix design calculations and test for various brand of cement and source of aggregate to avoid time delay during the construction period.

46. Quality test:

46.1. Samples of Steel, brick, bitumen, etc shall be sent to approved Govt Labs or accredited Labs to find the acceptance of the materials as per IS specification before it is used in the work.

46.2. If any material found not satisfying the IS specification quality criteria, then the materials shall be summarily rejected and the materials shall be removed from the site with immediate effect. New materials shall be procured from other approved vendors or new brand of materials and again the samples shall be sent to accredited lab for testing. After satisfactory results, the new material shall be used. . All the cost of test shall be borne by the contractor and are deemed to be included in the quoted rate.

46.3. The pipes, pump set, panel boards, transformer shall be tested in the field also apart from the manufactures premise by the third party agency witnessed by the Engineer in charge or his representatives. All the field test shall be carried out as per IS specifications and the failure materials shall be replaced with good quality material by the contractor. The replaced materials shall again be tested in the field. After satisfactory test result, further course of the work shall be allowed for the materials. All test charges shall be borne by the contractor and deemed to be included in the quoted rates.

46.4. The concrete cubes shall be casted as per IS specification for testing the quality of concrete casted. 7 days and 21 days test result shall be above the minimum value specified in the IS specification. If the cubes test result are less than the minimum value specified in IS specification, then the Concrete casted shall tested for quality through Non-destructive test at the cost of the contractor. If the result of Non-destructive test is not satisfactory, then the casted concrete and concrete above its position are also to be removed at the cost of the contractor. Then fresh concreting shall be casted after the approval of the Engineer in charge.

47. Defects in the works:

- a.** The Engineer shall check the contractor's work and notify the contractor of any defects that are found. Such checking shall not affect the contractor's responsibilities. The Engineer in charge may instruct the contractor to search for a defect and to uncover and test any work that the Engineer in charge considers may have a defect.
- b.** If the Engineer in charge instructs the contractor to carry out a test not specified in the specification to check whether any work has a defect and the test shows that it does, the contractor shall pay for the test and any samples.

- c. The Engineer in charge shall give notice to the contractor of any defects before the end of the defects liability period, which begins at completion and is defined in the contract data. The defects liability period shall be extended for as long as defects remain to be corrected.
- d. Every time notice of a defect is given, the contractor shall correct the notified defect within the length of time specified by the Engineer's notice.
- e. If the contractor has not corrected a defect within the time specified in the Engineer's notice, the Engineer in charge will assess the cost of having the defect corrected, and the contractor will pay this amount.

2.12 PRE- SHIPMENT INSPECTIONS OUTSIDE THE EMPLOYER'S STATE

48. In the event of contractor proposes to procure material which requires pre-shipment (factory) inspection by the Engineer from outside of the Employers State (Bihar), the contractor shall arrange and provide for the cost of travel to the Manufactures site , including accommodation, local transport and food for two (2) Representative of the Employer. Such costs will be incorporated into the tendered cost of such items and no additional payments will be made afterwards.

2.13 SAFETY ASSURANCE

49. The Contractor will take all measures required to maintain the highest industry recognized safety standards on the project site. The measures taken shall include all but not limited to the relevant provisions of the Indian Standards (IS). The Contractor shall prepare a Safety Plan for the Project and have it approved by the Engineer prior to starting works. The Contractor shall deploy a Safety Officer on each work site to ensure compliance with the Safety Plan.
50. The Contractor shall be responsible for the safety of all workmen and other person entering or in the work area and shall take all measures necessary to ensure their safety at his own expense.
- 50.1. The safety equipment such as shoes, fluorescent jackets, Helmets shall be procured as per the BOQ provisions and shall be paid to the contractor.
 - 50.2. The contractor shall use such equipment and handover to BUIDCo in good condition after completion of the project.
 - 50.3. If additional equipment are needed the contractor at his own cost shall arrange it.
 - 50.4. All the personnel working the field shall wear safety equipment to avoid accidents in the field. If not, the contractor shall be solely responsible for outcome of any accidents occurred in the field.
 - 50.5. Rental charges at 10% per annum on the cost of equipment shall be charged.
 - 50.6. After completion of the project all the safety equipment shall be returned to the employer in good condition. If not the cost of such item shall be recovered from the bill.

2.14 FIRST-AID

51. The Contractor shall arrange for medical services to be promptly available when necessary. The Contractor shall provide first – Aid stations at all the locations within easy reach of the workmen and other staff engaged in the work. Each First-Aid shall be properly equipped and shall be the charge of a suitable qualified supervisory staff member. The contractor shall

also provide necessary conveyance for of serious case to the nearest hospital and has to take care of the persons till completely cured. All these arrangements shall be included in the contractor's safety Plan

2.15 FIRE FIGHTING

- 52.** The Contractor shall provide a suitable method for fire fighting. He shall provide a suitable number of fire extinguishers, axes, shovels, pry bars and adequate numbers of buckets, some of which are always to be filled with sand some with water. This equipment shall be provided at suitable prominent and easily accessible locations as identified in the Contractors safety Plan and shall be properly maintained.

2.16 PROGRESS RECORD

- 53.** Contractor should maintain the progress record of the work in the form of photograph and video films periodically and especially during the important activities such as piling, foundations , major and important concreting, sinking operation of well, hydraulic testing of the pipe line and visits by VIPs and inspecting authorities. Copies of such recordings should be submitted to the Employer cost of this shall include in the offer.

2.17 OPERATION AND MAINTENANCE MANUALS

- 54.** The Contractor, before commencement of the Tests on Completion , shall submit six copies of the operation and maintenance (O&M) Manuals for Intake and raw water pumping station, Raw water pumping main , water treatment Plant, Pumping equipment, power supply systems including overhead lines and pump stations in the English language . Each O&M Manual shall contain descriptions, illustrations, sketches, layout drawings, sectional drawings, sectional arrangement views and manufacture's spare parts numbers to enable the connections, functioning, operation and maintenance of all components.
- 55.** The operation and Maintenance Manual shall include the following
- a) Technical data of all equipment and their performance
 - b) Instructions for servicing and overhauling
 - c) Particulars of lubricating oil and grease to be used, and also alternative indigenous commercial lubricating oils suitable for use.
 - d) Performance curves for all units regarding efficiency loading and output
 - e) Performance curves for all units regarding efficiency loading and output
 - f) List of tools mounted on wall panels
 - g) List of spares provided in the spare box
 - h) Spare parts list, with manufacture's part numbers
 - i) Operator's log
 - j) List of the photographs of the plant and machinery as fabricated by manufactures

- k) Procedure for maintenance
- l) Preventive maintenance procedure for all the equipment
- m) Emergency maintenance management of the Plant and equipment
- n) Addresses and contact numbers of the nearest dealers
- o) Routine periodical maintenance schedule

Contractor shall submit the O&M manual within one month from the commencement date.

2.18 FINAL HANDING OVER THE SYSTEM TO THE EMPLOYER

- 56.** The complete system shall be handed over by the Contractor to the Employer at the end of the O & M period. The system has to be handed over with all equipment and systems in a properly maintained and fully functional condition. The contractor will make a full inventory of items of installations and hand over, including new replacements for any spare parts or tools that were procured under the contract and used/ consumed by the contractor during O & M period. All replacement spares shall be Manufacturer's original equipment

ENVIRONMENTAL AND SOCIAL SAFEGUARDS

- 57.** The Contractor shall be fully cognizant with the Initial Environmental Examination (IEE), the Environmental Management Plan (EMP) and the Resettlement Plan (RP) for the project, contained in Annex 1 and 2. In implementation of its Services, the Contractor shall adhere strictly to all requirements in the EMP and RP.
- 58.** It is to be noted that EMP is a part of contract document and contractor is required to implement EMP and should ensure compliances. The cost of implementation of EMP shall be deemed to be included in the quoted rates of BOQ. 2% of the running bill will be deducted in case of overall unsatisfactory performance or non compliances.
- 59.** Upon design and preparation of the drawing for Sections of Works and shall be verified by the employer, and if any design changes occur, the Contractor will in close consultation with the Employer's Safeguard Officer, update the EMP and RP for the Project,, to reflect the changes, submit the updated IEE/EMP and RP to the Employer for review and submission to ADB. If there are any changes in the proposed pipeline routes, the Contractor will carry out detailed census surveys along proposed pipeline routes to identify the persons affected by the Works. The Contractor shall not commence any works in the concerned Sections of Works until the final approval of the IEE/EMP,RP is obtained from ADB and fully implemented by employer. No work on the new water treatment plant will commence prior to obtaining the consent to establish (CTE) from Bihar state Pollution Control Board. In case of temporary or permanent resettlement of affected persons from Work sites, the Employer will be responsible for the effectuation and the cost of compensation entitlements of affected persons, in accordance with the approved entitlement matrix for BUIDP the contractor to. Ensure international good practices for backfilling and dewatering during construction phase. The provision for such works is made in BOQ.
- 60.** It is the responsibility of the contractor get NOC of any statutory clearance from the line departments. Required drawings for getting the NOC shall be prepared by the contractor based on the site conditions and as requested by the concerned departments and shall be

submitted to the Engineer for applying NOC application to the concerned departments. However the employer shall assist the contractor to get such clearance.

61. Environmental Monitoring :

- 61.1.** Drinking water quality monitoring shall be done by the contractor by conducting physical, chemical and Bacteriological analysis including E.coli test NABL/MOEFCC certified Lab once in a month for project duration and shall be paid as per the BOQ.
- 61.2.** Air, water and noise quality monitoring are to carried out through NABL Lab/MOEFCC certified Lab at all construction sites on quarterly basis in the following places
 - 61.2.1.** In the Distribution network and Rising main Pipe line alignment during laying the pipes (before and after the work) one location for every 50 km length.
 - 61.2.2.** All the Reservoirs site once in every quarter for each SR starting from the start date of work.
 - 61.2.3.** In All the major building sites
- 61.3.** Water sprinkling system for dust trap at all construction sites in the following locations
 - 61.3.1.** WTP sites
 - 61.3.2.** Pipe line
 - 61.3.3.** Building sites
- 61.4.** Barricading shall be done by the contractor in all the construction sites.

62. Site Environmental Plan

- 63.** The contractor shall prepare a detailed site Environmental plan (SEP) for the works site, base camp, etc showing arrangements for disposal of sanitary and other waste, location of fuel, oil and lubricant depots, sheds for equipment, labour and housing facilities etc prior to the construction for approval of the Engineer.

64. Protection of Trees and Vegetation

- 65.** The contractor shall ensure that no trees or shrubs or waterside vegetation are felled or harmed except for those required to be cleared for execution of the works. The contractor shall protect trees and vegetation from damage to the satisfaction of the Engineer. No trees shall be removed without the prior approval of the Engineer and any competent authorities. Should the contractor become aware during the period of the contract that any tree or trees designated for clearance have cultural or religious significance he shall immediately inform the Engineer and await his instructions before proceeding with clearance. In the event that trees or other vegetation not designated for clearance are damaged or destroyed, they shall be repaired or replaced to the satisfaction of the Engineer, who shall impose a penalty to twice the commercial value of any timber affected, as assessed by the Engineer. If necessary any trees to be removed shall be allowed to cut after getting necessary clearance from the line departments and it is the duty of the contractor to cut the trees after getting NOC from line departments.

66. Use of wood as Fuel

- 67.** The contractor shall not use wood as a fuel for the execution of any part of the works, including but not limited to the heating of bitumen and bitumen mixtures and the

manufacture of bricks for use in the works, and to the extent practicable shall ensure that fuels other than wood are used for cooking and water heating in all his camps and living accommodations.

68. Housing for Labour

69. The contractor at his own expense shall provide and maintain, in a clean and sanitary condition, living accommodations for those employed by him on the project. Each building for living accommodations shall be provided with lights, water supply, and sanitary facilities and be properly furnished.

70. No disposal shall be allowed into the river..

71. Disposal of land shall be provided by the BMC.

OTHER CONDITIONS

72. The contractor at his own cost shall do all survey, soil test etc. The cost of survey and soil testing charges shall deemed to be included in the other items rates in the BOQ.

73. All the test shall be conducted as per IS specification and specification given in the tender document. The Engineer is having right to ask the contractor to do additional test if needed. The Engineer shall review all the test result, and check whether the test results are in line with specifications and if not make comments on it for rectifying it. The comments raised by the Engineer shall be duly attended and compliance has to be made by the contractor for getting approval of the test result.

74. The contractor will bear all the testing charges and shall deemed to be included in the quoted rates of respective items.

75. The pumpset shall designed by the contractor, based on the safe yield of the Tube wells. The design of pump , panel board along with the design of pumping main shall be submitted to the Engineer for approval.

76. The pump, panel board, Pipe for pumping main shall be procured only after the safe yield of the tube well is ascertained and the approval of the design of the above component completed.

77. The contractor shall submit the weekly and monthly progress report in time. If not, penal action shall be initiated.

78. If sufficient manpower not employed as per contract conditions, then penal action shall be initiated.

79. If sufficient residual chlorine is not maintained in the distribution network, then penal action shall be initiated

80. If sufficient pressure and duration of supply is not as per standard, then penal action shall be initiated.

81. Vendor approval, QAP approval etc needed before procurement of any material

82. Third party inspection and Witness of third party inspection is compulsory before dispatching the materials/equipment to the site. The materials received without third party inspection or witness of third party inspection by DSC team, then the materials shall not be allowed in the site.

83. No carriage of materials shall be allowed for brick, sand, aggregates and other materials. The contractor shall include the carriage of material rate in the respective item rates in the BOQ.

84. All the test shall be conducted as per IS specification. The Engineer shall review the test results and offer his comments before approving the test result. The contractor shall comply all the remarks raised by the Engineer to get the approval from the Engineer. In this regard, the Engineer's decision shall be final one.

85. Sufficient number of Concrete cubes shall be casted during concreting for testing. 7 day and 21 day test result shall be submitted to the Engineer for review. If the test result are not within

the allowable limit prescribed by the IS specification, then Engineer shall take decision to discard the already casted concrete and do demolish the concrete or go for Non Destructive test for ascertaining the strength of the structure constructed. If the test result is not satisfactory, then the contractor shall remedy the defect either by demolishing and casting new concrete or by strengthening the concrete can be done at his own cost. No additional payment shall be made for rectification work and non-destructive test cost. The contractor shall maintain the record of testing carried out for all the materials, concrete cubes etc and he shall submit monthly reports of test carried out in each site and their results and further course of action taken on defective components.

- 86.** The contractor shall furnish all the insurance for man material and equipment. No additional cost shall be paid for the insurance etc., It shall deemed to be included in the rate of other items in the BOQ.
- 87.** After termination, the Performance security submitted by the contractor are to be forfeited.
- 88.** The contractor shall not procure the materials or equipment in the initial stage for the materials, which are required at the end of the project. All the materials, which procured, shall be consumed in the construction activity within 4 months of procurement date. Otherwise the payment made against supply shall be recovered and withheld in the next Bill and shall be released after utilization of the materials in the work.
- 89.** After completion of the Construction activity, trial run and commissioning shall begin. During trial run and commissioning period, the Cost of Power consumption, cost of chemical, and man power shall be borne by the contractor.
- 90.** The contractor shall submit report and copy of daily attendance of their staff engaged before 12.00 Noon to the Engineer and PIU for review.
- 91.** Hydraulic Testing of DI main for Rising main shall be reviewed seriously. If the testing of pipes delayed more than 4 months after laying, then cost of the pipes and laying paid to the contractor shall be recovered and withheld until the pipes are tested. Water required for hydraulic test shall be arranged by the contractor and the cost of the water and conveyance shall deemed to be included in the testing charges.
- 92.** The Engineer can withheld or reduce the payment for any items of the works, if he is not satisfied with the work of the contractor. All the works should be in accordance with the IS specifications and as per the specification given the agreement.
- 93.** Insurance for the workers and all the staff engaged by the contractor shall be submitted to the Engineer before taking up the work.
- 94.** The quoted rates shall inclusive of all GST and other Taxes. No separate payment shall be made for GST. GST charges shall be payable for O&M alone.
- 95.** The contractor shall submit the insurance of any material/equipment and any loss or damages occurred during transit from factory/source to the Bhagalpur Town shall be borne by the contractor.
- 96.** The pipes, materials, equipment shall be properly stocked and it is responsibility of the contractor to safeguard the materials. For this purpose, the contractor shall engage watch and ward to safe guard the materials. No additional payment shall be made for insurance and personnel required to safeguard the materials.
- 97.** The contractor should maintain daybook for receipt of materials and usage of materials at his store and shall submit the monthly statement about the materials procured during this month, consumed during the month and balance available in the store.
- 98.** The statutory payment for getting permission from any Government department shall be paid by BUIDCo.
- 99.** The power consumption charges during O&M period shall be borne by BMC.
- 100.** Cost of Additional space in earth for workability shall be borne by the contractor.
- 101.** The road restoration shall be completed within one months of laying of the pipe line. If not, penal action shall be initiated.

- 102.** The contractor in discussion with the Engineer shall fix the location of Air valves, scour valve and sluice valve in the pipeline alignment in appropriate locations.
- 103.** The pipe line work of pumping main shall start from the source and shall be laid continuously without any gaps.
- 104.** The contractor should submit O&M plan with all the details of assets created, sequence of O&M operation in each component, Water testing details, and sampling location in each month. It should be specific to the project constructed. In the Plan, periodic maintenance schedule, break down maintenance schedule and preventive maintenance schedule shall be provided.
- 105.** In the O&M Plan, list of spares and materials required and to be procured for each month beginning for attending repair works shall be listed out.
- 106.** On completion of the project, as build drawings 6 set shall be submitted to BUIDCo authorities along with soft editable copy for keeping them as reference records. If As build drawings are not submitted in time, the final payment shall be withheld until the As build drawings are submitted.
- 107.** After completion of O&M period, the contractor should hand over all the assets to the BMC authorities. All the pumps motors, panel boards and other electrical and mechanical equipment shall be handed over the BMC in safe good working condition. If needed, the contractor should do the repair rectification work for all the equipment, which are in repair condition to bringing them into working condition while handing over to BMC. No additional payment shall be made for repair works during O&M period and during handing over period.
- 108.** It is the responsibility of the contractor to get permission from other departments such as Highways, railways, electricity department etc. The required drawings as per site condition shall be prepared by the contractor for applying for permission from the concerned departments. The employer will help the contractor to get such permission.
- 109.** The contractor should do the soil testing required for crossing railway & NH at his own cost. All such cost shall deemed to be included in the quoted rates.
- 110.** All the locations of works mentioned in the BID document are tentative. The contractor shall do the construction works even if some locations are changed and they should not claim additional amount for change in the location of any component.
- 111.** If any new items of BOQ are required in any of the component, then the contractor shall get prior approval from the Engineer and EE, PIU, Bhagalpur before taking up the work. The rate for new items shall be worked out based on the Bihar state schedule of rate or any other Gove, SOR of year corresponding to the year of construction of new item. Same percentage of excess or less mentioned in the Agreement shall be followed for arriving the contractor's rate for the item of work.
- 112.** If any excess quantity are required and are to be executed as per site condition for some items of work, then the contractor shall execute the work as per rate in the agreement if the additional quantity is within 5%. If the total amount to be paid due to additional quantity is more than 2% of contract agreement, then new rates shall be arrived. The employer shall fix the rate which ever is advantage to him. The contractor shall get prior permission before execution from the Engineer and PIU, Bhagalpur. No additional extra payment shall be made for excess quantity. All the concretes, brick works, plastering etc shall be properly cured for 21 days. If not penal action shall be initiated by the Engineer All the concretes, brick works, plastering etc shall be properly cured for 21 days. If not penal action shall be initiated by the Engineer.
- 113.** All the concretes, brick works, plastering etc shall be properly cured for 21 days. If not penal action shall be initiated by the Engineer.
- 114.** The contractor should submit work program for construction work within 7 days from commencement date and it shall be got approved by the Engineer.

- 115.** The contractor shall submit O&M plan before taking over the assets created by him for O&M. The O&M plan include the time schedule for periodic maintenance, time schedule of preventive maintenance and list of spares required for attending the break down maintenance. All the spares required for critical items shall be listed out in the O&M plan and shall be procured in the commencement of O&M to avoid time delay in attending breakdowns

SUBMISSION OF IPC AND PAYMENT OF IPC:

116. Contractor's Role:

- 116.1.** When the work is ready, the contractor shall intimate to the Engineer in Charge for inspection for carry out the work. The work shall commenced only after getting clearance from the Engineer in Charge or his representative.
- 116.2.** On any account, the work shall be carried out only in the presence of Engineer in Charge or his representative.
- 116.3.** The work carried out without the presence of Engineer in charge or his representative shall be summarily rejected and shall not be measured for payment. Further the Engineer in charge have the right to instruct the contractor to dismantle the work which were carried out without their presence.
- 116.4.** As soon as the component of any work is completed, then the contractor may request Engineer in charge for inspection for making measurement.
- 116.5.** All the measurement shall be taken in accordance with the IS specifications.
- 116.6.** The Engineer in charge or his representative shall take such measurement in presence of PIU Engineer and contractor's representative and shall be recorded in the Measurement Book. The contractor shall give his acceptance in the measurement Book.
- 116.7.** On completion of one month, then the contractor shall prepare the Bill and shall submit to the Engineer in Charge for recommendation to PIU, Bhagalpur for making payment.
- 116.8.** The contractor shall issue certificate of undertaking along with the Bill submitted by him.
- 116.8.1.** We shall replace, repair and adjust free of all charges to the Employer any part of the work which fails to comply with the specifications for, wear and tear expected until the completion.
- 116.8.2.** All the work will be reliable. The material and equipment supplied will be as per the information given in schedule.
- 116.8.3.** All the work will be of a type which has been proved in service to be suitable for the duty required by the specifications and will have been manufactured and tested in accordance with the appropriate standard specifications approved by the Engineer in charge.
- 116.8.4.** We accept and abide by the clauses relating to Quality and guarantee of work.
- 116.8.5.** All the testing of materials like Cement, Steel, M.S. plates etc. required during the execution of the contract will be got tested by me at my own cost from Government recognized Laboratory. The sampling and testing will be done as given in relevant I.S. Codes.
- 116.8.6.** We guarantee performance of all the equipment and material complying with the figures filled in respective schedule and the same will operate satisfactorily throughout the operating range specified in the tender.

116.8.7. We will comply with all necessary rectification within total time granted for rectification without any cost to BUIDCo, Patna.

117. Engineer in Charge's Role:

- 117.1.** The Engineer in charge or his representative shall inspect the site on the date in which the contractor has requested for inspection for carrying out any work.
- 117.2.** If any defects are found in the work, then the Engineer in charge or his representative shall give notice to the contractor stating the defect found in the work and instruct the contractor to rectify it for carry out the work. The contractor shall rectify the defect notified by the Engineer in charge at his own cost.
- 117.3.** After rectification, again the contractor shall issue RFI for commence the work. The Engineer in charge or his representative shall inspect the work and if the rectification work carried out properly, then he can allow the contractor to carry out the work.
- 117.4.** The bills submitted by the contractor shall be scrutinized by the Engineer in charge in accordance with the contract condition, within 7 days and if any defect noticed in the bill, then the bill shall be returned to the contractor for rectification.
- 117.5.** The contractor shall rectify the defects notified by the Engineer in charge and resubmit the same to him for further processing the bill.
- 117.6.** Then the Engineer in charge shall work out the recoveries due from the contractor as per contract conditions and shall be deducted from the bill and finally it shall be recommended to the Executive Engineer, PIU, Bhagalpur for making payment.
- 117.7.** The Engineer in charge shall have the right to withhold/deduct portion or full of the bill, in case he found that the work has not been done as per the agreement condition or not complying to the IS specifications.

118. Role of Executive Engineer PIU, Bhagalpur

- 118.1.** All the clearance, permissions, NOCs from the government department shall be arranged by the PIU, Executive Engineer.
- 118.2.** The Executive Engineer shall conduct weekly review meeting with the Contractor, Engineer in charge and sort out the issues raised by them.
- 118.3.** All the works executed by the contractor shall be inspected by the Executive Engineer PIU and his team of Engineers day today basis. All the measurement shall be witnessed by the Engineers of PIU.
- 118.4.** If any defects noticed by the Engineers of PIU, then it shall be intimated to the contractor under intimation to the Engineer in charge for rectifying it.
- 118.5.** The Executive Engineer shall make payment for all the bills raised by the contractor and recommended by the engineer in charge.
- 118.6.** The Executive Engineer has right to withhold any amount in the bill or fully withhold the bill, if the defects notified by himself or the Engineer in charge are not attended/rectified fully by the contractor.
- 118.7.** Executive Engineer can recommend any variation or amendment in the contract to the competent authorities of BUIDCo after getting opinion/recommendation from the Engineer in charge.

GENEAL DESCRIPTION OF WORKS

- 119.** Renovation of existing three WTPs at Barari water works. For civil structures, the approved drawings are available and the contractor shall construct as per the

- approved drawings. The contractor has to design the pipe connection works, valves etc for all the components such as Flash Mixers, Alum Dosing units, Lime Dosing units, Sludge drying beds, and other components of WTPs and got the approval from the Engineer in charge before taking up the work.
- 120.** The detailed break up shall be attached along with the tender for all the lump sum amount provided in the BOQ.
- 121.** The contractor Shall complete the partially completed flash mixers 6 Nos (2 Nos for each WTPs), Alum Mixing (2 Nos for each WTPs), Lime mixing dosing units (2 Nos for each WTPs), chemical buildings 3 Nos, Replacement of Filter media for three WTPs, Chlorination buildings 2 Nos, sludge drying beds Raw water and clear water pumpsets with all accessories,
- 122.** Horizontal centrifugal pumpset supplied by the previous contractor and available at stores for raw water main have to be erected at existing intake well, tested and commissioned
- 123.** Pipe connection for erection of pumpset and connecting to the existing raw water main shall be carried out using DI K9 pipes. The contractor shall design the DI pipes for pipe connection works and shall be submitted to the Engineer in charge for approval. The work shall be carried out after the approval from the Engineer in charge. The cost of design shall be deemed to be included in the BOQ rate. While submitting the tender, the contractor shall submit the list of pipes to be supplied for this purpose with proper justification.
- 124.** Air blowers for three WTPs shall be erected using available new Air blowers at store
- 125.** The contractor shall design the pipe connection, valves for Air blowers system and the detailed drawings showing the pipe connection and valve location etc along with design shall be submitted to the Engineer in charge for approval. The work shall be carried out after getting approval from the Engineer in charge. The cost of design shall be deemed to be included in the BOQ rates.
- 126.** The contractor shall supply acoustic enclosures for the existing air blowers in all the WTPs and erect and test in the WTPs.
- 127.** Mixing units for alum solution are available in the stores, which were supplied by the previous contractor. The mixing units shall be erected, tested and commissioned in the Alum dosing unit
- 128.** Alum dosing system with metering pump with stand by unit 3 Nos shall be designed, supply and erection & testing to be done. The design cost shall deemed to be included in the BOQ rate
- 129.** Alum dosing system with metering pump with stand by unit 3 Nos supplied by the previous contractor shall be erected, tested and commissioned
- 130.** The piping and valves required for Alum and Lime Dosing units each 6 Nos shall be designed, supplied , erected , tested and commissioned. The design shall be responsibility of the contractor and after getting approval of the design, the pipes and valves shall be procured and erected. The cost of design shall deemed to be included in the BOQ cost.

- 131.** Flash mixing system for all 6 Nos of flash units were supplied by the previous contractor and shall be erected, tested and commissioned.
- 132.** The rate of flow controller arrangement shall be designed and shall be submitted to the engineer in charge for approval. After getting approval, it shall be procured, erected, tested and commissioned. The design cost shall deemed to be included in the BOQ cost.
- 133.** Vacuum feed chlorinators of 1.5kg/hr for Jewel filter shall be designed and supplied, erected , tested and commissioned for pre and post chlorination with complete motive pumps, piping and valves etc including standby. The cost of design shall deemed to be included in the BOQ item
- 134.** Vacuum feed chlorinators of 1.0kg/hr for Patternson and Mechanical filters shall be designed and supplied, erected , tested and commissioned for pre and post chlorination with complete motive pumps, piping and valves etc including standby. The cost of design shall deemed to be included in the BOQ item.
- 135.** The contractor shall design, supply, erect, test and commission the required accessories including chlorine cylinder weighing system etc in all the three_WTPS including for stand by units. The list of accessories shall be listed along with the Tender document.
- 136.** The safety equipment required for chlorination arrangement shall be supplied and properly kept in the chlorination house. The list of the safety equipment shall be reported in the tender document
- 137.** Ventilation system for chlorinators, room and Chlorine cylinder room shall be provided.
- 138.** The contractor shall service and renovate all the existing electro mechanical equipment other than supplied and installed by the contractor. Details of service and renovation to be done for the existing electro mechanical equipment shall be tentatively listed in the tender document.
- 139.** Apart from the BOQ items, there will be provision for other items and accessories not specified in the BOQ. While submitting the Bid documents, the contractor shall mention the list of materials along with the cost shall be submitted for tender evaluation. If any items are not mentioned in the submitted Bid, then the item shall be deleted in the scope of works and shall also be deleted from the BOQ in the agreement
- 140.** Restoration of roads in the Rising main alignments Design, supply and install required mechanical and electrical equipment for existing WTP components and new intake work components
- 141.** Supply and install all cabling and control panels for safe and effective operation of the plant and equipment for the existing WTPS, Raw water and clear water pumping systems
- 142.** Augmentation of Ganga River source near DPS School, construction of emergency intakes, pumping equipment and laying and jointing of permanent Raw water main from DPS school to WTP (this main will be utilized in the BWSP 02 as a permanent main) and connecting to the existing WTPs and necessary pipe connections
- 143.** Prepare operations and maintenance manuals for all installations for Existing WTPs, existing intake works at Barari water works and Emergency intake works and pumping plants erected at intake works near DPS school & pumping main from DPS school to existing WTPs at Barari water works.
- 144.** Carry out Tests on Completion during construction phase and Tests after Completion and commission the works

145. All the construction activities should be completed within 5 months from the commencement date
146. Recruit and train water supply personnel in the operation and maintenance of the Works
147. Provide lubricants and tools for routine maintenance
148. Provide spare parts for all items of equipment and accessories; and
149. Operate and maintain the water supply and distribution system for the period defined in the Operations and Maintenance Contract.
150. For rising main, design shall be provided by the employer and checked by the contractor. The contractor's revision in the design shall be approved by the Engineer before taking up the work. The design of road crossings, culvert crossings, Railway crossings and surge protection tank, surge protection arrangements shall have to done by the contractor with required soil bearing capacity test etc, and the cost of design shall be included in the quoted rate itself and no additional payment shall be made. It is responsibility of the contractor to apply NH, Railway and other Crossings by the contractor and the employer shall assist the contractor to get the required permissions from the line departments. The employer shall pay all required payments specified by the line departments for issuing the permissions.
151. Supply and install all cabling and control panels for safe and effective operation of the plant and equipment at ten OHSR zones;
152. Prepare operations and maintenance manuals for all installations for the ten OHSR zones;
153. Carry out Tests on Completion during construction phase and Tests after Completion and commission the works
154. All the construction activities should be completed within 5 months from the commencement date.
155. Recruit and train water supply personnel in the operation and maintenance of the Works;
156. Provide lubricants and tools for routine maintenance;
157. Provide spare parts for all items of equipment and accessories; and
158. Operate and maintain the water supply and distribution system for the period defined in the Operations and Maintenance Contract.
159. The construction, operation and maintenance of the water supply system shall be executed in compliance with international best practice and all relevant Indian legislation.

A. 5.1. PARTA: BRIEF DESCRIPTION OF CIVIL & EMI WORKS UP TO HANDING OVER

160. **Operation and Maintenance (O&M).** Operation and maintenance (O&M) of the entire water supply system including pumping of 18.00 ML water from Emergency intake proposed under this package at DPS school , supplying and conveying of the water up to Three WTPS and then conveyance of Treated water up to the OHSRs for the period of 2 years including all associated works with trial run & commissioning of all Civil, Electrical, Mechanical & Instrumentation (EMI) equipment & Works of the entire transmission system.

5.1 SCOPE OF WORK

a. General

161. The contractor shall ensure the technical feasibility of the offer submitted after visiting the site. ” the Contractor shall be required to execute every such item(s) of work(s) which are considered required or necessary for the satisfactory completion and functioning of the entire work, commissioning of Civil, Electro-Mechanical& Instrumentation (EMI) Equipment and 11 KV electrical sub-station,, operation and maintenance during the O&M period including the Retention Period etc. even if such items of work are not specified in the bid document, but are essential to complete the scheme.

b. Activities to be performed

162. Following activities shall be carried out for design of each component of this contract but shall not be limited to:

a. Investigations, Surveys

- Performing necessary surveys of the proposed Emergency Intake locations , proposed alignment of pumping main from DPS school to Existing WTP at Barai water works
- Performing required geotechnical investigations for the design of components of NH , Railway & Nala and culvert crossing locations by the transmission lines & allied works.
- Performing raw water quality analysis of the new Emergency intake works created.

b. Documents to be submitted for approval.

- c. Survey for the underground utilities such as Telephone cables, electric cables, drains etc
- Detailed work plan for procurement, engineering, construction, installation, trial run & commissioning (Weekly, Monthly & Quarterly report preferably in WBS, S curves & MS Project), methodology of works, mobilization of workers & supervision staff, mobilization of machineries, material procurement plan, safety plan, quality assurance plan, and measures to complete the work within stipulated time.

5.2 ACTIVITIES FOR WORK

a. Preparatory works

- Establishing fully equipped field offices. One furnished office for supervision of the works for the Contractor's staff and another furnished office/s for the Engineer/s.
- Construction of suitable storage spaces, temporary go-downs for construction materials, pipes and equipment to be supplied and used for the works.
- Identification of suitable quarries and other sources for construction materials and get them approved by the Engineer/s.

- Mobilization of requisite staff with qualified engineers and technicians, laboratories suitable for adhering to the Quality Assurance Program. Construction of suitable labour camps with all electrical, water and sanitation facilities required under the relevant Labour laws & adaptation of HSE at site & labour colony.
 - Making arrangements for equipment and materials required for maintaining the safety (HSE) of the sites and the workmen at the sites (helmets, safety shoes/boots, jackets, safety belts, gloves, scaffolding, barricading, spectacles, dust protectors etc.),
 - Submission of an initial work program and schedule and project calendar and updating the same every month for approval by the Engineer/s. This shall be prepared on latest version of project management software such as MS project / primavera.
 - Site clearance and leveling of the work site, as per approved drawings
 - Setup worksite testing laboratories with testing Instruments as mentioned elsewhere, for adhering quality assurance.
- b. Execution of work
- Construction of all civil structures of source creation (Emergency Intake works) and associated works, pumping main and . Completion of refurbishment of existing three WTPS Disposal of surplus soil and construction waste as directed by Engineer, and maintaining the construction site in orderly manner.
 - Performing tests on materials received and for the finished works and maintaining complete records and registers required on site as per the QA/QC Manual.
 - Factory and field testing, pre-dispatch inspections, packaging, transportation to the project site, providing transit insurance, storage, handling at the sites, installation, trial runs, pre-commissioning and commissioning of all components of the system including the pipes, fittings, hydraulic, mechanical, electrical and instrumentation equipment.
 - Providing spare parts, tools and specials, as mentioned elsewhere
 - Providing “on the job” training to employer’s personnel.
 - Remedying any defects identified during the Contract period and as mentioned elsewhere.
 - Site clearance and restoration of the premises after completion of the work.
 - Submission of 'As Built' drawings and Operation and Maintenance Manuals.
 - Keeping day to day record of material on site, its consumption in proper registers for verification by Employers representative.
 - Deployments of safety personnel with all safety safeguard arrangements.
 - Note: During the contract period, if any of the existing utility services like electricity, water supply, telephone; oil/gas pipe lines etc., within the project area, are damaged by the contractor, it shall be restored to its original condition. The cost of all such restoration work shall be borne by the contractor.

5.3 Major Components of Works-Design

5.3.1 DRAWINGS AND INFORMATION TO BE PROVIDED

5.3.1.1 GENERAL

- 163.** The drawings that will be prepared and issued for this Contract shall be classified as follows and where relevant shall be to a scale which is suitable for the representation of those details illustrated.
- 164.** The term Drawing shall be deemed to include all drawings, schedules, lists, software documentation, descriptive text and calculations necessary for the design, construction, operation and maintenance of the Works and referred to in this clause.
- 165.** Drawings and all other submittals required by this contract shall be submitted in editable electronic softcopy format on CD(s) or DVD(s) as well as in hardcopy paper format in 6 copies..
- 166.** The softcopy format for various items shall be as follows:
- Drawings: Latest AutoCAD version
 - Text Documents: Microsoft Word version 2007 or 2010
 - All programmers and schedules related to the project: Microsoft Project version 2003 or 2007
 - Spreadsheets, calculations, tables, technical schedules, prices schedules, and other numerical data: Microsoft Excel version 2007 or 2010
 - Databases: Microsoft Access version 2010
 - All other required information not included in the above: Adobe Portable Document Format (PDF) version 7.x

The hardcopy format/sizes for various items shall be as follows:

- Drawings: Standard A1 size paper. The scale for each drawing shall be selected such that the information is presented without any clutter or ambiguity and is clearly and easily legible without the use of magnifying aids other than a reader's normal eye-glasses.
- All other information: Standard A4 or A3 paper size, except for any pre-printed standard information such as brochures or catalogue information, which may be submitted in the original size and format.

5.3.1.2 DRAWING FORMAT AND NUMBERING

- 167.** All drawings shall be prepared using an identical title block format. This shall be approved by the Engineer and shall identify the project, drawing title, the Employer, the Contractor, Sub-contractor, if applicable, and the Employers Representative.
- 168.** A formalized drawing numbering system shall be adopted with digits of each number, referencing location, revision, drawing type and size. The numbering format and allocation of drawing number blocks shall be approved by the Employers Representative.
- 169.** The Contractor shall provide a sequential numbering system for all Construction Documents. The drawing number shall not be repeated or duplicated.

170. All drawings shall be submitted to a formalized checking procedure prior to submission. Drawings not so checked will not be approved.

5.3.1.3 PRE-CONTRACT DRAWINGS

171. The Pre-contract Drawings are those issued to Bidders either with the Bidding Documents for the purpose of illustrating and clarifying the Works described in the Employer's Requirements or later during the bidding period as part of an Addendum to the Contract Documents.
172. Such drawings shall be deemed to have been issued for the guidance of Bidders and shall, for the purpose of executing the Works, be superseded by the Construction Documents.

5.3.1.4 BID DRAWINGS AND DETAILS

173. The Bid Drawings are those furnished by a Bidder with his Bid for the purpose of illustrating and clarifying his proposals.
174. The following drawings, details and specific information pertaining to the entire water treatment process, intake, and all components of the project, the Bidder in the technical envelope in addition to other information mentioned elsewhere in the tender. The lists provided below shall not be considered comprehensive. The bidder shall be responsible for including any and all drawings and information for any and all works that may be necessary for full and complete definition or clarification of the design, regardless of whether or not such drawings, information, or works are explicitly included in the lists below or elsewhere in these bid documents.

General and Process

- (i) Narrative Description of the Works
- (ii) Project component and Operation and Control Philosophy
- (iii) Sizing and Design Calculations covering all Major Unit Processes and components of the Works
- (iv) List of all structures (, tanks, channels, buildings, etc.) including dimensions and freeboards
- (v) Complete Equipment List
- (vi) All Equipment Catalogues and selection chart (with all relevant manufacturers' documentation).
- (vii) Major Piping Schedule to include service (process stream), installation type (e.g., buried, exposed, submerged, etc.), size, material, coating, lining, joint type(s), gauge/thickness, pressure rating, testing protocol, design standards
- (viii) Major Valve Schedule to include service (process stream), installation type (e.g., buried, exposed, submerged, etc.), size, type, material, joint type(s), pressure rating, differential pressure rating, testing protocol, design standards, operator/actuator type, and whether Open/Close or Modulating
- (ix) Major Gate Schedule to include service (process stream), installation type (e.g., buried, exposed, submerged, etc.) size, type, differential head,

seating or unseating, testing protocol, design standards, operator/actuator type, and whether Open/Close or Modulating

- (x) Components Layout.
- (xi) Hydraulic Profile.
- (xii) Process Flow Diagram.
- (xiii) Process and Instrumentation Diagrams (P&IDs).
- (xiv) Electrical Load List & Power Consumption Chart.
- (xv) List of Chemical Consumption on Daily/ Monthly Basis.

Mechanical

- (i) Graphs for all pumps
 - Pump Performance Curves : Q vs H, speed, P, Efficiency, and NPSH
 - ISO-efficiency curves of the pump model proposed

Electrical

Surface water source:

- Electrical Load List.
- Electrical Single Line Diagram of.
- Sizing Calculations for Transformers
- Specific Energy Consumption
- Technical Schedules-V for Electrical Works duly filled in.
- Construction Schedule

175. Details of Drawings and Calculations to be submitted by the Contractor or Approval

a. Construction Documents

Construction drawings shall be prepared by the Employer and shall be issued to the contractor for taking up the work. However, the electrical drawings shall be prepared by the contractor depend upon the load of the each pumpset and it shall be got approved by the Engineer.

b. As Built drawing

176. After completion of entire work, the contractor shall be prepared as built drawings for the completed all components and 3 copies of as built drawings shall be submitted to the Engineer for approval. On submission of as built drawings the final bill shall be prepared.

5.4 AS-BUILT DRAWINGS

177. After completion of entire work, the contractor shall be prepared as built drawings for the completed all components and 3 copies of as built drawings shall be submitted to the Engineer for approval. On submission of as built drawings the final bill shall be prepared.

178. These drawings shall be compiled by the Contractor and shall constitute a permanent record of the Works as executed. These shall include all such drawings, schedules, documentation and calculations as necessary for a complete understanding of the Works design, operation and maintenance.
179. The As-Built Drawings shall consist of the fully up-dated versions of the approved Construction Documents incorporating any additional information which will assist the Employer in operating, maintaining and if necessary modifying or extending the Works at a later date. These drawings should extend and supplement the information given in the Operating and Maintenance Manuals.
180. A3 and smaller sized As-Built Drawings shall be provided on durable paper for reproduction by photocopier. As-Built Drawings larger than A3 sized shall be provided as a paper copy and also produced in the form of black lines on a durable translucent film from which further paper prints can be taken by others as required. In addition drawings shall be provided as an AutoCAD software copy in editable form in Compact Disc (CD) in two sets.
181. Other related information such as Technical Proposal as per clause 3.16.5 and Section 6 - Technical Schedule but not limited to, shall be provided in hardcopy as well as editable softcopy format (Microsoft Word, Excel, Access, or Project).

6.1 PART III: OPERATION AND MAINTENANCE

182. Operation and Maintenance (O&M) of all Civil structures, pipe lines & EMI works– All units of Tube wells, , pumping main to the reservoirs, all units for a period of 2 years.
183. No separate/additional payment shall be made for such items of repair/replacement of any machinery during operation service period. The bidder has to make its own assessment for the cost of such replacements needed from time to time and load the prices in operation service component.
184. The details of the activities to be performed is specified here under or anywhere of the documents :
 - i. ***Technical standards and regulation to be followed***
185. Except where otherwise specified, plant, materials and workmanship shall comply with the requirements of the relevant Indian Standards (hereinafter referred to as IS) issued by the Bureau of Indian Standards. Other equivalent National or International Standard Specifications such as those issued by the International Organization for Standardization (ISO) or the International Electro technical Commission (IEC) may be substituted by the Contractor (so long as they are more stringent than the equivalent IS) at the sole discretion of the Engineer or as may have been agreed in the Contract. All standards used shall be the current version.
186. The electricity installation shall comply with all relevant statutory regulations and standards current at date of bids, unless otherwise indicated within the Employer's Requirements. Electrical installations shall where relevant be in accordance with the Indian Standards Code of Practice for Electrical Wiring Installations IS 732.

187. All materials and workmanship not fully specified herein or covered by an approved standard shall be of such kind as is used in first class work and suitable to the climate in the project area.
188. Where the requirements of any such standard specification or regulation conflict with the requirements of the Employer's Requirements or any item on the Drawings, then the Contractor should refer to the Engineer for clarification before proceeding with that section of the Works.
189. If Relevant BIS standards are not available then at the discretion of the Employer, Contractors will be allowed to use international standards such as AWWA/DIN/JIS/BS.
190. Ministry of Road Transport & Highway (MORTH), Government of India Specifications for Roads and bridge works and relevant IRC specification should be followed for relevant items.

ii. Submittal & sample of materials

191. Vendors, suppliers of all construction materials including samples, test reports of samples required to be submitted for approval. Samples of materials requiring prior approval, such as cement, aggregates, asphalt cement, building specialties, and backfill materials, in large enough quantities (at least 0.1 m³ each) with descriptive data shall be furnished by the Contractor to the Engineer. Samples shall be submitted at least 14 days before their proposed usage in the work to permit inspection and testing. The samples shall be properly marked to show the name of the material, name of the manufacturer, applicable Specification.
192. Only upon approval by the Engineer, shall the materials be brought to site. Samples once approved shall be on exhibition at all times, properly stored and prevented from deterioration for the purpose of comparison with the materials brought to site of work from time to time for use in the work.

iii. Trial Run of the System

193. After execution of the works, the Contractor shall make trial runs of the individual components. A continuous operation of each component for a period of 15 days for Tube well, pump house, transmission networks of each sub-zone, to the satisfaction of the Engineer will be deemed to demonstrate satisfactory completion of the trial run for that individual component. The cost of electricity, chemicals and other consumables for operation and maintenance of the system during the period of this trial run will be borne by the Contractor. The costs associated for the Contractor's and other operating non-Employer personnel during the period of the trial run, along with costs of tools and spare parts, which are required for operation and maintenance of the plant and equipment during the trial run period shall also be borne by the Contractor and shall be included in the Contract Price.
194. In the event that any system or facilities do not satisfactorily achieve the required performance standards during this period, the trial run period shall be extended until such time as the Contractor has satisfactorily rectified any deficiencies as may be necessary to satisfy the performance requirements, at the risk and cost to the Contractor.

iv. Taking over by Employer

195. On completion of the trial run, pre-commissioning of the system shall be performed by the Contractor. The total time allotted for pre-commissioning (i.e., running of entire plant at optimum efficient) shall be of 15 days minimum, before the system is deemed ready for commissioning. In case of transmission system, this period shall be 15 days minimum. The commissioning of any system shall be considered as fully achieved after the entire system has run continuously for a period of 15 days without any breakdown to the satisfaction of Engineer. If a continuous run is not achieved fully to the satisfaction of Engineer, the Contractor has to complete the required repairs and modifications required to achieve the same at his cost. All the costs thereof, including the cost of the electricity, Contractor's personnel, maintenance, and any consumables for operation and maintenance of the system during the period pre-commissioning period shall be borne by the Contractor.

v. Taking over by employer

196. On completion of pre-commissioning, commissioning of the system will start when completion certificate will be issued. All the cost of personnel, chemicals (alum, lime, chlorine and polyelectrolyte, etc.) maintenance, and other consumables for operation and maintenance of the system, except electricity consumed, shall be borne by Contractor. The cost of electricity will be borne by employer. From this date of completion certificate the period of 5 years for O&M of the system will start at the same time the Retention Period will start for 365 days

vi. Operation and Maintenance

197. After taking over by employer, the assets created under this package by the contractor along with the assets created by the previous contractor and commissioned by the present contractor will be handed over to the contractor for operation and maintenance. The Contractor shall be responsible for Operation and Maintenance of the system as per part of the contract, along with spares as on required basis for the period of 5 years from the date of commissioning. Notwithstanding the above, the Contractor shall be required to rectify any deficiencies which are attributable to defects in the workmanship or quality of materials, plant or equipment during the Contract Period. The list of spares required for further 1 years as per manufacturer's specification shall be provided by the Contractor. In the Defect liability period, the contractor shall operate the system. He should quote rate for manpower cost and chemical cost alone for operating the system. The cost of manpower, spares, materials etc required for any repair work shall be borne by the contractor. In the second year after completion of defect liability period, the contractor shall quote rate for manpower and materials and chemical cost for operation and maintenance. However, no separate amount shall be paid for any cost of materials, spares, replacement of pumps, panels etc for all the two years period of O&M. It shall be deemed to be included in the quoted rate for second year and during defect liability period it is duty of the contractor to replace/rectify the defects at his own cost

198. The schedule for completion of works, trial run commissioning and Operation and Maintenance:

- **Total time limit for completion of design-build works -6 months**
- **Time limit for completion of works - 5 months**

- Trial run –15 days after completion of work
- Commissioning of the scheme -15 days
- Defect liability period - 1 year from date of commissioning
- Operation and Maintenance- 5 years from date of commissioning.

The 1 year defect Liability period is included in operation & maintenance.

vii. *Facilities, Details and Data Made Available by the Employer (During Construction Period)*

(i) Facilities Available to the Contractor

- 199.** Spaces and Accommodation: The Contractor will be allowed to use the space available, which will not be occupied by any permanent facilities, after permission of the Engineer. The Contractor will be free to use it for establishing his offices, laboratories, storage spaces and workshop as long as they do not interfere with the layout of the works to be carried out under the Project.
- 200.** The Contractor will have to hand over the spaces and structures in a clean and intact condition at the end of the Contract or at an intermediate stage when they may be required by the Engineer on demand after one month notice.
- 201.** There will be no charge for the use of such space. The Employer however does not undertake to provide any additional space or accommodation that the Contractor may require to fulfil his contractual responsibilities. The Contractor will be responsible to arrange the same at his own cost. The Employer may assist the Contractor in making his arrangements by giving suitable recommendation letters.
- 202.** Contractor shall arrange at his cost for the space required for storage of the pipes, specials and valves supplied for transmission networks along with its watch and ward.

(ii) Details and Data Available to the Contractor

- (iii) The Employer has collected the details and data and has used these in the formulation of the bid elements. They are listed below and are given in the supplementary information subsection. The Employer does not guarantee either the sufficiency or accuracy of the data provided, and the Contractor will be wholly responsible to carry out confirmatory additional surveys, soil investigations, specific testing, and all other tasks necessary for proper planning and detailed design. In case of discrepancies found requiring modifications to the provisions given in the subsequent subsections, the Contractor shall be required to provide full details of the investigations and analysis for approval by the Engineer.
- a. Topographical surveys conducted and have also established bench marks.
 - b. Subsoil Investigations.
 - c. Water quality analysis of raw water in the Ganga River.
 - d. The water level variations of the Ganga River.
 - e. Transmission network drawings with standard drawings for chambers, booster pumping stations
 - f. Transmission network design details “carried out through Water GEM software”

- 203.** Contractor shall be responsible to carry out surveys, which are required for design of the project components and not furnished in the document, at his own cost and responsibility.

6.5 REPORTS AND DOCUMENTS TO BE GIVEN BY THE CONTRACTOR

Inception Report

- 204.** Immediately after acceptance of offer, the Contractor is supposed to submit Inception report explaining his methodology and measures to complete the work in stipulated time. This will include work sequence, staff deployment, their roles and responsibilities, material procurement plan, quality assurance plan, safety plan, maintenance management for 2 years, training to Employers, staff and all other related features.

a. Progress Record

- 205.** Contractor should maintain the daily progress record of the work in form of daily performances, photographs and video films periodically (weekly) and especially during the important activities such as piling, foundations, major and important concreting, sinking operation of well, hydraulic testing of the pipelines and visits by VIPs and inspecting authorities. Weekly & monthly progress reports for all sorts of works along with detailed planning, program & performance achievement reports on Procurement, Engineering, Construction & Commissioning etc. shall be submitted by the contractor to the Employer before end of the week or end of the month; so that weekly and monthly review meeting could be conducted on the basis of the progress report/s. Copies of such reports, photographs and recordings etc. should be submitted to the Employer; cost of these shall be included in the offer.

- 206.** Contactor or Contractor's representative/s (not below the rank of Project Manager) shall attain & present progress report/s of the project in each weekly & Monthly progress Review Meeting with furnishing all data, reports etc. and provide all queries of the Employer as and when required.

b. Quality Assurance (separate chapters)

- 207.** The Bhagalpur Water Supply Project stresses to achieve the highest standards for the works (construction, equipment supply and erection). All the materials procured for this project shall be tested in NABL accredited Lab to access the quality of the material and the materials shall be utilised only if it pass in test to satisfy the Is and specification mentioned in the Bid. A Quality Assurance/Quality Control (QA/QC) Manual is outlined in relevant section, which details the minimum level of testing and control to be exercised for ensuring the quality of the completed works. The minimum measures taken by the Contractor shall be as per the QA/QC Manual and these specifications but not limited to it. The Contractor shall prepare a detailed plan for this Contract for Quality Assurance and Quality Control and have it approved by the Engineer. The Contractor shall deploy an adequate number of suitable staff whose sole responsibility shall be to strictly implement the QA/QC Plan and conduct necessary tests to ensure the highest quality standards are being met. All other measures that the Contractor may feel necessary or as may be directed by the shall also to be followed.

- 208.** The other subsection gives details of the proposed Quality Assurance and Quality Control scheme to be followed in this Project. It covers the inspections of construction material, manufacture and supply of equipment and of the works to be carried out.

FIELD LABORATORIES

- 209.** The Contractor shall be required to establish a field laboratory (location can be at the Water Treatment Plant Site or as approved by Engineer) suitably equipped to carry out tests as stipulated in the QA/AC Manual. This laboratory shall include all specialized equipment which will be required for field testing of the materials (soils, concrete mixes, etc.) and equipment being supplied under the Contract. The laboratory shall be manned by suitably trained staff which will utilize computerized record keeping. The minimum equipment to be provided in the laboratory shall be in accordance to guidelines in QA/QC manual. Any additional equipment deemed necessary to perform the testing specified in other subsections of this document shall be furnished by the Contractor at no additional cost to the Contract.
- 210.** Facility for testing and repairs of the flow meters for property connections provided to the domestic and commercial consumers shall also be provided in the laboratory with adequate space in addition to the requirements for Intake, WTP works.
- 211.** In addition to the equipment in the laboratory, the Contractor will also provide field testing equipment as directed by the Engineer on the various sites where work is in progress.
- 212.** Weekly & Monthly reports on QA/QC for all tests shall be submitted by the contractor without any additional cost.

6.6 Water Quality

- 213.** The contractor shall supply water with the following minimum criteria and residual chlorine level of 2 ppm at the Service Reservoir inlet as prescribed by the CPHEEO norms
- 214.** Residual chlorine 2 ppm at Service Reservoir
- 1) Bacteriological Examination – No Pathogens
 - 2) Any other factor during the operation period raised by the client
- 215.** The Contractor shall collect all water samples relative to the system required by Applicable Law and undertake physical-chemical and bacteriological analysis and provide and submit in a timely manner all such test results to the Engineer.
- 216.** The Contractor shall propose its water sampling and analysis program as part of the Operations and Maintenance Plan. The program shall allow adequate monitoring of water quality and shall meet the minimum sampling and analysis frequencies as specified below for each Zone.

| location | Physical&chemical parameters | bacteriological parameters | Heavy metals & pesticides | residual chlorine |
|-----------------------|---|-----------------------------------|--------------------------------------|--------------------------|
| At Inlet of WTPs | Daily | weekly | annually | Daily |
| At the outlet of WTPs | Daily | weekly | annually | Daily |
| At the Inlet of OHSR | Daily | weekly | annually | Daily |

- 217.** The Engineer may require the Contractor to take samples on behalf of BMC for the purpose of allowing the BMC to review the testing and laboratory analysis programs of the Contractor.
- 218.** The Contractor shall assist and advise the BMC in all matters related to water and quality including, but not limited to, providing advice and assistance during the BMC’s discussions with the regulators and public health officials on water quality matters.
- 219.** The Contractor shall equip and operate, from the Operation Service Commencement Date, at his cost a laboratory in space available at the Barari Water Works compound. The laboratory shall have all testing and support equipment to allow for testing of water samples on all parameters as listed in Section 8 [*Particular Conditions of Contract*], Chapter 5 [*Treated Water Quality*] throughout the duration of the Operation Services at Contractor’s cost. The Contractor’s obligations include the supply of chemicals and the renewal of apparatus if so required

c. Operation and Maintenance Manuals

- 220.** The Contractor, before commencement of the Tests on Completion, shall submit six (6) copies of the Operation and Maintenance (O&M) Manuals for the intake and raw water pump station, raw water pumping main, water treatment plant, pumping equipment, power supply systems including overhead lines, pump stations and the clear water reservoir, Transmission system in the English language. Each O&M Manual shall contain descriptions, illustrations, sketches, layout drawings, sectional drawings, sectional arrangement views and manufacturer’s spare part numbers to enable the connection, functioning, operation and maintenance of all components.
- 221.** The Operation and Maintenance Manual shall also include the following:
- a. Technical data of all equipment and their performance.
 - b. Instructions for servicing and overhauling.
 - c. Particulars of lubricating oil and grease to be used, also alternative indigenous commercial lubricating oils suitable for use.
 - d. Performance curves for all units regarding efficiency loading and output.
 - e. Performance curves for the motors.
 - f. List of tools mounted on wall panels.
 - g. List of spares provided in the spare box.
 - h. Spare parts list, with manufacturer’s part numbers.
 - i. Operator’s log.
 - j. List of the photographs of the plant and machinery as fabricated by the manufacturer.
 - k. Procedures for maintenance.
 - l. Preventive maintenance procedures for all the equipment.
 - m. Emergency maintenance management of the plant and equipment.
 - n. Addresses and contact numbers of nearest dealers.
 - o. Routine periodical maintenance schedule.

222. Contractor shall submit the O&M manual within one month from the date of commencement.

d. Handing over the system

223. The complete system shall be handed over by the Contractor to the Employer at the end of the O & M period. The system has to be handed over with all equipment and systems in a property maintained and fully functional condition. The Contractor will make a full inventory of the items of installations and hand them over, including new replacements for any spare parts or tools that were procured under the contract and used/consumed by the Contractor during the O & M period. All replacement spare parts shall be Manufacturer's original equipment only.

6.7 FACILITIES AND SERVICES TO BE PROVIDED BY THE CONTRACTOR

Field Office for the Employer

224. The Contractor shall provide and maintain field office with the following facilities for the Employer and Engineer. The cost for these facilities shall be included in the Contract Price. The field office shall be erected and fully functional prior to any construction work being initiated.

225. The office building shall be equipped with minimum office furniture (at least 2 tables with 2 drawers each, 3 chairs on casters, 6 chairs with no casters, 2 drawer A3 size freestanding filing and 2 drawing storage cabinets, and one 1200 mm wide bookshelf. The office building shall be provided with electricity, water and sanitary holding tank, ceiling and exhaust fans, 8 electrical and data outlets and the following equipment:

- 3 PC desktop computers, out of which 1 would be specifically for transmission system works, each with these minimum features: a Windows Office 10I operating system; a 48 cm (19 inch) Colour monitor, a 1000 GB hard drive and 8 GB DDR3 RAM at 2.5 GHz; a 512 MB Graphics Card; a 16X max Optical Drive with DVD write capability and internal speakers or latest version of configuration at the time of supply
- 1 inkjet printer and 1 no. HP Laser Jet Model printer of A4 size CP1515n, or equivalent

226. The Contractor shall maintain the Employer's office throughout the Contract Period. This shall include furnishing potable water, a broadband internet service, emptying the sanitary holding tank when required and hauling the contents to disposal and providing a nightly cleaning service.

227. The office, as above provided for the Contract and the equipment listed above (bulleted) shall become the property of the Employer.

Local Offices for the Contractor

228. The Contractor shall set-up a field office at the Project Site for supervision of the works prior to any construction work being initiated.

- 229.** The Contractor shall make the office functional prior to starting work at the site. The office shall have all required furniture, computers, printers, plotters and other office features required for carrying out the work. It shall house a design team of qualified personnel. The office shall also have a conference room, suitable for 8 attendees, for discussions and reviews.
- 230.** The local office and field testing laboratory should be handed over to employer after completion of the project along with testing equipment.

Storage Facilities for the Contractor

- 231.** The Contractor shall provide storage facilities of adequate capacity for storing materials. The storage facilities shall be of such construction to adequately protect the materials against deterioration. A raised platform well above the highest flood level shall be constructed for stacking cement and other consumables. PVC piping, the tube or plate for settlers and other items which will deteriorate from exposure to sunlight (ultraviolet radiation) shall be stored in this facility after being delivered to Bhagalpur and awaiting installation.
- 232.** The storage shed(s) may be located off of the Project Site, as determined by the Contractor, but the contents must be available for inspection by the Engineer at any time. If the storage units are located on the Project Site, they shall be removed prior to the end of the Contract period and shall not interfere with any of the water supply operations. The cost for the storage facilities shall be included in the Contractors Contract Price.

Temporary Water and Electricity Provisions

- 233.** The Contractor shall make his own arrangement for the supply of water and electrical power that will be required for the project for his operations. The cost for the temporary water and electricity services shall be included in the Contractors Contract Price.
- 234.** The supply of pressurized piped water will not be available. The Contractor shall make arrangements for supply of drinking water and non-potable water required for construction work by trucking it in or by sinking tube wells or other suitable alternatives. The Contractor shall investigate this matter before the submission of Tenders.
- 235.** Temporary Sanitary Provisions
- 236.** The Contractor shall make his own arrangement for sanitary (toilet) facilities for his workmen and other staff. The cost for pumping out holding tanks and disposal of the wastewater off-site at an approved facility shall be included in the Contractors Contract Price. The Contractor shall provide sanitary facilities at each of his work sites for as long as he has staff on stationed there.
- 237.** The Contractor shall also arrange for the collection of trash and construction debris from all work sites, at least twice each week, with disposal at an approved off-site facility by Employers Representative. The burying of trash or construction debris on the work sites will not be allowed.

6.5 HANDING OVER OF PROJECT SITE TO CONTRACTOR

- 238.** The sites will be made available on the date of the issuance of the Letter to Proceed and the Contractor can plan his work accordingly.

- 239.** The Employer will make the individual work sites available to the Contractor so that he will have space available for him to carry out his work..
- 240.** In the event that some local obstruction/objection arises which would impede the progress of the Contractor's work in any one area, the Contractor will be required to redeploy his resources to other unaffected fronts in order to maintain the progress of work so that the overall completion of the whole Project is not affected.

Completeness of the Work

- 241.** The Contractor shall be fully responsible to ensure that the whole Project (drawing water from the intake wells , treating it for disinfection and conveying it to the reservoir and pumping station), and water supply to the storage reservoirs through transmission network including Completion of each individual component, are constructed in a manner so that the System as a whole operates as a fully integrated system which is capable of achieving the required output in an efficient and economical manner, and includes all plant, equipment and accessories required for the safe and satisfactory operation of the facilities.
- 242.** The Contractor shall also be responsible for the office building with associated component facilities.
- 243.** To achieve this, the Contractor shall ensure that each individual component performs in a manner which is complementary to that of all other components. Any accessories which are not specifically mentioned in the specifications, but which are usual or necessary for completion of the Works and successful performance of the overall system and facilities shall be provided by the Contractor within the Contract Price.
- 244.** The Contractor shall ensure that his designs are "maintenance-friendly" and that all items of plant and equipment are designed and installed in a manner which will facilitate routine and periodic maintenance operations.

Time for Completion of Construction

- 245.** The whole of the Work, including mobilization, reconnaissance, survey, sub-soil investigations, design, manufacturing, transportation, construction, installation of all Electro-Mechanical & Instrumentation, trial runs, testing, pre-commissioning and commissioning is to be completed within the scheduled Time for Completion. The duration of the Trial Run and testing period is 15 days and the Pre-Commissioning period is 15 days; both periods are included within the scheduled time for completion.

Schedule Milestones

- 246.** The detailed activity scheduling to be done of latest version of project management software such as MS project / prima-Vera and then the milestones arrived at. This scheduling to be submitted along with offer. The material schedule procurement and monthly cash flow statement based on this schedule also to be submitted and will remain open for scrutiny to decide interim payments.
- 247.** The key Schedule Milestones as proposed by the Contractor and agreed upon by the Engineer will be adopted for periodic review of the progress of various components of the overall Project.

- 248.** These milestones will define the stages when the decisions regarding any delay in the implementation will be assessed with a view towards the application of the provisions of the Conditions of Contract.

1. OPERATION AND MAINTENANCE

7.1 SCOPE OF WORK FOR OPERATION SERVICE PERIOD

- 249.** The Contractor shall operate and maintain the entire works under Bhagalpur water supply project briefly for the entire works of Tube well , rising main, Water, pumping station, transmission mains and all other allied works under this contract. The Contractor shall be responsible to operate and maintain the works for 2 years. The personnel provided by the Contractor shall be fully experienced in managing, operating and maintaining all aspects of the plant and facilities, shall be responsible to monitor and ensure the successful performance of the system throughout the Retention and Operation Service Period.
- 250.** All the costs for operation and maintenance of the works such as manpower, fuel, spares, tools, transportation, disposal of sludge, maintenance of civil, electrical, mechanical pipelines, automation, etc. is within the scope of services of the Contractor. No extra payment other than whatever has been quoted in the bid will be entertained by the Employer. All costs for the Employer's personnel will be borne by the Employer.
- 251.** Cost of electricity shall be borne by the employer as per the specification and guaranteed figures given by the bidder as per liquidated damages specified in this contract.
- 252.** The above notwithstanding, the Contractor will be required to rectify any deficiencies which are attributable to defects in the workmanship or quality of materials, plant or equipment during the Retention Period.
- 253.** The bidder shall also dispose off the sludge and any other material, as per specifications and to the satisfaction of the Employers Representative. Within his quoted cost, the bidder is to ensure that all the functional guarantees are maintained.
- 254.** The bidder shall provide on job training to the employer's staff as per specifications.
- 255.** For this period, the scope of work shall include, but not be limited to the Operation and Maintenance of the all the components designed and constructed under this contract, including campus development, horticulture, service water supply and general utilities.
- 256.** It is to be noted that all costs during the O&M period, excluding the cost of power is to be borne by the contractor. Within his quoted cost, the bidder is to ensure that the following guarantees are maintained:
- Guarantee for consumption of chemicals
 - Guarantee for consumption of power
- 257.** The bidder shall, at no extra cost to the employer, repair and re-condition all the electrical and mechanical equipment in the concluding year of the O&M contract to a condition so that they can operate for a further 3 years period with regular preventive and recommended maintenance. The bidder's scope shall include supply of all necessary spares that may be required to operate for another 3 years. The list of

critical spares shall be drawn up depending upon the maintenance record of equipment in the penultimate year of the contract and the spares shall be supplied in the concluding year of the contract.

7.2 OPERATION AND MAINTENANCE COST

- 258.** All the cost for operation and maintenance of the project such as manpower, consumable, spares, tools, transportation, , , maintenance of civil, electrical, mechanical pipelines, automation, etc. is in the scope of the bidder. No extra payment other than whatever has been quoted in financial bid will be entertained by Employer. Cost of electricity shall be borne by the Employer subject to the stated conditions and as per the specification and guaranteed figures given by the bidder in the attachment to the Letter of Bid.

7.3 PART 2.1 - OPERATION SERVICES

- 259.** During the Preparation Phase, the Contractor shall prepare an Operations and Maintenance Plan to be approved by the Employers Representative.
- 260.** Except as provided otherwise in this Contract, the Contractor shall carry out all management, financial and administrative responsibilities required for operating the Bhagalpur Water Supply System (BWSP 01-04) in a sustainable manner.
- 261.** The Contractor shall provide ongoing assistance and advice to the BMC on all matters related to the water supply system and the water supply services, and any requests for information, advice or reports from the BMC with respect to the facilities or the services.
- 262.** The Contractor shall conduct field inspections and collect data to demonstrate, to the satisfaction of the Employers Representative, that Performance Standards are being met.
- 263.** The Contractor's project organization shall comprise of two departments, a construction department responsible for all Works and an operational department responsible for all water supply operations and maintenance. The operational department is to be headed by an operations manager and will comprise of: engineering,). During the entire Operation Phase the Contractor shall operate and maintain the newly constructed water supply facilities. Operations and maintenance will include:
1. pumping and transportation of surface water from intake well source and finally to all the WTPs and pumping from clear water reservoirs to the existing and newly laid distribution system;
 2. The residual chlorine level should be maintained as per CPHEEO norms.
 3. managing the water main to Service Reservoirs efficiently and minimizing non-revenue water (NRW);
 4. Supply of bulk potable water to all the Reservoirs at all inlets and outlets branch wise.
 5. Supply of potable water through Distribution network in DMAs.
- 264.** The Contractor shall regularly inspect the facilities for safety deficiencies. The Contractor shall ensure that the facilities are protected from trespassers, vandals or other parties which do not have the BMC's or Contractor's permission to enter onto the Facilities by providing security for the Facilities. Such security measures must be in place at all times, 24 hours a day, 7 days a week.
- 265.** The Contractor shall maintain all water supply facilities and develop comprehensive maintenance management programs for the facilities; perform day to day repairs to the wells, electro-mechanical equipment, three WTPs, pumping mains, Emergency intake works and Rising main from DPS school to existing WTP site which will be constructed under BWSP 01-04 transmission mains, including the repair of leaks, and carry out emergency repairs of large leaks on mains.
- 266.** The Contractor shall update the Operations and Maintenance Manuals on an ongoing basis to reflect any changes to the Facilities. The Contractor shall provide training to Management and Operations Staff on an on-going basis about the Operations and Maintenance Manuals.

REPORTING

- 267.** The Contractor shall prepare and submit for approval, plans and periodic reports on those plans, progress of Works and Services, performance standards etc., including exceptional

- reports on emergencies if any. The reporting requirements are provided in Table 2.8.1. The Contractor shall as part of the Construction Plan, the Operations and Maintenance Plan develop the required formats for the periodic reports and also identify any critical reporting requirements in order to enable timely decision making by the Employer.
- 268.** The Contractor shall prepare and submit for approval a Construction Plan with in 7 days from the commencement date, defining and scheduling all Works in Sections 1, 2 and 3. The Construction Plan shall be finalized and approved within 15 days from the Commencement Date. The Construction Plan shall include:
1. The results of the Design of all the components and its review and verification of the overall proposed water supply system and sub-water supply chains
 2. Proposed construction schedule;
 3. Cash flow requirements;
 4. Format for periodic construction reporting;
 5. First Year Detailed Construction Plan and Budget.
- 269.** The Contractor shall prepare and submit for approval an Operations and Maintenance Plan within one month from the commencement date, defining all operational services to be provided under the Contract. The Operations and Maintenance Plan shall be finalized and approved within 2 months from the Commencement Date. The Operations and Maintenance Plan shall include:
1. The results of water quality survey sampling
 2. Standard Operating Procedures for routine operations and emergency responses
 3. Format for periodic operation and maintenance reporting.
- 270.** With the APB the Contractor will supply all key data of the previous year on operational income and expenditures including kWh electricity consumption – electricity bill; use of chemicals for water treatment / disinfection, number of operational staff with job description segregated over the main O&M functions (pump operation, repair, preventive maintenance,
- 271.** Operation and Maintenance Manuals shall provide the details of the regular and periodic maintenance of Works, and shall ensure that at all times during the Operation Service Period, the Project Facilities are maintained in a manner that it complies with the Performance Standards. Such Operation and Maintenance Manuals shall include but not be limited to the following:
1. Intervals and procedures for the carrying out of inspection of all elements of the Section;
 2. Criteria to be adopted for deciding maintenance needs;
 3. Preventive maintenance schedule;
 4. Intervals at which the Contractor shall carry out periodic maintenance;
 5. Intervals for major maintenance and the scope thereof;
 6. Leakage management system;
- 272.** Quarterly Operating Performance Report (QOPR). The QOPR shall include a summary analysis of the quality of water supplied,

Table 2.8.1 Summary of Periodic Reporting Requirements

| Deliverable | First Report | Follow-up Tasks |
|--------------------|---------------------|------------------------|
|--------------------|---------------------|------------------------|

| Deliverable | First Report | Follow-up Tasks |
|---|---|--|
| Construction Plan | Submit preliminary draft of Construction Plan with the detailed time schedule as per GCC Clause 8.3 [Programme]. Submit Draft Construction Plan not later than 7 days from the Commencement Date. The Final Construction Plan should be approved not later than 15 days from the Commencement Date | To be strictly followed to achieve the target mentioned in the plan |
| Operations and Maintenance Plan | Submit Draft Operations and Maintenance Plan not later than one month from the Commencement Date. The Final Operations and Maintenance Plan should be approved not later than two months from the Commencement Date | To be updated annually |
| Quarterly Operational Performance Report (QOPR) | Submit Quarterly Performance Report for any and every quarter before 20 th day of subsequent quarter commencing from the Commencement Date | Repeat for every quarter including summary analysis of unpaid bills |
| Annual Operational Performance Report (AOPR) | Submit Annual Performance Report for any and every year before 20 th day of subsequent year | Repeat for every year |
| Operation and Maintenance Manuals | Submit Manual not later than one month from the Commencement Date | Complete implementation and training within 5 years from the Commencement Date |
| Resettlement Plan (RP) and IEE | Update RP and IEE upon change of any design details | To be further updated if any change in detailed designs. |

7.4 PERFORMANCE STANDARDS AND MEASURING FRAME WORK.

273. The contract distinguishes two sets of performance standards:

- Target performance standards are performance standards that the contractor shall aim to achieve in order to provide improved levels of water supply services.
- Minimum service levels are the performance standards the contractor is required to maintain at all times;

7.4.1 TARGET PERFORMANCE STANDARDS

274. The Contractor shall adhere to the following Target Performance Standards. The Target Performance Standards will determine the performance related payments. Compliance to the

specified performance standard is a pre-condition for receiving a performance related payment. Each performance related standard has a weightage representing the relative importance of that standard in qualifying for a performance related payment. A draft measuring framework is presented in table 7.1.

7.4.2 TARGET PERFORMANCE STANDARDS

275. The Contractor shall adhere to the following Target Performance Standards. The Target Performance Standards will determine the performance related payments. Compliance to the specified performance standard is a pre-condition for receiving a performance related payment. Each performance related standard has a weightage representing the relative importance of that standard in qualifying for a performance related payment. A draft measuring framework is presented in table 3.1 overleaf.

276. Section 8, Particular Conditions of Contract, Schedule 3, Contractor’s Payments defines three performance parameters in calculation of the Contractor’s eligibility for monthly payment for Operation Services:

- Sub-part 4: Pp&t is the evaluated monthly performance in O&M of production, treatment, transmission and storage;

The monthly performance indicators will be calculated as follows:

$$Pp\&t = 25\% \cdot P41 + 25\% \cdot P42 + 25\%P43+25\% P44$$

Where:

P41 = Parameter 4.1 Efficiency in water production: Fail = 0; Pass = 1

P4.2 = Parameter 4.2 Training of seconded BMC staff: Fail = 0; Pass = 1

P43 = Parameter 4.3 Good Quality Drinking Water: Fail = 0; Pass = 1

P44= Parameter 4.4 Efficiency in Water Treatment Fail =0; Pass = 1

277. The Contractor shall develop a robust methodology and framework for measurement and monitoring of Performance Standards stipulated under this clause. The Employer with the assistance of the Auditing Body shall verify the same and upon agreement between the Parties the agreed methodology shall form the basis for monitoring the performance of the Contractor.

Minimum Service Levels

278. The Contractor shall at all times meet the Minimum Service Levels as specified in Table 3.2:

279. Not meeting any of the Minimum Service Levels shall be considered as a failure as defined in the Special Conditions of Contract, Part B.2 Sub-Clause 1.9 [Failure to Achieve Minimum Service Levels]

Table 7.1 Target Performance Standards

| Sub-Part No. | Description | Details |
|--------------|--|--|
| 4 | Operation - Water Production, Transmission and Storage | |
| | Parameter 4.1 | Efficiency in water production – Measured water losses between Raw water pumping station to Inlet of Reservoir as a percentage of volume of water pumped from the Surface water source |
| | Target service level | Less than 6 % (Pass or Fail) |
| | Weightage | 25 % |
| | Measured by | Contractor: flow meters installed at Raw water pumping station, inlet and out let of WTPs and inlet of reservoirs |
| | Monitored by | Engineer |
| | Applicability | The parameter applies to all sub-water production and supply chains (Raw water pumping stations , Raw water mains, WTPs and transmission mains, of which the Works have been completed and commissioned. For calculation of the achieved service level, measured water losses of each completed sub-supply chain shall be summarized and divided by the sum of water pumped from the relevant intake wells. |
| | Allowable exclusions | -- |
| | Parameter 4.2 | Training of seconded BMC staff |
| | Target service level | Number of controlled performance tests of on-the-job-training and number of classroom training sessions conducted as per approved Training Plan (Pass or Fail): such as: Controlled performance tests – at least 10 tests performed each month and/or: Training courses conducted – at least 6 per year. |
| | Weightage | 25% |
| | Measured by | Contractor, in Monthly Operating Performance Report |
| | Monitored by | Employer and Auditing Body. |
| | Allowable exclusions | None |
| | Parameter 4.3 | Reliability – Good Quality Drinking Water. Samples complying with National Bacteriological Quality Standard |
| | Target service level | All samples shall comply (Pass or Fail) |

| Sub-Part No. | Description | Details |
|--------------|----------------------|--|
| | Weightage | 25 % |
| | Measured by | Contractor: Samples taken at Inlet of Reservoirs as per the agreed sampling protocol during the month under review. |
| | Monitored by | Engineer: An electronic registry maintained by the Contractor; the registry shall include detailed database and summary tables to be maintained as part of the water quality surveillance protocols agreed as part of the Operation and Maintenance Plan. The water quality testing database shall include: time and date, sample location, sample number, details of water quality tests conducted, details of remedial actions taken in case of water quality problem, time and date of resumption of service level. |
| | Allowable exclusions | None |
| | Parameter 4.4 | Reliability – Efficiency in Water Treatment -Good Quality Drinking Water. Samples complying with National Bacteriological Quality Standard |
| | Target service level | All samples shall comply (Pass or Fail) |
| | Weightage | 25 % |
| | Measured by | Contractor: Samples taken at Inlet of and outlet of WTPs as per the agreed sampling protocol during the month under review. |
| | Monitored by | Engineer: An electronic registry maintained by the Contractor; the registry shall include detailed database and summary tables to be maintained as part of the water quality surveillance protocols agreed as part of the Operation and Maintenance Plan. The water quality testing database shall include: time and date, sample location, sample number, details of water quality tests conducted, details of remedial actions taken in case of water quality problem, time and date of resumption of service level. |
| | Allowable exclusions | None |

8. Specifications

- 280.** The Contractor shall carry out the Works based on the Technical Specifications included in this section. The Technical Specifications are included in Volume 2 of the Bidding Document.
- 281.** The Technical Specifications are provided in 2 parts:
- Part 1 – Technical Specifications for Works
 - Part 2 – Technical Specifications for Operations
- 282.** If the specifications for a particular item are not given by the Employer, the Standard Specifications of Bihar Public Works Department (PWD) or Public Health Engineering Department (PHED) shall be followed.
- 283.** All the Materials incorporated in the Works shall be the most suitable for the duty concerned and shall be new and of first class commercial quality, free from imperfections and selected for long life and minimum maintenance. These may be tested according to relevant Indian Standards (IS) or International Standards Organization (ISO) standards in qualified labs and certificates produced to the satisfaction of the Employers Representative.
- 284.** The objectives of the specifications given are to specify the details pertaining to the designs, drawings, and selection of equipment or product. The equipment or product supplied shall be of high standard of quality and best engineering practices and shall comply with all currently applicable standards, regulations and codes.
- 285.** Except as otherwise specified in these technical specifications, the Indian/International Standards and codes of practice in their latest version shall be adhered to for the design, manufacturing, inspection, calibration, installation, field testing, packing, handling and transportation of products. Should any product be offered conforming to other standards, the equipment or products shall be equal to or superior to those specified and the documentary confirmation shall be submitted for the prior approval of the Employer.

6.3 Drawings

- 286. Employer's Drawings.** The List of drawings is provided as a guide line of the specifications and work in Part 4 of the Bidding Document. All data and information furnished in the drawings by the Employer is given in good faith, but the Employer does not guarantee their completeness and accuracy. The drawings shall be verified by the Contractor who should point out errors or discrepancies to the Employers Representative.
- 287. Contractor's Drawings.** All completion drawings provided by the Contractor shall be on standard size sheets, prepared on computer with Auto CAD or equivalent and shall show particulars in a title block located in the lower right hand corner, in addition to the name of the Contractor and equipment manufacturer, date, scale, drawing, revision number (RO for drawings submitted initially, R1, R2 etc., for drawings submitted subsequently). A blank space shall be provided for the Employers Representative's approval stamp and provision shall be made for details of revisions to be recorded. All drawings submitted by the supplier shall use the English language. All drawings shall be clearly and fully cross-referenced to the other drawings as relevant. The Contractor's attention is drawn to the Technical Specifications for more information on the drawing requirements.

1.4 Supplementary Information

Not applicable.

6.5 Personnel Requirements

288. The table below presents the Contractor's key personnel required, minimum numbers of staff required for each key position, educational and working experience requirements.

289. Copy of the daily attendants signed by the above personnel are to be submitted to the engineer and to PIU and PMU by 12 noon by mail for monitoring of the personnel engaged.

290. At any time, the works are not progressive due to absence of the required personnel or if they are not engaged as and when required, then the cost of such personnel shall be recovered from the contractor's bill and the cost of the each personnel shall be determined by the Engineer.

291. For any replacement of the personnel shall be made by the contractor only after getting prior consent from the Engineer. Using Form PER-1 and PER-2 in Section 4 [Bidding Forms], the Bidder must demonstrate it has key personnel that meet the specified requirements.

| SNo | Position | Minimum Number Required | Professional requirements | | |
|---|--|-------------------------|--|--------------------------|---|
| | | | Education level | Total Working Experience | Working Experience in similar assignments |
| General Management and Construction Staff | | | | | |
| 1 | Project Manager (Contractor’s Representative) | 1 | Graduate Engineer in Civil Engineering/Environmental Engineering with specific experience in implementation of water supply improvements in urban areas. | 10 years | 5 years |
| 2 | Planning and Material Engineer | 1 | Graduate Engineer | 7 years | 3 years |
| 3 | Quality Assurance Engineer | 1 | Graduate Engineer | 7 years | 3 years |
| 4,5,6 | Construction Supervisors | 6 | Graduate Engineers in civil/ electrical/ mechanical/ instrumentation engineering | 5 years | 2 years |
| 7 | Safeguard Officer | 1 | Graduate in social science/Environment | 5years | 2 years |
| Operational Staff | | | | | |
| 1 | Operational Manager | 1 | Graduate Engineer in Civil Engineering with experience in water distribution management system with 5 years on continuous water supply | 7 years | 3 years |
| 2 | Supervisor | 2 | Graduate in Civil Engineering | 10 years | 5 years |
| 3 | Chemist | 1 | Bachelor in Chemistry | 7 years | 3 years |
| 4 | Computer operator | 1 | Graduate in arts and Diploma in computer application | 3 years | 1 years |
| 5 | Lab attendant | 1 | 10 th pass | 2 years | 1 years |
| 6 | Electrician | 10 | ITI holder | 2 years | 1 years |
| 7 | Helper | 10 | 10 th pass | 2 years | 1 years |
| 8 | Fitter | 5 | ITI holder | 2 years | 1 years |
| 9 | Mechanic | 5 | ITI holder | 2 years | 1 years |
| 10 | Valve man | 5 | ITI holder | 2 years | 1 years |

The other operational staff such as field Engineers, electrician, fitters, staff cock, and watchman etc to be engaged by them for Operation and maintenance of the project shall be listed along with the working sheet of O& M Cost, while submitting the Bid document.

6.6 Equipment Requirements

292. Using Form EQU in Section 4 (Bidding Forms), the Bidder must demonstrate it has the key equipment listed below:

| S No | Equipment Type and Characteristics | Minimum Number Required |
|------|--|-------------------------|
| 1 | Excavator | 2 |
| 2 | Concrete batch mix plant | 2 |
| 3 | Transit mixers | 1 |
| 4 | Laboratory for testing fineness, consistency, setting time compressive & tensile strength of cement compressive & flexural strength of cement concrete and proof stress, elongation, tensile strength, bending & re-bending of reinforcement steel | 1 |
| 5 | Concrete mixer with hopper | 2 |
| 6 | Road roller (tandem/vibratory) | 1 |
| 7 | Needle/ plate vibrator | 2 |
| 8 | Tipper lorries | 1 |
| 9 | Total station survey equipment set | 1 |
| 10 | Bituminous hot mix plant | 1 |
| 11 | Road layer/ paver equipment | 1 |
| 12 | Hydraulic testing equipment for pipes- set | 1 |
| 13 | Water tanker (with sprinkling arrangements) | 1 |
| 14 | Crane or lifting winch of 2T capacity for lowering and un-lowering of pumpset | 1 |
| 15 | Air compressor of minimum 250psi and 600 cuft/min capacity | 1 |
| 16 | Dewatering pumps | 1 |

Equipment for Part 2 - Operations

| S No | Equipment Type and Characteristics | Minimum. Number Required |
|------|------------------------------------|--------------------------|
| 1 | Pipe locators | 1 |

| S No | Equipment Type and Characteristics | Minimum. Number Required |
|-------------|---|---|
| 2 | Air compressor and jack hammer | 1 |
| 3 | Pipe welding sets | 2 |
| 4 | Mobile generator | 1 |
| 5 | Dewatering pumps | 2 |
| 6 | Portable flow meter | 2 |

Section 7 – General Conditions of Contract

Section 7 - General Conditions of Contract

The Conditions of Contract consists of two parts, this Section 7 (General Conditions of Contract) and the following Section 8 (Particular Conditions of Contract).

The General Conditions shall be the *Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer*, Multilateral Development Bank Harmonized Edition, prepared by the Fédération Internationale des Ingénieurs-Conseil, or FIDIC (FIDICMDB Harmonized Construction Contract) available at [FIDICMDB June 2010](#). The FIDICMDB Harmonized Construction Contract is exclusive for the use of ADB Borrowers and their project implementing agencies as provided under the License Agreement dated 9 June 2005, between ADB and FIDIC, and, consequently, no part of this publication may be reproduced, translated, adapted, stored in a retrieval system or communicated, in any form or by any means, whether mechanical, electronic, magnetic, photocopying, recording or otherwise, without prior permission in writing from FIDIC, except by the Employer identified in the contract and only for the exclusive purpose of preparing bidding documents for ADB-financed contracts.

The standard text of the General Conditions chosen must be retained intact to facilitate its reading and interpretation by Bidders and its review by ADB. Any amendments and additions to the GCC, specific to the contract in hand, should be introduced in Section 8 (Particular Conditions of Contract), Part A (Contract Data) and Part B (Special Provisions). Clause numbers in the Particular Conditions of Contract (PCC) correspond to those in the General Conditions of Contract (GCC). As per GCC 1.5 (Priority of Documents), the PCC takes precedence over the GCC.

Part A (Contract Data) of the PCC includes data to complement the GCC in a manner similar to the way in which the Bid Data Sheet (BDS) complements the Instructions to Bidders (ITB).

Part B (Specific Provisions) is to be used to introduce country- or project-specific provisions, if so required. Whoever drafts the Specific Provisions should be thoroughly familiar with the provisions of the GCC and with any specific requirements of the Contract. Legal advice is recommended when amending provisions or drafting new ones.

The Conditions of Contract have been prepared for an ad measurement (unit price or unit rate) type of contract and cannot be used for other types of contract.

APPENDIX

General Conditions of Dispute Board Agreement

1. Definitions

Each “Dispute Board Agreement” is a tripartite agreement by and between:

- (a) the “Employer”;
- (b) the “Contractor”; and
- (c) the “Member” who is defined in the Dispute Board Agreement as being:
 - (i) the sole member of the "DB" (or “dispute board”) and, where this is the case, all references to the “Other Members” do not apply, or
 - (ii) one of the three persons who are jointly called the “DB” and, where this is the case, the other two persons are called the “Other Members.”

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2. General Provisions

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

- (a) the Commencement Date defined in the Contract,
- (b) when the Employer, the Contractor, and the Member have each signed the Dispute Board Agreement, or
- (c) when the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days’ notice of resignation to the Employer and to the Contractor, and the Dispute Board Agreement shall terminate upon the expiry of this period.

3. Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor, and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance, which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is

- (a) experienced in the work, which the Contractor is to carry out under the Contract;
- (b) experienced in the interpretation of contract documentation; and
- (c) fluent in the language for communications defined in the Contract.

4. General Obligations of the Member

The Member shall

- (a) have no interest, financial or otherwise, in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;
- (b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor, or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;
- (c) have disclosed in writing to the Employer, the Contractor, and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer, or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;
- (d) not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor, or the Engineer, except as may be agreed in writing by the Employer, the Contractor, and the Other Members (if any);
- (e) comply with the annexed procedural rules and with Subclause 20.4 of the Conditions of Contract;
- (f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;
- (g) not, while a Member, enter into discussions or make any agreement with the Employer, the Contractor, or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;
- (h) ensure his/her availability for all site visits and hearings as

are necessary;

- (i) become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received, which shall be maintained in a current working file;
- (j) treat the details of the Contract and all the DB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor, and the Other Members (if any); and
- (k) be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

**5. General
Obligations of
the Employer
and the
Contractor**

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the Dispute Board's activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member, and the Other Members (if any),

- (a) be appointed as an arbitrator in any arbitration under the Contract;
- (b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
- (c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the Dispute Board under Subclause 20.4 of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable

expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

- (a) a retainer fee per calendar month, which shall be considered as payment in full for
 - (i) being available on 28 days' notice for all site visits and hearings;
 - (ii) becoming and remaining conversant with all project developments and maintaining relevant files;
 - (iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and
 - (iv) all services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

- (b) a daily fee, which shall be considered as payment in full, for
 - (i) each day or part of a day up to a maximum of 2 days' travel time in each direction for the journey between the Member's home and the site, or another location of a meeting with the Other Members (if any);
 - (ii) each working day on Site visits, hearings, or preparing decisions; and
 - (iii) each day spent reading submissions in preparation for a hearing.
- (c) all reasonable expenses, including necessary travel expenses (air fare in less than first class, hotel and subsistence, and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent (5%) of the daily fee referred to in sub-paragraph (b) of this Clause;
- (d) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the

Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor, and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the Dispute Board; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Subclause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7. Termination

At any time, (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their

other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor, and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a)-(d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the Dispute Board which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the noncompliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the Dispute Board, which are rendered void or ineffective by the said failure to comply.

9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination, or invalidity thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

Procedural Rules

Unless otherwise agreed by the Employer and the Contractor, the Dispute Board shall visit the site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor, and the Dispute Board, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

The timing of and agenda for each site visit shall be as agreed jointly by the Dispute Board, the Employer, and the Contractor, or in the absence of agreement, shall be decided by the Dispute Board. The purpose of site visits is to enable the Dispute Board to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavor to prevent potential problems or claims from becoming disputes.

Site visits shall be attended by the Employer, the Contractor, and the Engineer and shall be coordinated by the Employer in cooperation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each site visit and before leaving the site, the Dispute Board shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

The Employer and the Contractor shall furnish to the Dispute Board one copy of all documents which the Dispute Board may request, including Contract documents, progress reports, variation instructions, certificates, and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the Dispute Board comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

If any dispute is referred to the Dispute Board in accordance with Subclause 20.4 of the Conditions of Contract, the Dispute Board shall proceed in accordance with Subclause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the Dispute Board shall

- (a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case; and
- (b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

The Dispute Board may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

Except as otherwise agreed in writing by the Employer and the Contractor, the Dispute Board shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than

representatives of the Employer, the Contractor, and the Engineer, and to proceed in the absence of any party who the Dispute Board is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

The Employer and the Contractor empower the Dispute Board, among other things, to

- (a) establish the procedure to be applied in deciding a dispute;
- (b) decide upon the Dispute Board's own jurisdiction, and as to the scope of any dispute referred to it;
- (c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Guidelines;
- (d) take the initiative in ascertaining the facts and matters required for a decision;
- (e) make use of its own specialist knowledge, if any;
- (f) decide upon the payment of financing charges in accordance with the Contract;
- (g) decide upon any provisional relief such as interim or conservatory measures; and
- (h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The Dispute Board shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the Dispute Board shall make and give its decision in accordance with Subclause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the Dispute Board comprises three persons:

- (a) it shall convene in private after a hearing, in order to have discussions and prepare its decision;
- (b) it shall endeavour to reach a unanimous decision: if this proves impossible, the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
- (c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless
 - (i) either the Employer or the Contractor does not agree that they do so, or
 - (ii) the absent Member is the chairman and he/she instructs the other Members to not make a decision.

Section 8 – Particular Conditions of Contract

Section 8 - Particular Conditions of Contract

The following Particular Conditions of Contract (PCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Part A – Contract Data

| Ref. GCC | Subject | Data |
|-----------------|------------------------------------|--|
| 1.1.2.2 and 1.3 | Employer's name and address | <p>The Employer is: State of Bihar, acting through its Urban Development and Housing Department (UDHD), in turn acting through the Bihar Urban Infrastructure Development Corporation Limited (BUIDCo).</p> <p>Designation: Managing Director</p> <p>Organization: Bihar Urban Infrastructure Development Corporation Limited (BUIDCo)</p> <p>Street address: West Boring canal Road, Rajoul</p> <p>Floor/Room number: Ground Floor</p> <p>City: Patna, Bihar</p> <p>ZIP code: 800001</p> <p>Country: India</p> <p>Telephone: +91 612 2506109</p> <p>Fax: +91 612 2210103</p> <p>E-mail: md.buidco@gmail.com</p> |
| 1.1.2.4 and 1.3 | Engineer's name and address | <p>The National Team Leader or Deputy Construction Manager,</p> <p>Design and Supervision Consultants (DSC), Bihar Urban Development Investment Program (BUDIP), C/O Bihar Urban Infrastructure Development Corporation Limited (BUIDCo),</p> <p>#101, Pushpanjali Complex, Opp to check post, Boring Road, Patna – 800001, Bihar, India</p> |
| 1.1.2.11 | Bank's name | Asian Development Bank (ADB) |
| 1.1.2.12 | Borrower's name | INDIA |

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| Ref. GCC | Subject | Data |
|----------|--|--|
| 1.1.3.3 | Time for completion | <p>Time for Completion of all Works and Services under the Contract, calculated from the Commencement Date, is 66 months, with Time for Completion of different parts/sections as follows:</p> <p>Part 1: Works – 06 months</p> <ul style="list-style-type: none"> <input type="checkbox"/> Section 1 – 5 months <input type="checkbox"/> Section 2 – 5 months <input type="checkbox"/> Section 3 – 5 months <input type="checkbox"/> Section 4 – 1 months <p>Part 2: Operations – 60 months</p> <ul style="list-style-type: none"> <input type="checkbox"/> Section 5- 60 months <input type="checkbox"/> Section 6 – 60 months <input type="checkbox"/> Section 7 - 60 months |
| 1.1.3.7 | Defects notification period | 365 days. |
| 1.1.5.6 | Sections | <p>Section means the part of Works stipulated in the Employer's Requirement as follows:</p> <p>Section 1: Creation of Surface water source for emergency</p> <p>Section 2: Completion of Civil works of refurbishment of three WTPs.</p> <p>Section 3: Completion of Electrical and Mechanical Equipment and instrumentation equipment for three WTPs.</p> <p>Section 4: Trial Run and commissioning.</p> <p>Section 5: Operation of Emergency intake works and conveyance of water up to the WTP</p> <p>Section 6: Operation of the existing renovated Three WTPS and conveyance of treated water to Reservoirs.</p> <p>Section 7: Training.</p> |
| 1.3 | Electronic transmission systems | By facsimile or electronic mail along with hard copies |
| 1.4 | Governing law | <p>Laws of Republic of India and State of Bihar.</p> <p>In case of conflict, the Laws of India shall prevail</p> |
| 1.4 | Ruling language | English |

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| Ref. GCC | Subject | Data |
|------------|--|--|
| 1.4 | Language for communications | English |
| 2.1 | Time for access to the site | 14 days after Commencement Date |
| 3.1(B)(ii) | Engineer's duties and authority | Engineer shall instruct the contractor for execution as variation up to 2% excess of the contract value. However, the Employer shall approve the Variation proposal. |
| 4.2 | Performance security | <p>The performance security will be in the form of an unconditional bank guarantee in the amount(s) of ten percent (10%) of the Contract Amount, denominated in the types and proportions of the currencies in which the Contract Price is payable, or in a freely convertible currency acceptable to the Employer. If the Bank issuing the Performance Security is located outside India, it shall have a correspondent Financial Institution located in the territory of India including banks in Patna/ Bhagalpur, Bihar to make it enforceable.</p> <p>The Employer shall reduce Performance Security to 5% of the Contract Price on completion of Part 1 of the Contract.</p> |
| 6.5 | Normal working hours | <p>Normal working hours in construction shall be from 09:00 Hours to 18:00 Hours.</p> <p>Operations will be on continuous basis with shift duties of staff</p> |
| 6.25 | Respectful Work Environment | <p>The following sentence shall apply:</p> <p>The Contractor shall ensure that its employees and Subcontractors observe the highest ethical standards and refrain from any form of bullying, discrimination, misconduct and harassment, including sexual harassment and shall, at all times, behave in a manner that creates an environment free of unethical behavior, bullying, misconduct and harassment, including sexual harassment. The Contractor shall take appropriate action against any employees or Subcontractors, including suspension or termination of employment or subcontract, if any form of unethical or inappropriate behavior is identified.</p> <p>The Contractor shall conduct training programs for its employees and Subcontractors to raise awareness on and prevent any form of bullying, discrimination, misconduct and harassment</p> |

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| Ref. GCC | Subject | Data |
|------------------|--|---|
| | | including sexual harassment, and to promote a respectful work environment. The Contractor shall keep an up-to-date record of its employees and Subcontractors who have attended and completed such training programs and provide such records to the Employer or the Engineer at their first written request. |
| 8.7 and 14.15(b) | Delay damages for the Works | 0.05% of the Contract Price pertaining to each Section under Part 1 (<i>Designs</i>) and Part 2 (<i>Works</i>) per day, in the currencies and proportions in which the Contract Price is payable. |
| 8.7 | Maximum amount of delay damages | 10% of the Contract Price. |
| 13.5(b)(ii) | Provisional Sums | 5% |
| 13.8 | Adjustments for Changes in Cost | Not Applicable |

| Ref. GCC | Subject | Data |
|----------|---------------------------|---|
| 14.1 | The Contract Price | <p><i>Add sub clause (e) as under:-</i></p> <p><i>(e)“The Employer will issue essentiality certificate (EC) to obtain any lawful exemptions from payment of Goods and Services Tax (GST) notified under Central Goods and Services Tax (CGST) Rules, 2017 (amended up-to-date), if available through any Government Notification, which are to be incorporated as a part of the Permanent Works. The Certificate will be issued certifying the estimated quantities of materials that are to be incorporated into the permanent works.</i></p> <p><i>The contractor will ensure that the total quantity of material for which the essentiality certificate has been issued is procured within the validity period of the EC as no new EC in lieu of the any expired EC will be issued.</i></p> <p><i>The responsibility for obtaining any such exemptions from the Competent Authority will remain with the Contractor and the Employer shall not in any way be responsible for admissibility of the claims or eligibility of the Contractor.</i></p> <p><i>The exemption if any availed by the contractor shall be passed on to the employer”</i></p> <p><i>The following sentence under Clause 14.1 shall <u>not</u> apply:</i></p> <p><i>“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.”</i></p> |

| Ref. GCC | Subject | Data |
|-------------------------|---|---|
| 14.2 | Total advance payment | <p>10% of the Accepted Contract Amount for Part 1 (<i>Works</i>) payable in two installments in the currencies and proportions in which the Accepted Contract Amount is payable.</p> <p>The first installment of 5% will be released immediately after signing the Contract.</p> <p>The second installment of 5% will be released on demand by the contractor upon the approval of the Construction Plan and submission of utilization certificate for first installment certified by the Engineer.</p> <p>The bank guarantee shall be issued by a reputable bank located in the Employer's country, which may include scheduled banks or nationalized banks, or by a foreign reputable bank outside the Employer's country, through a correspondent bank located in the Employer's country, which may include banks in Patna/Bhagalpur, to make it enforceable.</p> <p>The advance payment received by the contractor is to be deposited in a separate dedicated project bank account to be opened at Bhagalpur.</p> |
| 14.2(b) | Repayment amortization of advance payment | 12.50% |
| 14.3 | | The payment received by the contractor is to be deposited in a separate dedicated project bank account to be opened at Bhagalpur. |
| 14.3(c) | Percentage of retention | <p>Percentage of retention for Part 1 (<i>Works</i>): 5% of the Accepted Contract Amount of Part 1; and</p> <p>Percentage of retention for Part 2 (<i>Operations</i>): 5% of the Accepted Contract Amount of Part 2, as specified in PCC Part B2 Clause 3.4 (<i>Maintenance Retention Fund</i>).</p> <p>On written request of the contractor, the retention deducted from running bill can be replaced wholly or partially by Bank Guarantee valid upto 28 days or more beyond the defect notification period.</p> |
| 14.3(c) | Limit of Retention Money | 5% of the Accepted Contract Amount for each part to be applied separately. |
| 14.5(b)(i) & 14.5(c)(i) | Plant and Materials | Not applicable; No payment against shipping will be made to the contractor. |
| 14.6 | Minimum Amount of Interim Payment Certificates | Minimum amount for Payment is not Applicable. However invoice will be raised on monthly basis. |

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| Ref. GCC | Subject | Data |
|----------|---|--|
| 15.2 | Termination by Employer | <p>This sentence will apply as Subclause 15.2(g):</p> <p>(g) the Engineer gives two consecutive Notices to update the Program and accelerate the works to ensure compliance with Subclause 8.2 (Time for Completion) and the Contractor fails to update the Program and demonstrate acceleration of the works within a reasonable period of time determined by the Engineer;</p> |
| 15.6 | Corrupt and Fraudulent Practices | <p>The following sentence shall apply:</p> <p><i>[For contracts financed by the Asian Development Bank]</i></p> <p>For the purposes of this Sub clause:</p> <p>ADB's Anticorruption Policy (1998, as amended to date) requires Borrowers (including beneficiaries of ADB-financed activity), as well as Contractors, Subcontractors, manufacturers, and Consultants under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, ADB</p> <p>(a) defines, for the purposes of this provision, the terms set forth below as follows:</p> <ul style="list-style-type: none"> (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party; (ii) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; (iii) "coercive practice" means 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; (iv) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party; (v) "abuse" means theft, waste, or improper use of assets related to ADB-related activity, either committed intentionally or through reckless disregard; (vi) "conflict of interest" means any situation in which a party has interests that could improperly influence that party's performance of official duties or |

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|----------|---------|---|
| | | <p>responsibilities, contractual obligations, or compliance with applicable laws and regulations;</p> <p>(vii) "obstructive practice" means (a) deliberately destroying, falsifying, altering, or concealing of evidence material to an ADB investigation, or deliberately making false statements to investigators, with the intent to impede an ADB investigation; (b) threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to a Bank investigation or from pursuing the investigation; or (c) deliberate acts intended to impede the exercise of ADB's contractual rights of audit or inspection or access to information; and</p> <p>(viii) "integrity violation" is any act, as defined under ADB's Integrity Principles and Guidelines (2015, as amended from time to time), which violates ADB's Anticorruption Policy, including (i) to (vii) above and the following: violations of ADB sanctions, retaliation against whistleblowers or witnesses, and other violations of ADB's Anticorruption Policy, including failure to adhere to the highest ethical standard.</p> <p>(b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract;</p> <p>(c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the borrower or of a beneficiary of ADB-financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation; and</p> <p>(d) will impose remedial actions on a firm or an individual, at any time, in accordance with ADB's Anticorruption Policy and Integrity Principles and Guidelines, including</p> |

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|----------|---------|--|
| | | <p>declaring ineligible, either indefinitely or for a stated period of time, to participate³ in ADB-financed, -administered, or -supported activities or to benefit from an ADB-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations.</p> <p>All Bidders, consultants, contractors, suppliers and other third parties engaged or involved in ADB-related activities have a duty to cooperate fully in any screening or investigation when requested by ADB to do so. Such cooperation includes, but is not limited to, the following:</p> <ul style="list-style-type: none"> (a) being available to be interviewed and replying fully and truthfully to all questions asked; (b) providing ADB with any items requested that are within the party's control including, but not limited to, documents and other physical objects; (c) upon written request by ADB, authorizing other related entities to release directly to ADB such information that is specifically and materially related, directly or indirectly, to the said entities or issues which are the subject of the investigation; (d) cooperating with all reasonable requests to search or physically inspect their person and/or work areas, including files, electronic databases, and personal property used on ADB activities, or that utilizes ADB's Information and Communications Technology (ICT) resources or systems (including mobile phones, personal electronic devices, and electronic storage devices such as external disk drives); (e) cooperating in any testing requested by ADB, including but not limited to, fingerprint identification, handwriting analysis, and physical examination and analysis; and (f) preserving and protecting confidentiality of all information discussed with, and as required by, ADB. <p>All Bidders, consultants, contractors and suppliers shall ensure that, in its contract with its sub-consultants, Subcontractors, and other third</p> |

³ Whether as a Contractor, Subcontractor, Consultant, Manufacturer or Supplier, or Service Provider; or in any other capacity (different names are used depending on the particular Bidding Document).

| Ref. GCC | Subject | Data |
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| | | parties engaged or involved in ADB-related activities, such sub-consultants, Subcontractors, and other third parties similarly undertake the foregoing duty to cooperate fully in any screening or investigation when requested by ADB to do so. |
| 17.6 | Maximum total liability of the Contractor to the Employer | The product of 1.10 times the Accepted Contract Amount. |
| 18.1 | Periods for submission of insurance: (a) evidence of insurance. (b) relevant policies | 14 days 28 days |
| 18.2(d) | Maximum amount of deductibles for insurance of the Employer's risks | None |
| 18.3 | Minimum amount of third party insurance | INR 5.00 million with no limit on the number of occurrence |
| 20.2 | Date by which the Dispute Board shall be appointed | 28 days after the Commencement |
| 20.2 | The Dispute Board shall be comprised of | Three Members |
| 20.2 | List of potential Dispute Board sole members | None |
| 20.3 | Appointment (if not agreed) to be made by | President, Institution of Engineers (India), India |
| 20.6 (a) | International arbitration shall be administered by | International arbitration shall be - administered by: Singapore International Arbitration Centre (SIAC) shall be the institution to administer the arbitration; and - conducted in accordance with the rules of SIAC |
| 20.6 | Place of Arbitration | For national firms: New Delhi or Patna , India For international firms: Singapore |

Summary of Sections of the Works

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| Section Name/Description (Subclause 1.1.5.6) | Time for Completion (Subclause 1.1.3.3) | Damages for Delay (Subclause 8.7) |
|--|--|--|
| Section 1: Creation of Surface water source for emergency | 05 month | 0.05% of the Contract Price pertaining to each Section under Part 1 (<i>Designs</i>) and Part 2 (<i>Works</i>) per day, in the currencies and proportions in which the Contract Price is payable. |
| Section 2: Completion of Civil works of refurbishment of three WTPs. | 05 months | |
| Section 3: Completion of Electrical and Mechanical Equipment and instrumentation equipment for three WTPs. | 05 months | |
| Section 4: Trial Run and commissioning | 1 months | |
| Section 5: Operation of Emergency intake works and conveyance of water up to the WTP | 60 months | |
| Section 6: Operation of the existing renovated Three WTPS and conveyance of treated water to Reservoirs. | 60 months | |
| Section 7: Training. | 60 months | |

Part B – Specific Provisions

Part B1 – Specific Provisions (Works)

The Particular Conditions of Contract (PCC) Part B1 - Specific Provisions (Works), is to amend or for additions to the General Conditions of Contract (GCC-Section 7). This Part B1 contains specific provisions of the GCC in general and specific to the Works component of the Contract.

Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

| | |
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| 1. | General Provisions |
| 1.1 Definitions | |
| 1.1.3.2.1 Contract Completion Date | <i>Add the following definition:</i> “The Contract Completion Date is the date after 66 months from the Commencement Date stated in the Contract.” |
| 1.1.4.4 Final Payment Certificate | The Final Payment Certificate as defined in this GCC Sub-Clause 1.1.4.4 shall be meant for the Works part of the Contract only and shall be read as Final Payment Certificate - Works . |
| 1.1.4.5 Final Statement | The Final Statement as defined in this GCC Sub-Clause 1.1.4.5 shall be meant for the Works part of the Contract only and shall be read as Final Statement-Works . |
| | |
| 1.5 Priority of Documents | <i>Replace the Sub-Clause 1.5 as under:-</i> The Documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority if the documents shall be in accordance with the following sequence: (a) the Contract Agreement (if any); (b) the Letter of Acceptance; (c) the Letter of Tender which includes the Price Bid; (d) the Particular Conditions Part A – Contract Data; (e) the Particular Conditions Part B 1– Specific Provisions (for Construction) (f) the Particular Conditions Part B 2– Specific Provisions (for Operations) (g) the General Conditions; (h) the Employer’s Requirements (i) The Specifications; (j) the Drawings; (k) the Initial Environmental Examination and Environmental Management Plan; (l) the Resettlement Plan; and (m) the Schedules. If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction. |
| 1.6 Contract Agreement | <i>Replace the phrase “The Contract Agreement shall be based upon the form annexed to the Particular Conditions” by the following;</i> “The Contract Agreement shall be based upon the form as given in Section 9, Contract Forms” <i>Add the following at the end of paragraph:</i> |

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|--|--|
| | <p>"The submission of acceptable Performance Security pursuant to Sub- Clause 4.2 [Performance Security] is inter-alia, a prerequisite for entering in to the Contract Agreement."</p> <p>For JV bidder, forming company and registering under Companies Act, 2013, is prerequisite for entering into the Contract Agreement.</p> <p>JV bidder will form a company under the provisions of the Companies Act, 2013.</p> <p>The Memorandum and Articles of Association of the company should incorporate following provisions in its Articles:</p> <ul style="list-style-type: none"> (i) JV Partner's share holding ratio in Company will be broadly the same as indicated in JV agreement while submitting bid. (ii) No change/sale/dilution in shareholding ratio of JV partner in company will be allowed during Contract execution period. (iii) Directors on the Board of Company will be broadly in the same proportion as that of shareholding of JV partners. (iv) No changes in the Memorandum and Article of Association, as to the above issues, can be made without prior written consent of the Employer. |
| 1.14 Compliance with Laws | <p><i>Add sub clause (c), (d) and (e) as follows:</i></p> <p>(c) Preparing applications in accordance to standard procedures for obtaining all statutory clearances and approvals required from Government of Bihar and/or Government of India, including all environmental clearances, permission from highway and railway authorities, inland waterway authorities, forest authorities and any other such authorities as may be required.</p> <p>(d) Employer shall by or before the Commencement Date, grant, or arrange for the benefit of the Contractor, the rights and authority to repair or replace the facilities, to lay pipes, construct civil structures, install equipment and machinery on its behalf and to carry out necessary excavations to carry out its obligations under this Contract.</p> <p>(e) Employer shall procure, obtain and maintain all consents to enable the Contractor to perform its duties and its obligations under the Contract for the duration of the Contract. Employer shall deal directly with the departments of the government or statutory authorities on behalf of the Contractor on all matters that require consultation and discussion with such department and shall ensure that the Contractor is able reasonably to perform its duties under the Contract. The Contractor will provide all reasonable assistance in procuring consents.</p> |
| 2.1 Right of Access to the Site | <p><i>Add at the end of Sub-Clause as follows:</i></p> <p>Employer shall provide to the Contractor and Contractor's Personnel, at no cost to the Contractor, free, continuous and exclusive access to, possession and right to use of, and rights over, the land, installations, and Works and Site, sufficient to enable the Contractor to carry out its obligations under this Contract on or before the Commencement Date until the Contract Completion Date.</p> <p>Employer will get all the utilities shifted through line department to whom these utilities belong using provisional sum. Employer will get the costs estimate from line department and Contractor will be asked to make direct payments to the relevant line agencies and Employer will reimburse such amounts to the Contractor in next claim invoice. Contractor will assist in identifying such utilities.</p> |
| 3. | The Engineer |

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|--|--|
| 3.6 Management meetings | <p><i>Insert this Sub-Clause at the end of Clause 3:</i></p> <p>The Engineer or the Contractor's Representative may require the other to attend a management meeting in order to review the progress with reference to the agreed program and arrangements for future work. The Engineer shall record the business of management meetings and supply copies of the record to those attending the meeting and to the Employer. In the record, responsibilities for any actions to be taken shall be in accordance with the Contract.</p> |
| 4. | The Contractor |
| 4.3 Contractor's Representative | If the Contractor's Representative is not fluent in the English and other local languages, the Contractor shall make a competent interpreter available during all working hours. |
| 4.7: Setting Out | <p><i>Add the following at the end of GCC Sub-Clause 4.7:</i></p> <p>The Contractor shall comply with (i) the measures and requirements set forth in the Resettlement Plan (RP) attached hereto as Annex 2 of Section 6 [<i>Employer's Requirements</i>] to the extent it concerns impacts on affected people during construction; and (ii) any corrective or preventive actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the RP.</p> <p>Except for the cost of compensation entitlements of affected persons, the Contractor shall allocate a budget for compliance with these measures, requirements and actions.</p> |
| 4.12: Unforeseeable Physical Conditions | <p><i>Please add the following at the end of GCC Sub-Clause 4.12:</i></p> <p>In addition to notice of any unforeseeable physical conditions, the Contractor shall provide the Engineer with a written notice of any unanticipated environmental or resettlement risks or impacts that arise during construction, implementation or operation of the Works, which were not considered in the Initial Environmental Examination (IEE), the Environmental Management Plan (EMP) or the Resettlement Plan (RP) attached hereto as Annex 1 and Annex 2 of Section 6 [<i>Employer's Requirements</i>].</p> |
| 4.16: Transport of Goods | <p><i>Please add the following at the end of GCC Sub-Clause 4.16:</i></p> <p>The Contractor shall adequately record the condition of roads, agricultural land and other infrastructure prior to the start of transporting materials, goods and equipment, and construction.</p> |
| 4.18: Protection of the Environment | <p><i>Insert the following at the end of Sub-Clause 4.18:</i></p> <p>The Contractor shall comply with all applicable national, provincial, and local environmental laws and regulations.</p> <p>The Contractor shall</p> <ul style="list-style-type: none"> (a) establish an operational system for managing environmental impacts, (b) carry out all of the monitoring and mitigation measures set forth in the IEE and the EMP attached hereto as Annex 1 and Annex 2 of Section 6 [<i>Employer's Requirements</i>], and (c) allocate the budget required to ensure that such measures are carried out. The Contractor shall submit quarterly reports on the carrying out of such measures to the Employer. <p>More particularly, the Contractor shall comply with (i) the measures and requirements set forth in the IEE and the EMP; and (ii) any corrective or</p> |

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| | <p>preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the IEE and the EMP.</p> <p>The Contractor shall allocate a budget for compliance with these measures, requirements and actions.</p> |
| 4.21: Progress reports | <p><i>Insert the following at the end of Sub-Clause 4.21 of the GCC</i></p> <p>monitoring of the obligations in Sub-Clauses 4.7, 4.18, 6.4, 6.7, 6.20 and 6.21.</p> |
| 4.23 Contractor's Operations on Site | <p><i>Insert following at end the end of the last para:</i></p> <p>The Contractor shall not place or create or permit any Subcontractor or other person claiming through or under the Contractor to create or place any encumbrance or security interest over all or any part of Project or Site or the Project Facilities, or on any rights of the Contractor therein or under this Contract, save and except as expressly set forth in this Contract.</p> <p>The Contractor shall not undertake or permit any form of commercial advertising, display or hoarding at any place on the Site.</p> <p>The Contractor shall be responsible for the co-ordination and proper execution of the Works, including co-ordination with other contractors and organizations to the extent specified in the Employer's Requirements.</p> |
| 6. | Staff and Labour |
| 6.4 Labour Laws | <p><i>Insert the following at the end of the Sub-Clause:</i></p> <p>The Contractor shall not make employment decisions based upon personal characteristics unrelated to job requirements. The Contractor shall base the employment relationship upon equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment or retirement, and discipline.</p> <p>The Contractor shall provide equal wage and benefits to men and women for work of equal value or type. The Contractor shall not employ forced labour, which consists of any work or services, 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.</p> |
| 6.7 Health and Safety | <p><i>Insert the following at the end of the Sub-Clause:</i></p> <p>The Contractor shall conduct health and safety programs for workers employed under the project, and shall include information on the risk of sexually transmitted diseases, including HIV/AIDS in such a program.</p> |
| 6.21 Prohibition of Harmful Child Labour | <p><i>Replace it with following para in Sub-Clause 6.21:</i></p> <p>The Contractor shall not employ any child to perform any work, including work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or shall be harmful to the child's health or physical, mental, spiritual, moral or social development. "Child" means a child below the statutory minimum age specified under applicable national, provincial or local law of India.</p> |

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| 6.25 Resettlement | <p><i>Add Sub-Clause 6.25 as under:</i></p> <p>The Contractor shall comply with (i) the measures and requirements set forth in the updated and approved Resettlement Plan (RP), to the extent it concerns impacts on affected people during construction; and (ii) any corrective or preventive actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the RP.</p> <p>The Contractor shall allocate a budget for compliance with these measures, requirements and actions.</p> |
| 10 | Employer's Taking Over |
| 10.1 Taking Over of the Works and Sections | <p><i>Insert the following at the beginning of GCC Sub-Clause 10.1:</i></p> <p>The Taking-Over Certificate as mentioned in this entire Clause 10 [<i>Employer's Taking Over</i>] shall mean a provisional taking-over of the Works by the Employer.</p> <ul style="list-style-type: none"> a) The Contractor shall remain responsible for operation and maintenance of the Works, as part of his responsibility of operations of all Facilities of the water supply system, till the Contract Completion Date. b) Final taking-over of the Works by the Employer shall be at the Contract Completion Date as defined in PCC Part B2, Sub-Clause 1.7 [<i>Completion of Operations</i>] and subject to the issue of an Operation Completion Certificate as defined in PCC Part B2, Sub-Clause 1.6 [<i>Operation Completion Certificate</i>]. |
| 11 | Defects Liability |
| 11.2: Cost of Remedying Defects | <p>Add the following to GCC Sub-Clause 11.2:</p> <p>In case the Contractor fails to execute any outstanding works or defects, for which the Contractor is responsible, within the time specified in the Engineer's instruction or notice, the Employer may have the defect corrected by a third party and recover the cost paid for the same plus 5% for supervision charges from any amount due to the Contractor.</p> |
| 11.9 Performance Certificate | <p><i>Replace the first paragraph with the following text (changes in bold):</i></p> <p>Performance of the Contractor's obligations under the Works part of the contract shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract Part 1 - Works. The Performance Certificate shall not apply to the Part 2 - Operations.</p> |
| 12. Measurement and Evaluation | |
| 12.3 Evaluation | <p>In item "(a)":</p> <ul style="list-style-type: none"> • substitute "0.25%" in "(ii)" with "2%"; and • Delete "(iii)". |
| 13. Variations and Adjustments | |
| 13.8 Adjustment for changes in Cost | Not Applicable. |

| 14. Contract Price and Payment | |
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| 14.1 The Contract Price | <p><i>Add sub clause (e) as under:-</i></p> <p><i>(e)“The Employer will issue essentiality certificate (EC) to obtain any lawful exemptions from payment of Goods and Services Tax (GST) notified under Central Goods and Services Tax (CGST) Rules, 2017 (amended up-to-date), if available through any Government Notification, which are to be incorporated as a part of the Permanent Works. The Certificate will be issued certifying the estimated quantities of materials that are to be incorporated into the permanent works.</i></p> <p><i>The contractor will ensure that the total quantity of material for which the essentiality certificate has been issued is procured within the validity period of the EC as no new EC in lieu of the any expired EC will be issued.</i></p> <p><i>The responsibility for obtaining any such exemptions from the Competent Authority will remain with the Contractor and the Employer shall not in any way be responsible for admissibility of the claims or eligibility of the Contractor.</i></p> <p><i>The exemption if any availed by the contractor shall be passed on to the employer”</i></p> <p><i>The following sentence under Clause 14.1 shall <u>not</u> apply:</i></p> <p><i>“Notwithstanding the provisions of sub-paragraph (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.”</i></p> |
| 14.3 Application for Interim Payment Certificates | <p><i>Replace paragraph (a) with the following:</i></p> <p><i>(a) The estimated contract value of the Works executed, the Contractor’s Documents produced, and Operations provided up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below;</i></p> <p><i>Add, after subparagraph (c), the following subparagraph (cc)</i></p> <p><i>(cc) An amount withheld on the estimated value of Works executed in DMAs by applying the percentage of withholding stated in the Contract Data to the value of DMA Works excluding service connections;</i></p> |
| 14.9 Payment of Retention Money | <p><i>Fifth paragraph:</i></p> <p><i>Substitution by a guarantee for the second half of the Retention Money is not allowed.</i></p> |
| 14.11 Application for Final Payment Certificate | <p><i>Insert the following at the beginning of GCC Sub-Clause 14.11:</i></p> <p><i>This Sub-Clause applies to application for final payment for the Works part of the Contract. Application for final payment for Operations is arranged in SCC Part B2, Sub-Clause 3.1 [Application for Final Payment Certificate Operations].</i></p> |
| 14.12 Discharge | <p><i>Insert the following at the beginning of GCC Sub-Clause 14.12:</i></p> <p><i>The discharge referred in this Sub-Clause applies to the Works part of the Contract. Discharge for Operations is arranged in SCC Part B2, Sub-Clause 3.2 [Discharge of Operations].</i></p> |
| 14.13 Issue of Final Payment Certificate | <p><i>Insert the following at the beginning of GCC Sub-Clause 14.13:</i></p> <p><i>This Sub-Clause applies to issue of a final payment certificate for the part 1 - Works of the Contract. The issue of a final payment certificate for Operations is arranged in SCC Part B2, Sub-Clause 3.3 [Issue of Final Payment Certificate</i></p> |

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| | <i>Operations</i>]. |
| 15 | Termination by Employer |
| 15.6 Corrupt and Fraudulent Practices | <p><i>Replace the entire text by:</i></p> <p>ADB's Anticorruption Policy requires that Borrowers (including beneficiaries of ADB-financed activity), as well as Contractors, Subcontractors, manufacturers, and Consultants under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, ADB:</p> <p>(e) defines, for the purposes of this provision, the terms set forth below as follows:</p> <ul style="list-style-type: none"> (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party; (ii) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation; (iii) "coercive practice" means 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; (iv) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party; (v) "integrity violation" means any act, as defined under ADB's Integrity Principles and Guidelines, which violates ADB's Anticorruption Policy including corrupt, fraudulent, coercive, or collusive practice, abuse, and obstructive practice; (vi) "obstructive practice" means (a) deliberately destroying, falsifying, altering or concealing of evidence material to an ADB investigation; (b) making false statements to investigators in order to materially impede an ADB investigation; (c) failing to comply with requests to provide information, documents or records in connection with an OAI investigation; (d) 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 (e) materially impeding ADB's contractual rights of audit or access to information. <p>(f) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract;</p> <p>(g) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the borrower or of a beneficiary of ADB-financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation; and</p> <p>(h) will sanction impose remedial actions on a firm or an individual, at any time, in accordance with ADB's Anticorruption Policy and Integrity Principles and Guidelines (both as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to</p> |

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| | participate in ADB-financed, or administered or supported activities or to benefit from an ADB-financed, administered or supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations. |
| 18 | Insurance |
| 18.3 Insurance against injury to Persons and Damage to Property. | <p><i>Add at the end of the first sentence:</i></p> <p>or occurring before the issuance of Performance Certificate" is for the Works and "before the issuance of Operations Completion Certificate" applies to Operations as defined in this Section 8, Part B2 (Operations) Sub-clause 1.6 [<i>Operations Completion Certificate</i>].</p> |
| 18.4 Insurance of Contractor's Personnel | <p><i>Replace the last paragraph as follows:</i></p> <p>The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works and during the Operations Period. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.</p> |

Part B2 – Specific Provisions (Operations)

The Particular Conditions of Contract (PCC) Part B2 - Specific Provisions (Operations), is to amend or for additions to the General Conditions of Contract (GCC-Section 7). This Part B2 contains provisions of the GCC specific to the Operations component of the Contract.

The Clause numbers in this PCC Part B2 do not refer to the Clause numbers in the GCC.

Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

| 1 | Operations |
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| 1.1.Definitions | The following definitions apply specifically to this PCC Part B2. |
| 1.1.1 | “Auditing Body” means the body appointed by the Employer to conduct the Compliance Audit in accordance with PCC Part B2, Sub-Clause 2.1 [<i>Auditing Body</i>]. |
| 1.1.2 | “Final Payment Certificate – Operations” means the payment certificate issued under PCC Part B2 Sub-Clause 3.3 [<i>Issue of Final Payment Certificate – Operations</i>]. |
| 1.1.3 | “Final Statement – Operations” means the statement defined in PCC Part B2, Sub-Clause 3.1 [<i>Application for Final Payment Certificate – Operations</i>]. |
| 1.1.4 | “Operations” means the Operation and Maintenance Services and Training the Contractor shall provide as per Employer’s Requirements. |
| 1.1.5 | “Operations and Maintenance Plan” means the plan the contractor shall prepare and follow for the operations and maintenance of assets created under the project and the existing assets intended to be operated and maintained as per the Employer’s Requirements. |
| 1.1.6 | “Operations Completion Certificate” means the certificate issued under PCC Part B2, Sub-Clause 1.6 [<i>Operation Completion Certificate</i>]. |
| 1.1.7 | “Operations Commencement Date” means the date defined in PCC Part B2, Sub-Clause 1.3 [<i>Commencement of Operations</i>]. |
| 1.1.8 | “Operations Period” is the period between the Operations Commencement Date and Contract Completion Date. |
| 1.1.9 | “Training Plan” means the means the plan the contractor shall prepare and follow for providing training to the BMC’s designated staff deployed under the Contract. |
| 1.1.10 | XXX |
| 1.2 General Requirements | <p>The Contractor shall comply with the Requirements for Operations as provided for in the Contract and any revisions thereof which are agreed during the Contract Period.</p> <p>The Contractor shall follow the requirements of the Operation and Maintenance Plan, the Training Plan and the operation and maintenance manuals. No significant alteration to such arrangements and methods shall be made without the prior</p> |

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| | <p>approval of the Engineer.</p> <p>During the Operations Period, the Contractor shall be responsible for ensuring that the Works remain fit for the purposes for which they are intended.</p> <p>The operators and maintenance personnel, including Plant operators, shall have the appropriate experience and qualifications to perform the Operations. The names, with details of their qualifications and experience, of the Contractor's key personnel in Operations shall be submitted to the Employer for approval, and no such personnel shall be engaged prior to receiving such approval.</p> |
| 1.3 Operations Commencement Date | <p>Unless otherwise stated in the Employer's Requirements, the commencement of the Operations Commencement Date shall be from the date on which the BMC hands over operations of the entire water supply system to the Contractor, which shall be after approval of the Operation and Maintenance Plan by the Engineer.</p> <p>Should the approval of the Operation and Maintenance Plan, or any Notice attached or pertaining thereto, contain requirements or restrictions over and above those in the Contract, the Contractor shall comply with such requirements and/or restrictions, and, to the extent that the Contractor suffers additional Cost as a result, and subject to the provisions of GCC Sub-Clause 20.1 [<i>Contractor's Claims</i>], he shall be reimbursed by the Employer unless such requirements or restrictions were as a result of a fault or failure of the Contractor.</p> <p>The Contractor shall thereafter carry out the Operations in accordance with PCC Part B2, Sub-Clause 1.2 [<i>General Requirements</i>].</p> |
| 1.4 Legal Authorization for Operating the Facility | <p>Together with the Letter of Acceptance, the Employer shall issue the required legal authorization to the Contractor to operate the Facilities to enable the Contractor to fulfill its obligations during the Operations Period.</p> <p>The authorization to operate shall automatically come into force on the Operations Commencement Date.</p> <p>The authorization to operate shall extend to all Facilities in the Service Area for the purposes of carrying out the Works and Operations as set out in the Contract. The authorization to operate granted shall not operate nor be deemed to operate as a tenement or a demise of the Facilities or any part thereof. The Contractor shall not have or be entitled to any estate right, title, or interest in the Facilities. The authorization to Operate will immediately terminate upon the termination of this Contract for whatever reason.</p> |
| 1.5 Training | <p>The Contractor shall carry out Training of Employer's Personnel in the operation and maintenance of the Facilities to the extent specified in the Employer's Requirements, and as per the Training Plan to be approved by the Engineer.</p> <p>The program and scheduling of the training shall be agreed with the Employer, and the Contractor shall provide experienced training staff, all training materials and training facilities as stated in the Employer's Requirements. The Employer shall be responsible for nominating and selecting suitable personnel that will receive training.</p> |
| 1.6 Operations Completion Certificate | <p>Performance of the Contractor's obligations in respect of the Operations under the Contract shall not be considered to have been completed until the Operations Completion Certificate has been signed by the Engineer and issued to the Contractor, stating the date on which the Contractor completed his obligations in respect of the Operations.</p> <p>The Engineer shall, subject to PCC part B2, Sub-Clause 1.7 [<i>Completion of Operations</i>] issue the Operations Completion Certificate to the Contractor, with a copy to the Employer, within 21 days from the Contract Completion Date. No extension of the Operations shall be allowed except by written agreement between the parties.</p> |

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| | <p>Only the Operations Completion Certificate shall be deemed to constitute the Employer's acceptance of the Contractor's completion of his obligations under the Contract in respect of the Operations. Following the issue of the Operation Completion Certificate the Employer shall be fully responsible for the care, safety, operation, servicing and maintenance of the facilities.</p> <p>However, the issue of the Operation Completion Certificate does not relieve the Contractor from its obligations under GCC Clause 11 [<i>Defects Liability</i>].</p> |
| 1.7 Completion of Operations | Unless the Parties have mutually agreed to prolong the Operations Period, the obligation of the Contractor to operate and maintain the Facilities shall cease at the Contract Completion Date. |
| 1.8 Ownership of Output and Revenue | During the Operations, any production output and revenue shall be the exclusive property of the Employer. |
| 1.9 Failure to Reach Minimum Service Levels | <p>In the event that the Contractor fails to achieve the Minimum Service Levels required under the Contract as specified in Section 6 [<i>Employer's Requirements</i>] Chapter 3.2 [<i>Minimum Service Levels</i>] the parties shall jointly establish the cause of such failure.</p> <p>a. If the cause of the failure lies with the Employer or any of his servants or agents, then, after consultation with the Contractor, the Employer shall give written instruction to the Contractor of the measures which the Employer requires the Contractor to take. If the Contractor suffers any additional cost as a result of the failure or the measures instructed by the Employer, the Employer, subject to GCC Sub-Clause 3.5 [<i>Determinations</i>] and GCC Sub-Clause 20.1 [<i>Contractor's Claims</i>], shall pay the Contractor the additional cost plus overhead and profit as per SCC part A [<i>Contract Data</i>] Sub-Clause 13.5 (b) (ii).</p> <p>b. If the cause of the failure lies with the Contractor then, after due consultation with the Employer, the Contractor shall take all steps necessary to achieve the Minimum Service Levels required under the Contract.</p> <p>If the Employer suffers any loss as a result of the failure of the measures taken by the Contractor, the Contractor, subject to GCC Sub-Clause 3.5 [<i>Determinations</i>], shall pay the Employer operation performance damages of a sum equal to 0.5% of the Contract Price for Part 2 - Operations per day, in the currencies and proportions in which the Contract Price is payable.</p> <p>However, the total amount due under this Sub-Clause shall not exceed the maximum amount of operation performance damages of 20% of the Contract price Part 2 (Operations).</p> <p>If the failure continues for a period of more than 84 days and the Contractor is unable to achieve the Minimum Service Levels, the Employer may either:</p> <p>a. give Notice to the Contractor to continue with the Operations at a reduced level of compensation determined in accordance with GCC Sub-Clause 3.5 [<i>Determinations</i>]; or,</p> <p>b. give Notice to the Contractor not less than 56 days prior to terminating the Contract, in accordance with GCC Sub-Clause 15.2 [<i>Termination by Employer</i>]. In such an event, the Employer shall be free to continue the Operations himself or by others.</p> |
| 2 | Compliance Audit |
| 2.1 Auditing Body | <p>"Auditing Body (AB)" means the body appointed by the Employer to conduct the Impartial Compliance Audit as under:</p> <p>An independent body to be appointed by Employer, under a separate contract, will act as the Auditing Body to carry out an impartial audit during the Operations</p> |

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| | <p>Period according to the terms of reference as per Schedule 2 [<i>Terms of Reference of Auditing Body</i>] of this Section-8 [<i>Particular Conditions of Contract</i>]. The AB shall commence its duties on the Contract Commencement Date.</p> <p>The purpose of AB will be to audit and monitor the performance of both the Employer and the Contractor during the Operations Period in compliance with the Employer's Requirements.</p> <p>Both Parties shall cooperate with the AB and give due regard to the matters raised in each report issued by the AB.</p> |
| 3. | Payment for Operations |
| 3.1 Application for Final Payment Certificate - Operations | <p>Within 56 days after receiving the Operation Completion Certificate, the Contractor shall submit to the Engineer one original and five copies of the Final Statement Operations with supporting documents showing:</p> <p>(a) the value of all work done in respect of the Operations, and</p> <p>(b) any further sums which the Contractor considers to be due to him under the part 2 - Operations of the Contract.</p> <p>Together with the Final Statement - Operations, the Contractor shall submit a written discharge accordingly to the requirements of PCC part B 2, Sub-Clause 3.2 [<i>Discharge of Operations</i>].</p> |
| 3.2 Discharge of Operations | <p>When submitting the Final Statement - Operations, the Contractor shall submit a written discharge of operations which confirms that the total of the Final Statement - Operations represents full and final settlement of all monies due to the Contractor under or in connection with part 2 - Operations of the Contract. This discharge may state that it becomes effective only after payment due under the Final Payment Certificate - Operations has been made.</p> |
| 3.3 Issue of Final Payment Certificate - Operations | <p>Within 28 days of receiving the Final Statement - Operations and the written discharge of Operations from the Contractor in accordance with PCC part B 2, Sub-Clause 3.1 [<i>Application for Final Payment Certificate - Operations</i>] and PCC part B 2, Sub-Clause 3.2 [<i>Discharge of Operations</i>] respectively, the Engineer shall issue to the Employer, with a copy to the Contractor, the Final Payment Certificate - Operations stating:</p> <p>(a) the amount which is finally due for the Operations; and</p> <p>(b) after giving credit to the Employer for all amounts previously paid by the Employer and all sums to which the Employer is entitled in respect of part 2 - Operations of the Contract, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.</p> <p>If the Engineer disagrees with or cannot verify any part of the Final Statement Operations, the Engineer and the Contractor shall attempt to agree on such matters, and the Engineer shall issue a Final Payment Certificate Operations for the agreed amount. If the parties cannot agree on such matters, the Engineer shall issue a Final Payment Certificate - Operations for the amount which he considers to be due to the Contractor. If the Contractor is dissatisfied with amount certified, he may refer the matter to the DAB for a decision in accordance with GCC, Clause 20.4 [<i>Obtaining Dispute Board's Decision</i>].</p> <p>Upon receipt of the Final Payment Certificate - Operations, the Employer shall pay the Contractor in accordance with the provisions of GCC, Sub-Clause 14.7 [<i>Payment</i>].</p> |
| 3.4 Maintenance Retention Fund | <p>During the Operations Period a Maintenance Retention Fund shall be created by deducting five percent (5%) from the value of each interim payment for Operations, determined by the Engineer in accordance with GCC Sub-Clause 14.6 [<i>Issue of Interim Payment Certificate</i>], due to the Contractor, commencing with the first payment following the Operations Commencement Date and continuing until the</p> |

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| | <p>last Interim Payment Certificate is issued or until the amount in the Maintenance Retention Fund has reached the value of 5% of the Contract Amount part 2-Operations, whichever is the earlier. A Maintenance Retention Guarantee is not allowed.</p> <p>If the maintenance required under the Contract has not been carried out, the Employer may, after giving due notice to the Contractor, carry out such maintenance himself and apply any amounts standing to the credit of the Maintenance Retention Fund in so doing. Where such amounts are insufficient to cover the Employer's whole costs of carrying out the maintenance, the unrecovered costs shall be set off against any payment due to the Contractor under the Contract, or the extent that no such payment is due, shall become a debt due by the Contractor to the Employer.</p> <p>Following the issue of the Operation Completion Certificate under PCC part B 2, Sub Clause 1.5 [<i>Operation Completion Certificate</i>] all funds remaining in the Maintenance Retention Fund shall be included in the Final Payment Certificate - Operations and paid to the Contractor with the final payment for Operations.</p> |
| 4 Risk and Responsibility | <p>Subject to the provisions of GCC Sub-Clause 17.6 [<i>Limitation of Liability</i>], the risks allocated to the Contractor and for which the Contractor is liable during the Operations Period are.</p> <ul style="list-style-type: none"> a) "all risks resulting or arising from the material or workmanship of the Plant and Material supplied or construction of the Works or the materials used therein, notwithstanding any testing carried out by or witnessed by the Employer or the Engineer during the Works period; and b) all risks resulting or arising from the operation and maintenance of the Facilities including the Permanent Works and the care of the Works excluding the Employer's Risks listed under GCC Sub-Clause 17.3 [<i>Employer's Risks</i>]. |
| 5 Security at Facilities during Operations | <p>During Operations Period the Contractor shall be responsible for the security at all Facilities handed over to him.</p> <ul style="list-style-type: none"> a) the Contractor shall be responsible for keeping unauthorized persons away from Facilities; b) authorized persons shall be limited to the Contractor's Personnel and the Employer's Personnel, and to any other personnel notified by the Contractor by the Employer or the Engineer. |

Part C – Schedules

Schedule 1: Contractor's Payments

1. Payments to the Contractor comprise of two parts:

- a. Payments for Part 1: Works; and
- b. Payments for Part 2: Operations.

2. Payments for Part 1: Works

2.1.Payment for Plant and Materials delivered to the Site

For pumping main: (maximum of 30 km of un-laid length shall be alone paid)

- i. 50% of the cost of pipe on supply and stacking of pipes at site in good condition;
- ii. 15% of the cost of pipe line on laying, jointing,
- iii. 15% of the cost pipes on completion of hydro testing
- iv. 10% of the cost of pipes on completion of road restoration;
- v. 10% on commissioning of main

(A)For Mechanical/Electrical, Instrumentation and Water meters

- i. 50% of the quoted price, against supply and storage at Site;
- ii. 20% after installation of the equipment;
- iii. 20% after testing and trial run completed successfully; and
- iv. 10% on commissioning of the equipment

The Contractor will supply Plant and Materials as per the approved annual Construction Plan.

3. Price Adjustment for Payment for Part 1: Works

All Contractor Payments for Construction works under this Contract shall not be governed in accordance to the adjustments for change in costs as provided in GCC Sub-Clause 13.8

4. Payments for Part 2: Operations

The Contractor shall be eligible for payment for Operations from the Operations Commencement Date. The payment for Operations shall comprise the following but are not limited to:

- a. Wages for Contractor personnel;
- b. Cost of chemicals utilized in the treatment of water;
- c. Consumables for preventive and corrective maintenance of all existing and new infrastructure assets being operated and maintained by the Contractor;
- d. All cost of repairs undertaken as part of preventive and corrective maintenance;
- e. All cost related to administration, management, monitoring, reporting, accounts, regulatory compliance and incidental charges if any; and
- f. All cost related to training of Personnel BMC

- g. It is expressly clarified that all charges related to electricity payments, raw water extraction cost if any, shall be paid directly by the Employer, in accordance with provisions of the Contract.

4.1. The payments for Operations provided under this Clause shall comprise the following three distinct components:

- (A) Component 1 (Section 6): Operation of the new water sources, and transmission mains up to the Three WTPs;
- (B) Component 1 (Section 7): Operation of the Three existing WTPs; and Transmission main up to the Reservoirs.

4.2. Methodology for assessing the eligible payments for Operations.

4.2.1. The payments for Operations are paid on a calendar quarterly basis and are governed by the following formulae:

A. Operation and maintenance of the existing and new water sources, existing renovated WTPs and transmission mains:

$$MP_{p\&t} = R_{p\&t} \cdot (10\% + 90\% \cdot P_{p\&t})$$

In which

$MP_{p\&t}$ = the quarterly payment for O&M of production, treatment and transmission;

$R_{p\&t}$ = the price rate per quarter as per priced bill of quantities;

$P_{p\&t}$ = the evaluated quarterly performance in O&M of production, treatment and transmission as determined by the compliance to the performance standards as specified in Section 6, [*Employer's Requirements*], Clause 3 [*Performance Standards and Measuring Framework*].

5. Price Adjustment of payments for Part 2: Operations

All Contractor Payments shall not be governed in accordance to the adjustments for change in costs as provided in GCC Sub-Clause 13.8.

Schedule 2: Terms of Reference of Auditing Body

1. Appointment: An independent body to be appointed by the Employer, under a separate contract, will act as an Auditing Body (AB) for the purpose of monitoring and evaluation of the performance of the Operations component of the Contract during the Contract Period. The AB shall play a positive and independent role in discharging its functions, thereby facilitating smooth implementation of the Contract.
2. Obligations: The key obligations of the AB shall be:
 - a) Review the Operations and Maintenance Plan and the Training Plan furnished by the Contractor and suggest modifications if any required especially with reference to the baseline service levels and investments proposed by the Contractor to achieve the Performance Standards stipulated in Clause 3, Section 6 [*Employer's Requirements*];
 - b) Monitor the performance in Operations of the Contractor and verify the periodical reports furnished by the Contractor in terms of achievement or maintenance of the Performance Standards;
 - c) Provide independent advice to the Parties under this Contract in times of requirement of revision or rebasing of the Performance Standards required due to the following events:
 - i. Substantial change in baseline parameters;
 - ii. Discovery of unknown assets and additional infrastructure which can be put to use resulting in revision of Mandatory Works;
 - iii. Failure of the performance of any of the existing assets other than the new or replaced assets implemented by the Contractor necessitating major maintenance by way of replacement;
 - d) Undertake periodical (quarterly), on-site verification of the Operations and provide recommendations on any issues which require immediate attention and action from any of the Parties.
3. Reports: The AB shall prepare and submit to the Employer and Bhagalpur Municipal Corporation (BMC) the following reports:
 - a) Quarterly reports on validation of performance of Contractor with reference to the achievement or maintenance of the Performance Standards;
 - b) Issues, if any, with regard to operation, maintenance and management along with the details of the action taken for the resolution of the same;

Duration: The appointment of AB will be from start of Operation, maintenance and management to the entire duration of the Contract.

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Section 9 – Contract Forms

Section 9 - Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

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Letter of Acceptance
[on letterhead paper of the Employer]

..... *date*

To: *name and address of the Contractor*

Subject: *Notification of Award Contract No.*

This is to notify you that your Bid dated *date* consisting of the Technical Bid and the Price Bid for execution of the *name of the contract and identification number, as given in the Bid Data Sheet* for the Accepted Contract Amount of the equivalent of *amount in numbers and words and 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 the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose the Performance Security Form included in Section 9 (Contract Forms) of the Bidding Document.

Authorized Signature:
Name and Title of Signatory:
Name of Agency:

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the day of,, between ***name of the Employer***. (hereinafter “the Employer”), of the one part, and ***name of the Contractor***. (hereinafter “the Contractor”), of the other part:

WHEREAS the *Employer* desires that the Works known as ***name of the Contract***. 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 Contract 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 Contract Agreement. This Contract Agreement shall prevail over all other Contract documents.
 - A. - the Letter of Acceptance;
 - B. - the Letter of Price Bid and priced Bill of Quantities;
 - C. - the Technical Bid;
 - D. - the Addenda Nos ***insert addenda numbers if any***.;
 - E. - the Particular Conditions of Contract Part B -Specific Provisions;
 - F. - the Particular Conditions of Contract Part A – Contract Data;
 - G. - the General Conditions;
 - H. - the Specifications;
 - I. - the Drawings; and
 - J. - the Schedules and any other documents forming part of the Contract.
3. In consideration of the payments to be made by the Employer to the Contractor as indicated 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 ***name of the borrowing country***. on the day, month and year indicated above.

Signed by
for and on behalf of the Employer
in the presence of

Witness, Name, Signature,
Address, Date

Signed by
for and on behalf the Contractor
in the presence of

Witness, Name, Signature,
Address, Date

Performance Security

Bank's Name, and Address of Issuing Branch or Office

Beneficiary: Name and Address of Employer

Date:

Performance Guarantee No.:

We have been informed that ***name of the Contractor***. (hereinafter called "the Contractor") has entered into Contract No. ***reference number of the Contract***. dated with you, for the execution of ***name of contract and brief description of Works***. (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 Contractor, we ***name of the Bank***. hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ***name of the currency and amount in figures***¹. (***amount in words***.) such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of ,², and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

.....
Seal of Bank and Signature(s)

- Note -

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

¹ The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract and denominated either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Employer.

² Insert the date twenty-eight days after the expected completion date. 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 Employer’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.”

Advance Payment Security

Bank's Name, and Address of Issuing Branch or Office

Beneficiary: Name and Address of Employer

Date:

Advance Payment Guarantee No.:

We have been informed that ***name of the Contractor***. (hereinafter called "the Contractor") has entered into Contract No. ***reference number of the Contract***. dated with you, for the execution of ***name of contract and brief description of Works***. (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum ***name of the currency and amount in figures***¹. (***amount in words***.) is to be made against an advance payment guarantee.

At the request of the Contractor, we ***name of the Bank***. hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ***name of the currency and amount in figures***¹. (***amount in words***.) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number ***Contractor's account number***. at ***name and address of the Bank***.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated 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 Contract Price has been certified for payment, or on the . . day of ,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, ICC Publication No. 458.

.....
Seal of Bank and Signature(s)

- Note -

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

¹ The Guarantor shall insert an amount representing the amount of the advance payment 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.

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 Employer’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.