



**Government of India
Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation
Central Ground Water Board**

NATIONAL HYDROLOGY PROJECT

Central Ground Water Board, Bhujal Bhawan, NIT-IV, Faridabad (Haryana)-121001

Phone No: 0129-2477186, 0129-2477102

E mail id: seop-cgwb@nic.in

NATIONAL COMPETITIVE BIDDING FOR NORTH ZONE

NIET No: 06/2019-20/MMS

e-Tender Inquiry for the Supply, Installation, Commissioning of DWLRs and telemetry including security arrangements, establishment of Data Acquisition system & its maintenance for Real Time Ground Water Level monitoring and supply of Ground water level, ground water temperature data from site and receipt of data at Regional Office Data Centre (RODC), Chandigarh, in a desired format from 529 observation wells (Piezometers wells) in the states of Jammu & Kashmir, Punjab, Haryana, Chandigarh, Uttarakhand & Delhi through telemetry systems with 05 years warranty and 02 years AMC.

Government of India
 Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation
 Central Ground Water Board
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1. NAME OF WORK : The Supply, Installation, Commissioning of DWLRs and telemetry including security arrangements, establishment of Data Acquisition system & its maintenance for Real Time Ground Water Level monitoring and supply of Ground water level, ground water temperature data from site and receipt of data at Regional Office Data Centre, Chandigarh, in a desired format from 529 observation wells (Piezometers wells) in the states of **J&K, Punjab, Haryana, Chandigarh, Uttarakhand & Delhi** through telemetry systems with 05 years warranty and 02 years AMC with an **estimated cost of Rs 6,34,80,000/-**
2. OFFICER INVITING BIDS : THE CHAIRMAN,
 Central Ground Water Board,
 Government of India,
 Bhujal Bhawan, NH-IV, Faridabad-121001
 Phone No : :0129--2477186 FAX: 0129-2477200
 E mail id: seop-cgwb@nic.in
3. PLACE OF OPENING OF BIDS : Central Ground Water Board,
 Bhujal Bhawan, NH-IV, Faridabad-121001
4. CRITICAL DATE :

| S. No | Description | | Date | Time |
|-------|---|-------|------------|-----------|
| 1 | Dates of Online Publication of Tender Documents in CPP portal | | 28/02/2020 | 1300 Hrs. |
| 2 | Dates of Tender Document Download | Start | 28/02/2020 | 1400 Hrs. |
| | | End | 03/04/2020 | 1300 Hrs. |
| 3 | Deadline for seeking further information/clarifications through email | | 13/03/2020 | 1630 Hrs. |
| 4 | Date of Pre-Bid Meeting | | 18/03/2020 | 1500Hrs. |
| 5 | Dates of Online Submission of Tender | Start | 28/02/2020 | 1600 Hrs. |
| | | End | 03/04/2020 | 1600 Hrs. |

| | | | |
|---|--|--|------------------|
| 6 | Deadline for Physical Submission of Cost of Tender Documents and EMD/ Bid Security to purchasers address | 03/04/2020 | 1500 Hrs. |
| 7 | Time and Date for Opening of Technical Bid | 07/04/2020 | 1615 Hrs. |
| 8 | Time and Date for Opening of Financial Bid | Will be communicated online after technical evaluation | |

5. Bids shall be received online only at the website of CPP portal <https://eprocure.gov.in/eprocure/app>
6. Aspiring bidders who have not enrolled/ registered in CPP portal are advised to enroll/ register before participating through the portal. The portal enrolment is free of cost. The bidders are advised to go through the instructions provided at Annexure A: 'Instructions for online bid submission'.
7. The bidders will be at liberty to be present either in person or through an authorized representative, who must carry 'Bid Acknowledgement Receipt', at the time of opening of bid or can view the bid opening event online at their remote end.

Regional Director (Engineering)
For and on behalf of the President of India

Date:

SECTION I: INVITATION FOR BIDS (IFB)

NATIONAL COMPETITIVE BIDDING FOR

The Supply, Installation, Commissioning of DWLRs and telemetry including security arrangements, establishment of Data Acquisition system & its maintenance for Real Time Ground Water Level monitoring and supply of Ground water level, ground water temperature data from site and receipt of data at Regional Office Data Centre, Chandigarh, in a desired format from 529 observation wells (Piezometers wells) in the states of J&K, Punjab, Haryana, Chandigarh, Uttarakhand & Delhi through telemetry systems with 05 years warranty and 02 years AMC

IBRD Loan No.8725--IN

1. This Invitation for Bid follows the General Procurement Notice for this Project that appeared in Development Business on 09.03.2017
2. The Government of India has received financing from the World Bank towards the cost of National Hydrology project and it is intended that part of the proceeds will be applied to eligible payments under the contract for which this Invitation for Bids is issued.
3. The Chairman, Central Ground Water Board, Faridabad invites online bids from eligible bidders for the Supply, Installation, Commissioning of DWLRs and telemetry including security arrangements, establishment of Data Acquisition system & its maintenance for Real Time Ground Water Level monitoring and supply of Ground water level, ground water temperature data from site and receipt of data at Regional Office Data Centre, Chandigarh, in a desired format from 529 observation wells (Piezometers wells) in the states of **J&K, Punjab, Haryana, Chandigarh, Uttarakhand & Delhi** through telemetry systems with 05 years warranty and 02 years AMC (Annual Maintenance Cost)
4. Bidding will be conducted through the National Competitive Bidding (NCB) procedures agreed with World Bank. The bidding is open to all eligible bidders as defined in the Bank's Procurement Guidelines. In addition, please refer to paragraphs 1.6 and 1.7 of the Guidelines setting forth the World Bank's policy on conflict of interest.
5. Bidding documents are available online on <https://eprocure.gov.in/eprocure/app>. The non-refundable fee for tender document in the form of Demand Draft/ Cheque/Bankers Cheque on any Scheduled/ Nationalized bank payable at Faridabad in favor of DDO, CGWB, Faridabad. The bidders are responsible for ensuring any addenda available on the website is also downloaded and incorporated accordingly.
 - a. Tender document fee (non-refundable) : Rs. 1,000/- (Rs. One Thousand only)
 - b. Bid Security- : Rs 63,48,000/-
 - c. Date of commencement of downloading of bidding document : **28/02/2020 at 14:00 Hrs**

- d. Last date for downloading of bidding document : 03/04/2020 at 13:00 Hrs server time
 - e. Last date and time for receipt of bids : 03/04/2020 at 16:00 Hrs server time.
 - f. Time and date of opening of bids : 07/04/2020 at 16:15 Hrs server time
6. The bidding is through on line only (CPPP), the bidder is required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities, authorised by Government of India for issuing DSC. Aspiring bidders who have not obtained the user ID and password for participating in e-procurement in this Project, may obtain the same from the website: <https://eprocure.gov.in/eprocure/app>.
 7. Bid security of the amount specified in the bidding document, drawn in favor of DDO, CGWB, Faridabad must be submitted as per the procedure described in paragraph 8 below. The Bid security shall be valid for 60 days beyond the validity of the bid. Bids must be submitted online on <https://eprocure.gov.in/eprocure/app> on or before deadline of tender submission, and will be opened online on the specified time and date for opening of bids. Any bid or modifications to bid (including discount) received outside e-procurement system will not be considered. If the office happens to be closed on the date of opening of the bids as specified, the bids will be opened on the next working day at the same time. The electronic bidding system would not allow any late submission of bids.
 8. Bids must be submitted online on <https://www.eprocure.gov.in> on or before the date and time for receipt of bids, and the 'Technical Part' of bids will be opened online on the specified time and date for opening of bids, as given above. The "Financial Part" shall remain unopened in the e-procurement system until the second public Bid opening for the financial part. Any bid or modifications to bid (including discount) received outside e-procurement system will not be considered. If the office happens to be closed on the date of opening of the bids as specified, the bids will be opened on the next working day at the same time. The electronic bidding system would not allow any late submission of bids.
 9. The bidders are required to submit (a) original demand drafts towards the fee of bid document and registration on e-procurement website (if not previously registered); (b) original bid security in **approved form**; and (c) original affidavit regarding correctness of information furnished in the bid document submitted to The Chairman, CGWB, CHQ, Bhujal Bhawan, Faridabad, before the opening of the Bid, either by registered post/speed post/courier or by hand, failing which the bids will be declared non-responsive and will not be opened.
 10. Other details can be seen in the bidding document. The Purchaser shall not be held liable for any delays due to system failure beyond its control. Even though the system will attempt to notify the bidders of any bid updates, the Purchaser shall not be liable for any information not received by the bidder. It is the bidders' responsibility to verify the website for the latest information related to this bid from time to time.

Seal of Office & Address
The Regional Director (Engineering),
Central Ground Water Board,
Government of India,
Bhujal Bhawan, NH-IV, Faridabad-121001
Phone No: 0129--2477186 FAX: 0129-2477200

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PART 1 – BIDDING PROCEDURES

SECTION I - INSTRUCTIONS TO BIDDERS [ITB]

Section I. Instructions to Bidders

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Section I. Instructions to Bidders

A. General

1. **Scope of Bid**
 - 1.1 The Purchaser **indicated in the Bidding Data Sheet (BDS)**, issues these Bidding Documents for the supply of Goods and Related Services incidental thereto as specified in Section VII, Schedule of Requirements. The name, identification and number of lots (contracts) of this National Competitive Bidding (NCB) procurement are **specified in the BDS**.
 - 1.2 Throughout these Bidding Documents:
 - (a) the term “in writing” means communicated in written form (e.g. by mail, e-mail, fax, telex, including if **specified in the BDS**, distributed or received through the electronic-procurement system used by the Employer) with proof of receipt;
 - (b) if the context so requires, “singular” means “plural” and vice versa; and
 - (c) “day” means calendar day.
2. **Source of Funds**
 - 2.1 The Government of India (hereinafter called “Borrower”) **specified in the BDS** has applied for or received financing (hereinafter called “funds”) from the International Bank for Reconstruction and Development or the International Development Association (hereinafter called “the Bank”) in an amount **specified in BDS** toward the project **named in the BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract for which these Bidding Documents are issued.
 - 2.2 Payment by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the loan or other financing) account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the funds.
3. **Corrupt & Fraudulent Practices**
 - 3.1 The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Section VI.
 - 3.2 In further pursuance of this policy, Bidders shall permit and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers and to permit the Bank to inspect all accounts, records and other documents relating to the submission of the application, bid

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

4. Eligible Bidders

- 4.1 A Bidder may be a firm that is a private entity, a government-owned entity— subject to ITB 4.5—or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.
- 4.2 Numbers of members/firms in a joint venture shall not be more than two including the lead partner.
- 4.3 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:
 - a. directly or indirectly controls, is controlled by or is under common control with another Bidder; or
 - b. receives or has received any direct or indirect subsidy from another Bidder; or
 - c. has the same legal representative as another Bidder; or
 - d. has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Purchaser regarding this bidding process; or
 - e. participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or
 - f. any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the goods/equipment that are the subject of the bid; or
 - g. any of its affiliates has been hired (or is proposed to be hired) by the Purchaser or Borrower for the Contract implementation; or
 - h. would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any of its affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or
 - i. has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of

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

- 4.4 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.7. A Bidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-contractors or sub-consultants for any part of the Contract including related Services.
- 4.5 A Bidder that has been sanctioned by the Bank in accordance with the above ITB 3.1, including in accordance with the Bank's Guidelines on Preventing and Combating Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants ("Anti-Corruption Guidelines"), shall be ineligible to be prequalified for, bid for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address **specified in the BDS**.
- 4.6 Bidders that are Government-owned enterprises or institutions in the Purchaser's Country may participate only if they can establish that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not dependent agencies of the Purchaser. To be eligible, a government-owned enterprise or institution shall establish to the Bank's satisfaction, through all relevant documents, including its Charter and other information the Bank may request, that it: (i) is a legal entity separate from the government (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to the government, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt; and (iv) is not bidding for a contract to be awarded by the department or agency of the government which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution.
- 4.7 A Bidder shall not be under suspension from bidding by the Purchaser as the result of the operation of a Bid-Securing Declaration.

- 4.8 Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.
- 4.9 A bidder shall provide such evidence of eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request.
- 5. Eligible Goods and Related Services**
- 5.1 All the Goods and Related Services to be supplied under the Contract and financed by the Bank may have their origin in any country in accordance with Section V, Eligible Countries.
- 5.2 For purposes of this Clause, the term "goods" includes commodities, raw material, machinery, equipment, and industrial plants; and "related services" includes services such as insurance, installation, training, and initial maintenance.
- 5.3 The term "origin" means the country where the goods have been mined, grown, cultivated, produced, manufactured or processed; or, through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.

B. Contents of Bidding Document

- 6. Sections of Bidding Documents**
- 6.1 The Bidding Documents consist of Parts 1, 2, and 3, which include all the Sections indicated below, and should be read in conjunction with any Addendum issued in accordance with ITB Clause 8.

PART 1 Bidding Procedures

- Section I. Instructions to Bidders (ITB)
- Section II. Bidding Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Eligible Countries
- Section VI Bank Policy-Corrupt and Fraudulent Practices

PART 2 Supply Requirements

- Section VII. Schedule of Requirements

PART 3 Contract

- Section VIII. General Conditions of Contract (GCC)
- Section IX. Special Conditions of Contract (SCC)
- Section X. Contract Forms

6.2 The Invitation for Bids issued by the Purchaser is not part of the Bidding Document.

6.3 Unless obtained directly from the Purchaser, the Purchaser is not responsible for the completeness of the document, responses to requests for clarification, minutes of pre-bid meeting (if any), or Addenda to the Bidding Document in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Purchaser shall prevail.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its Bid all information or documentation as is required by the Bidding Documents.

7. Clarification of Bidding Documents

7.1 The electronic bidding system **specified in the BDS** provides for online clarifications. A prospective Bidder requiring any clarification on the Bidding Documents may notify the Purchaser online. Clarifications requested through any other mode shall not be considered by the Purchaser. The Purchaser will respond to any request for clarification, provided that such request is received no later than fifteen (15) days prior to the deadline for submission of bids. Description of clarification sought and the response of the Purchaser shall be uploaded for information of all Bidders without identifying the source of request for clarification. Should the Purchaser deem it necessary to amend the Bidding Documents as a result of a clarification, it shall do so following the procedure under ITB Clause 8 and ITB Sub-Clause 22.2. It is the bidder's responsibility to check on the e-procurement system, for any addendum/ amendment/ corrigendum to the bidding document.

8. Amendment of Bidding Documents

8.1 At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Documents by issuing addendum. The addendum will appear on the e-procurement system under "Latest Corrigendum" and email notification is also automatically sent to those bidders who have started working on the tender, or as **otherwise specified in BDS**.

8.2 Any addendum thus issued shall be part of the Bidding Documents and shall be deemed to have been communicated to all the bidders.

- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB Sub-Clause 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 Purchaser 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 Purchaser, shall be written in English language. 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 into English language, in which case, for purposes of interpretation of the Bid, such translation shall govern.
- 11. Documents Comprising the Bid** 11.1 The Bid shall comprise two Parts, namely the Technical Part and the Financial Part. These two Parts shall be submitted simultaneously.
- 11.2 **The Technical Part** shall contain the following:
- (a) Letter of Bid – Technical Part, in accordance with ITB Clause 12;
 - (b) Bid Security, in accordance with ITB Clause 19.1, if required;
 - (c) Alternative bids– Technical Part, if permissible, in accordance with ITB 13, the Technical Part of any Alternative Bid;
 - (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB Clause 20.2;
 - (e) documentary evidence in accordance with ITB Clause 17 establishing the Bidder’s qualifications to perform the contract if its bid is accepted;
 - (f) documentary evidence in accordance with ITB 17 establishing the Bidder’s eligibility to bid;
 - (g) documentary evidence in accordance with ITB Clause 16, that the Goods and Related Services to be supplied by the Bidder are of eligible origin;
 - (h) documentary evidence in accordance with ITB Clauses 16, that the Goods and Related Services conform to the Bidding Documents;
 - (i) Manufacturer’s authorization form; and
 - (j) any other document **required in the BDS.**

- 11.3 The **Financial Part** shall contain the following:
- (a) Letter of Bid – Financial Part: prepared in accordance with ITB 12 and ITB 14;
 - (b) Price Schedules: completed prepared in accordance with ITB 12 and ITB 14;
 - (c) Alternative Bid - Financial Part; if permissible in accordance with ITB 13, the Financial Part of any Alternative Bid; and
 - (d) any other document **required in the BDS**.
- 11.4 The Technical Part shall not include any financial information related to the Bid price. Where material financial information related to the Bid price is contained in the Technical Part, the Bid shall be declared non-responsive.
- 11.5 The Bidder shall furnish in the Letter of Bid, information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

12. Process of Bid Submission

- 12.1 The Letter of Bid – technical Part, Letter of Bid – Financial Part and Price Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.2. All blank spaces shall be filled in with the information requested.
- 12.2 Entire Bid including the Letter of Bid and filled-up Price Schedules shall be submitted online on e-procurement system specified in ITB 7.1. Details and process of online submission of the tender and relevant documents are given in the website mentioned above. Scanned copies of documents listed in clauses 11 and 12.3 should also be uploaded on this website.
- 12.3 **Submission of Original Documents:** The bidders are required to separately submit (i) original demand drafts towards the cost of bid document and registration on e-procurement website (if not previously registered) (as per RFB); (ii) original bid security in approved form; and (iii) original affidavit regarding correctness of information furnished with bid document, with the office **specified in the BDS**, before the opening of the technical part of the Bid, either by registered/speed post/courier or by hand, failing which the bids will be declared non-responsive and will not be opened. Hard copy of rest of the bid is not to be submitted.

13. Alternative Bids

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

14. Bid Prices and Discounts

- 14.1 The prices and discounts quoted by the Bidder in the Letter of Bid – Financial Part and in the Price Schedules shall conform to the requirements specified below.
- 14.2 All lots (contracts) and items must be listed and priced separately in the Price Schedules.
- 14.3 The price to be quoted in the Letter of Bid – Financial Part, in accordance with ITB 12.1, shall be the total price of the bid, excluding any discounts offered.
- 14.4 The Bidder shall quote any discounts and indicate the methodology for their application in the Letter of Bid – Financial Part in accordance with ITB 12.1.
- 14.5 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account, **unless otherwise specified in the BDS**. A bid submitted with an adjustable price quotation shall be treated as nonresponsive and shall be rejected, pursuant to ITB 31. However, if in accordance with the BDS, prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a bid submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.
- 14.6 If so specified in ITB 1.1, bids are being invited for individual lots (contracts) or for any combination of lots (packages). Unless otherwise **specified in the BDS**, prices quoted shall correspond to 100 % of the items specified for each lot and to 100% of the quantities specified for each item of a lot. Bidders wishing to offer discounts for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4 provided the bids for all lots (contracts) are submitted and opened at the same time.
- 14.7 The terms EXW and other similar terms shall be governed by the rules prescribed in the current edition of Incoterms, published by The International Chamber of Commerce, **as specified in the BDS**.
- 14.8 Prices shall be quoted as specified in the Price Schedule included in Section IV, Bidding Forms. In quoting prices, the Bidder shall be free to use transportation through carriers registered in any eligible country, in accordance with Section V Eligible Countries. Similarly, the Bidder may obtain insurance services from any eligible country in accordance with Section V Eligible Countries. Prices shall be entered in the following manner:
 - (a) **For Goods:**

- (i) the price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable), including GST as applicable payable on the finished Goods;
 - (ii) any other taxes if payable in India on the Goods, if the contract is awarded to the Bidder; and
 - (iii) the price for inland transportation, insurance, and other local services required to convey the Goods to their final destination (Project Site) **specified in the BDS.**
- (b) for the Related Services, other than inland transportation and other services required to convey the Goods to their final destination, whenever such Related Services are specified in the Schedule of Requirements:
- (i) the price of each item comprising the Related Services (inclusive of any applicable taxes).

14.9 Deemed Export Benefits

Bidders may like to ascertain availability of tax/duty exemption benefits, if any, available for contracts financed under World Bank Credits/ Loans. They are solely responsible for obtaining such benefits, which they have considered in their bid and in case of failure to receive such benefits for reasons whatsoever, the Purchaser will not compensate the bidder.

Where the bidder has quoted taking into account such benefits, it must give all information required for issue of necessary Certificates in terms of the Government of India's relevant Notification along with its bid as per form stipulated in Section IV Bidding Forms.

If the Bidder has considered the Deemed Export Benefits in its bid, the Bidder shall confirm and certify that the Purchaser will not be required to undertake any responsibilities of the deemed export scheme or the benefits available during contract execution except issuing the required certificates. Bids which do not conform to this provision or any condition by the Bidder which makes the bid subject to availability of deemed export benefits or compensation on withdrawal of or any variations in the deemed export benefits scheme will make the bid non responsive and hence liable to rejection.

15. Currencies of Bid& Payment

15.1 The Bidder shall quote the Price in Indian Rupees only.

- 16. Documents Establishing the Eligibility and conformity of the Goods and Related Services**
- 16.1 To establish the eligibility of the Goods and Related Services in accordance with ITB Clause 5, Bidders shall complete the country of origin declarations in the Price Schedule Forms, included in Section IV, Bidding Forms.
- 16.2 To establish the conformity of the Goods and Related Services to the Bidding Documents, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Section VII, Schedule of Requirements.
- 16.3 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of the Section VII Schedule of Requirements.
- 16.4 The Bidder shall also furnish a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period **specified in the BDS** following commencement of the use of the goods by the Purchaser.
- 16.5 Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in the Schedule of Requirements, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates, to the Purchaser's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in the Section VII Schedule of Requirements.
- 17. Documents Establishing the Eligibility & Qualifications of the Bidder**
- 17.1 To establish Bidder's eligibility in accordance with ITB 4, Bidders shall complete the Letter of Bid – Technical Part, included in Section IV, Bidding Forms.
- 17.2 The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Purchaser's satisfaction:
- (a) that the Bidder meets each of the qualification criterion Criteria specified in Section III, Evaluation and Qualification;
 - (b) (i) that, if **required in the BDS**, a Bidder that does not manufacture or produce the Goods it offers to supply shall submit the

Manufacturer's Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in the Purchaser's Country;

(ii) Supplies for any particular item in each schedule of the bid should be from one manufacturer only. Bids from agents offering supplies from different manufacturers for the same item of the schedule in the bid will be treated as non-responsive.

(iii) that, if **required in the BDS**, the Bidder is or will be (if awarded the contract) represented by an Agent in the country equipped and able to carry out the Supplier's maintenance, repair and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications;

(c) Bids from Joint Ventures are not acceptable.

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 Purchaser in accordance with ITB 22.1. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Purchaser 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 Clause 19, it shall also be extended for a corresponding 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, except as provided in ITB Sub-Clause 18.3.

18.3 If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, the Contract price shall be determined as follows:

(a) In the case of fixed price contracts, the Contract price shall be the bid price adjusted by the factor **specified in the BDS** for each week or part of the week that has elapsed from the expiration of the initial bid validity to the date of notification of award to the successful bidder.

(b) In the case of adjustable price contracts, no adjustment shall be made.

- (c) In any case, bid evaluation shall be based on the bid Price without taking in to consideration the applicable correction from those indicated above.

19 Bid Security

- 19.1 The Bidder shall furnish as part of the Technical Part of its bid, a Bid Security, if required, as **specified in the BDS**.
- 19.2 Not used.
- 19.3 The Bid Security shall be in the amount **specified in the BDS** and denominated in Indian Rupees or a freely convertible currency, and shall:
 - (a) at the bidder's option, be in the form of either a certified check, demand draft, letter of credit, or a bank guarantee from a Nationalized /Scheduled Bank in India, or another security specified **in the BDS**;
 - (b) be substantially in accordance with one of the forms of Bid Security included in Section IV, Bidding Forms, or other form approved by the Purchaser prior to bid submission;
 - (c) be payable promptly upon written demand by the Purchaser in case the conditions listed in ITB Clause 19.7 are invoked;
 - (d) be submitted in its original form; copies will not be accepted;
 - (e) remain valid for a period of 45 days beyond the original validity period of the bids, or beyond any period of extension of bid validity, if so requested under ITB Clause 18.2.
- 19.4 If a Bid Security is required in accordance with ITB Sub-Clause 19.1, any bid not accompanied by a substantially responsive Bid Security shall be rejected by the Purchaser as non-responsive.
- 19.5 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the contract and furnishing the Performance Security pursuant to ITB Clause 44.
- 19.6 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:
 - (a) if a Bidder
 - (i) withdraws its bid during the period of bid validity specified by the Bidder in the Letter of Bid (Technical Part and/or Financial Part), except as provided in ITB Sub-Clause 18.2;

or

- (ii) does not accept the correction of errors in pursuant to ITB35,

or

- (b) if the successful Bidder fails to:

- (i) sign the Contract in accordance with ITB Clause 43; or
- (ii) furnish a Performance Security in accordance with ITB Clause 44.

19.8 Not used.

19.9 If a bid security is **not required in the BDS**, and

- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid Form, except as provided in ITB 18.2, or does not accept the correction of errors pursuant to ITB 35; or
- (b) if the successful Bidder fails to sign the Contract in accordance with ITB 43; or furnish a performance security in accordance with ITB 44;

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

20 Format and Signing of Bid

- 20.1 The Bidder shall prepare the Bid as per details given in ITB 21.
- 20.2 The bid shall be signed by a person duly authorized to sign on behalf of the Bidder. The authorization shall consist of a written confirmation **as specified in the BDS** and shall be uploaded along with the bid.
- 20.3 Not used.
- 20.4 Corrections if any in the bid can be carried out by editing the information before electronic submission on e-procurement portal.

D. Online Submission of Bids

21 Preparation of Bids

- 21.1 Bids, both Technical and Financial Parts, shall be submitted online on the e-procurement system specified in BDS 7.1. Detailed guidelines for viewing bids and submission of online bids are given on the website. The Invitation for Bids under this Project is published on this website. Any citizen or prospective bidder can logon to this website and view the Invitation for Bids and can view the details of goods for which bids are invited. A prospective bidder can submit its bid online; however, the bidder is required to have enrolment/registration in the website, and

should have valid Digital Signature Certificate (DSC) in the form of smart card/e-token obtained from any authorised certifying agency of Government of India (for class of DSC **specified in BDS**). The bidder should register in the website using the relevant option available. Then the Digital Signature registration has to be done with the e-token, after logging into the website. The bidder can then login the website through the secured login by entering the password of the e-token & the user id/ password chosen during registration. After getting the bid schedules, the Bidder should go through them carefully and submit the specified documents, along with the bid, otherwise the bid will be rejected.

- 21.2 The completed bid comprising of documents indicated in ITB 12, should be uploaded on the e-procurement portal along with scanned copies of requisite certificates as are mentioned in different sections in the bidding document and scanned copy of the bid security.
- 21.3 All the documents are required to be signed digitally by the bidder. After electronic on line bid submission, the system generates a unique bid identification number which is time stamped as per server time. This shall be treated as acknowledgement of bid submission.
- 21.4 Physical, Email, Telex, Cable or Facsimile bids will be rejected as non-responsive.
- 22 Deadline for Submission of Bids**
- 22.1 Bids must be uploaded online no later than the date and time **specified in the BDS**.
- 22.2 The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB Clause 8, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.
- 23 Late Bids**
- 23.1 The electronic bidding system would not allow any late submission of bids after due date & time as per server time.
- 24 Withdrawal, Substitution, and Modification of Bids**
- 24.1 Bidders may modify their bids by using appropriate option for bid modification on the e-procurement portal, before the deadline for submission of bids. For this the bidder need not make any additional payment towards the cost of bid document. For bid modification and consequential re-submission, the bidder is not required to withdraw his bid submitted earlier. The last modified bid submitted by the bidder within the bid submission time shall be considered as the bid. For this purpose, modification/withdrawal by other means will not be accepted. In online system of bid submission, the modification and consequential re-submission of bids is allowed any number of times. A bidder may withdraw his bid by using appropriate option for bid withdrawal, before the deadline

for submission of bids, however, if the bid is withdrawn, re-submission of the bid is not allowed (or allowed **if specified in BDS**).

24.2 Bids requested to be withdrawn in accordance with ITB Sub-Clause 24.1 shall not be opened.

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 Letter of Bid (Technical Part and/or Financial Part) or any extension thereof.

E. Public Opening of Technical Parts of Bids

25 Public Opening of Technical Parts of Bids

25.1. The Purchaser shall publicly open Technical Parts of all bids received by the deadline, at the date, time and place **specified in the BDS**, in the presence of Bidder's designated representatives and anyone who chooses to attend, and this could also be viewed by the bidders online. The Financial Parts of the bids shall remain unopened in the e-procurement system, until the subsequent public opening, following the evaluation of the Technical Parts of the Bids. In all cases, original documents submitted as specified in ITB 12.3 shall be first scrutinized, and Bids that do not comply with the provisions of ITB 12.3 will be declared non-responsive and will not be opened. Thereafter, bidder's names, and such other details as the Purchaser may consider appropriate will be notified online as Technical Part bid opening summary.

In the event of the specified date of bid opening being declared a holiday for the Purchaser, the bids will be opened at the appointed time and location on the next working day.

25.2 The electronic summary of the bid opening will be generated and uploaded online. The Purchaser will also prepare minutes of the Bid opening, including the information disclosed and upload the same for viewing online. Only Technical Parts of Bids, alternative bids - Technical Parts if permitted in ITB 13 that are opened at Bid opening shall be considered further for evaluation.

E. Evaluation of Bids – General Provisions

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 in accordance with ITB 42.

26.2 Any effort by a Bidder to influence the Purchaser in the examination, evaluation, comparison, and post-qualification of the bids or contract award decisions may result in the rejection of its Bid.

- 26.3 Notwithstanding ITB Sub-Clause 26.2, from the time of bid opening to the time of Contract Award, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, it should do so in writing.
- 27 Clarification of Bids**
- 27.1 To assist in the examination, evaluation, comparison of the bids and post-qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid, that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the bids, in accordance with ITB Clause 35.
- 27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Purchaser's request for clarification, its bid may be rejected.
- 28 Deviations, Reservations, Omissions**
- 28.1 During the evaluation of bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the Bidding Documents;
- (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
- (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Documents.
- 29 Non-conformities, Errors and Omissions**
- 29.1 Provided that a Bid is substantially responsive, the Purchaser may waive any non conformities or omissions in the Bid which do not constitute a material deviation, reservation or omission.
- 29.2 Provided that a Bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price or substance of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
- 29.3 Provided that a Bid is substantially responsive, the Purchaser shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component in the manner specified **in the BDS**.

G. Evaluation of Technical Parts of Bids

- 30 Evaluation of Technical Parts** 30.1 In evaluating the Technical Parts of each Bid, the Purchaser shall use the criteria and methodologies listed in ITB 31, ITB 32, and Section III, Evaluation and Qualification Criteria. No other evaluation criteria or methodologies shall be permitted.
- 31 Determination of Responsiveness** 31.1 The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself as defined in ITB 11.
- 31.2 A substantially responsive Bid is one that meets the requirements of the Bidding Documents 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 Goods and Related Services specified in the Contract; or
 - (ii) limit in any substantial way, inconsistent with the Bidding Documents, the Purchaser's rights or the Bidder's obligations under the Contract; or
 - (b) if rectified would unfairly affect the competitive position of other bidders presenting substantially responsive bids.
- 31.2.1 Bids from Agents, without proper authorization from the manufacturer as per Section IV, shall be treated as non-responsive.
- 31.3.1 The Purchaser shall examine the bids to confirm that all documents and technical documentation requested in ITB Clause 11 have been provided, and to determine the completeness of each document submitted.
- 31.3.2 The Purchaser shall examine the bid to confirm that the Bidder has accepted all terms and conditions specified in GCC and the SCC without material deviations or reservations. Deviations from or objections or reservations to critical provisions such as those concerning Performance Security (GCC Clause 18), Warranty (GCC Clause 28), Force Majeure (Clause 32), Limitation of liability (GCC Clause 30), Governing law (GCC Clause 9) and Taxes & Duties (GCC Clause 17) will be deemed to be a material deviation. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 31.4 If a bid is not substantially responsive to the Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.

- 32 Qualification of the Bidders**
- 32.1 The Purchaser shall determine, to its satisfaction, whether all eligible Bidders, whose Bids have been determined to be substantially responsive to the bidding document, meet the Qualification Criteria specified in Section III, 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. The determination shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, subcontractors (other than specialized subcontractors if permitted in the bidding document), or any other firm(s) different from the Bidder.
- 32.3 If a Bidder does not meet the qualifying criteria specified in Section III, Evaluation and Qualification Criteria, its Bid shall be rejected by the Purchaser and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.
- 32.4 Only Bids that are both substantially responsive to the bidding document, and meet all Qualification Criteria shall have the Financial Parts of their Bids opened at the second public opening

H. Public Opening of Financial Parts of Bids

- 33 Public Opening of Financial Parts**
- 33.1 Following the completion of the evaluation of the Technical Parts of the Bids, and the Bank has issued its no objection (if applicable), the Purchaser shall notify in writing to those Bidders who have failed to meet the Qualification Criteria and/or whose Bids were considered non-responsive to the requirements in the bidding document, advising them of the following information:
- (a) their Technical Part of Bid failed to meet the requirements of the bidding document;
 - (b) their Financial Part of the Bid shall not be opened; and
 - (c) notify them of the date and time for public opening of the Financial Parts of the Bids. Financial Parts of the bids shall not be opened earlier than seven (7) days from the communication of technical evaluation results to the bidders.
- 33.2 The Purchaser shall, simultaneously, notify in writing those Bidders whose Technical Parts have been evaluated as substantially responsive to the bidding document and met the Qualification Criteria, advising them of the following information:
- (a) their Bid has been evaluated as substantially responsive to the bidding document and met the Qualification Criteria;

- (b) their Financial Part of Bid will be opened at the public opening of Financial Parts;
 - (c) notify them of the date and time of the second public opening of the Financial Parts of the Bids, as **specified in the BDS**.
- 33.3 The opening date should allow Bidders sufficient time to make arrangements for attending the opening. The Financial Part of the Bid shall be opened publicly in the presence of Bidders' designated representatives and anyone who chooses to attend, and this could also be viewed by the bidders online. The bidder's names, the Bid prices, the total amount of each bid, including any discounts and Alternative Bid – Financial Part, and such other details as the Purchaser may consider appropriate will be notified online by the Purchaser at the time of bid opening.
- In the event of the specified date of bid opening being declared a holiday for the Purchaser, the bids will be opened at the appointed time and location on the next working day.
- 33.4 The electronic summary of the bid opening will be generated and uploaded online. The Purchaser will also prepare minutes of the Bid opening, including the information disclosed and upload the same for viewing online. Only Financial Part of Bids, Financial Parts of Alternative Bids and discounts that are opened and read out at Bid opening shall be considered further for evaluation.

I. Evaluation of Financial Parts of Bids

34 Evaluation of Financial Parts

- 34.1 To evaluate the Financial Part of each Bid, the Purchaser shall consider the following:
- (a) evaluation will be done for Items or Lots (contracts), as specified **in the BDS**; and the Bid Price as quoted in accordance with ITB 14;
 - (b) Not used;
 - (c) price adjustment due to discounts offered in accordance with ITB 14.4;
 - (d) Not used;
 - (e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 29.3; and
 - (f) the additional evaluation factors specified in the BDS as per ITB 34.5 from amongst those set out in Section III, Evaluation and Qualification Criteria.

- 34.2 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.
- 34.3 If this bidding document allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated cost of the lot (contract) combinations, including any discounts offered in the Letter of Bid - Financial Part, is specified in Section III, Evaluation and Qualification Criteria.
- 34.4 The Purchaser's evaluation of a Bid shall include (i) price quoted EXW including GST as applicable on the finished goods; (ii) other taxes, if any, payable on finished goods; (iii) price for inland transportation, insurance, and other local services required to convey the Goods to their Final Destination; and (iv) price for Related Services, if any.
- 34.5 The Purchaser's evaluation of a Bid may require the consideration of other factors, in addition to the Bid price quoted in accordance with ITB 14. These factors may be related to the characteristics, performance and terms & conditions of purchase of the Goods and Related Services. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of Bids, unless otherwise specified **in the BDS** from amongst those set out in Section III, Evaluation and Qualification Criteria. The criteria and methodologies to be used shall be as specified in ITB 34.1 (f).
- 35 Correction of Arithmetical Errors** 35.1 The e-procurement system automatically calculates the total amount from unit rates and quantities and the system also automatically populates the amount in words from the amount in figures and therefore there is no scope of discrepancy and need for arithmetic correction.
- 36 Conversion to Single Currency** 36.1 Not applicable.
- 37 Margin of Domestic Preference** 37.1 Not applicable.
- 38 Comparison of Financial Parts** 38.1 The Purchaser shall compare the evaluated prices of all substantially responsive bids to determine the lowest-evaluated bid, in accordance with ITB Clause 34.

- 39 **Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids** 39.1 The Purchaser 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 documents submitted and specifically, bid securities, shall be promptly returned to the Bidders.

J. Award of Contract

- 40 **Award Criteria** 40.1 Subject to ITB 39.1, the Purchaser shall award the Contract to the Bidder whose bid has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

- 41 **Purchaser's Right to Vary Quantities at Time of Award** 41.1 At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in Section VII, Schedule of Requirements, provided this does not exceed the percentages **specified in the BDS**, and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.

- 42 **Notification of Award** 42.1 Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (hereinafter called "Letter of Acceptance") shall specify the sum that the purchaser will pay in consideration of the supply of Goods (hereinafter called "the Contract Price").

Publication of Award

- 42.2 At the same time the Purchaser shall publish in a National website (<https://eprocure.gov.in/>) or on the Purchaser's website with free access if available, or in the official gazette, 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 successful Bidder, and the price it offered, as well as the duration and summary scope of the contract awarded.

- 42.3 The Purchaser shall promptly respond in writing to any unsuccessful Bidder who, after Publication of contract award, requests in writing the grounds on which its bid was not selected.

Recourse to Unsuccessful Bidders

- 42.4 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.

- 42.5 Upon the successful Bidder's furnishing of the performance security and signing the Contract Form pursuant to ITB Clause 43, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 19.5
- 43 Signing of Contract**
- 43.1 Promptly after notification, the Purchaser shall send the successful Bidder the Contract Agreement.
- 43.2 Within twenty-one (21) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Purchaser.
- 44 Performance Security**
- 44.1 Within twenty one (21) days of the receipt of notification of award from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the GCC, using for that purpose the Performance Security Form included in Section X Contract forms, or another Form acceptable to the Purchaser. Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder, whose bid is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.

SECTION II - BIDDING DATA SHEET

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

[Instructions for completing the Bidding Data Sheet are provided, as needed, in the notes in italics mentioned for the relevant ITB Clauses].

| ITB Clause Reference | A. General |
|----------------------|--|
| ITB 1.1 | <p>The Purchaser is:</p> <p>The Chairman, Central Ground Water Board, Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India, Bhujal Bhawan, NH-IV, Faridabad-121001</p> <p>E mail id: seop-cgwb@nic.in</p> |
| ITB 1.1 | <p>The name and identification number of the NCB is:</p> <p>The Supply, Installation, Commissioning of DWLRs and telemetry including security arrangements, establishment of Data Acquisition system & its maintenance for Real Time Ground Water Level monitoring and supply of Ground water level, ground water temperature data from site and receipt of data at Regional Office Data Centre, Chandigarh, in a desired format from 529 observation wells (Piezometers wells) in the states of J&K, Punjab, Haryana, Chandigarh, Uttarakhand & Delhi through telemetry systems with 05 years warranty and 02 years AMC</p> <p>IFB No. : NHP/CGWBW/TELEMETRY/2</p> <p>The number, identification and names of the tender (contracts): (one) Job</p> |
| ITB 1.2(a) | The Purchaser shall use the electronic-procurement system specified in BDS 7.1 to manage this Bidding process. |
| ITB 2.1 | The Borrower is Government of India Loan or Financing Agreement Amount US\$ 175 million |
| ITB 2.1 | The name of the Project is National Hydrology Project. |
| ITB 4.4 | A list of firms debarred from participating in World Bank projects is available at http://www.worldbank.org/debarr |

| B. Contents of Bidding Documents | |
|---|--|
| ITB 7.1 | <p>Electronic –Procurement System</p> <p>The Purchaser shall use the following electronic-procurement system to manage this Bidding process: https://eprocure.gov.in/eprocure/app</p> |
| ITB 8.1 | <p>The addendum will appear on the e-procurement system under latest corrigendum and email notification is also sent to those bidders who have started working on this tender.</p> |
| C. Preparation of Bids | |
| ITB 11.2 (j) | <p><u>Cover 1: Technical Bid</u></p> <p>The Bidder shall submit the following additional documents in its bid:</p> <ul style="list-style-type: none"> • Certification of incorporation of the bidder and manufacturer • The bidder shall clearly confirm that all facilities exist with him (or manufacturer, as applicable) in his factory or at site or work place for inspection and testing and these can be accessed by the Purchaser or his representative for inspection. • Technical schedules of goods as required by technical specifications. • Descriptive Documents, drawings, notes and references of operating and assembly of mechanical parts • A detailed description of the Goods essential technical and performance characteristics. • A clause-by-clause commentary on the Purchaser's technical specifications demonstrating substantial responsiveness of the Goods and Services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications. • For purposes of the commentary to be furnished pursuant to Paragraph 6 above, the Bidder shall note that standards for workmanship, material and goods, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications. • The documentary evidence of the goods and services eligibility shall consist of a statement in the Price Schedule on the country of origin of the goods and services offered which shall be confirmed by a certificate of origin at the time of shipment. |

| | |
|-------------|--|
| | <ul style="list-style-type: none"> • Non-manufacturer bidders will submit the manufacturer’s authorization Form as per Proforma in Section IV. • The following details shall also be provided by Indian Bidders: <ul style="list-style-type: none"> a. Name, address, PAN and ward/circle where they are being assessed of the Directors of the Bidding Company. b. Company’s PAN and Income Tax clearance certificate and ward/circle where it is being assessed, c. Registration details of the company under GST and other laws as may be applicable. • The bidders from outside India shall provide the corresponding details of Income Tax registration, Social Security Number, details regarding Registration under goods & services tax (as may be applicable) etc • The bidder shall disclose instance of previous past performance that may have resulted into adverse actions taken against the bidder during the last five years. • All document required in Section 3: Evaluation & Qualification Criteria <p>Cover 2: Financial Bid</p> <ul style="list-style-type: none"> • Financial Bid as per BOQ in XLS format. <p>Note: Bidders are requested to enter GST against the item. The Financial evaluation will be done based on item without considering GST. The AMC rate may be entered by bidder according to the tender for engaging AMC after 5 years of warranty. The GST as applicable will be reimbursed on proof of payment to Government.</p> |
| ITB 11.2(j) | In addition to the requirements under ITB 11.1, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement. |
| ITB 12 | Note for Bidders: Bidders have to submit the bids on the e-procurement portal along with the relevant required documents. For this purpose, the bidders shall fill up online, the forms that are available for online filling on the e-portal. The rest of the forms shall be downloaded by the bidders and filled up. The filled up pages shall then be scanned and uploaded on the e-procurement portal (only in CPPP) along with the scanned copies of the supporting documents. |
| ITB 12.3 | For submission of original documents, the Purchaser’s address is: The Regional Director (Engineering), Central Ground Water Board, Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India, Bhujal Bhawan, NH-IV, Faridabad-121001 E mail id: seop-cgwb@nic.in Country: INDIA |
| ITB 13.1 | Alternative Bids <i>shall not be</i> considered. |

| | |
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| ITB 14.5 | The prices quoted by the Bidder <i>shall not</i> be subject to adjustment during the performance of the Contract. |
| ITB 14.7 | The Incoterms edition is Incoterms 2010. |
| ITB 14.8 (a) (iii) | "Final destination (Project Site)": <i>as mentioned in Schedule of Requirements</i> |
| ITB 14.9 | <i>As per latest instructions from Government of India.</i> |
| ITB 16.4 | Period of time the Goods are expected to be functioning (for the purpose of spare parts): 10 years. |
| ITB 17.2 (b) (i) | Manufacturer's authorization is: <i>required as per proforma in Section IV.</i> |
| ITB 17.2 (b)iii | After Sales service is required which shall be provided by the Supplier or alternatively by its Agent in case of a foreign bidder. |
| ITB 17.2 (c) | Deleted. |
| ITB 18.1 | The bid validity period shall be 120 days. |
| ITB 18.3(A) | Not applicable |
| ITB 19.1 | Bid shall include a Bid Security valid for a period of 60 days beyond the original validity period of the bids, or beyond any period of extension of bid validity(issued by bank) included in Section IV Bidding Forms |
| ITB 19.3 | The amount of the Bid Security shall be Rs 63,48,000/- (Rupees Sixty Three Lakhs & Forty Eight Thousand only) |
| ITB 19.8 | The bid security of a JV must be in the name of the JV that submits the bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the bid security shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2. |
| ITB 19.9 | Deleted |
| ITB 20.2 | The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Power of attorney |
| ITB 20.3 | In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives. |

| | |
|-------------|--|
| | D. Submission and Opening of Bids |
| ITB 21.2 | Class of Digital Signature Certificate (DSC) required is Class III |
| ITB 22.1 | The last date of submission for uploading of bids is: Date 03/04/2020 Time: 16.00 hours server time |
| ITB 24.1 | Re-submission of the bid is allowed, if withdrawn within the period of submission of bid. |
| | E. Public Opening of Technical Parts of Bids |
| ITB 25.1 | The online bid opening shall take place at: Central Ground Water Board, Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India, Bhujal Bhawan, NH-IV, Faridabad-121001 E mail id: seop-cgwb@nic.in Country: INDIA Date: 07/04/2020 Time: 16:15 Hrs |
| | F. Evaluation of Bids-General Provisions |
| ITB 29.3 | The adjustment shall be based on the highest price of the item or component as quoted in other substantially responsive Bids, subject to a maximum of the estimated price of the item. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Purchaser shall use its best estimate. |
| | H. Public Opening of Financial Parts of Bids |
| ITB 33.2(c) | Following the completion of the evaluation of the Technical Parts of the Bids, the Purchaser will notify all technically qualified Bidders of the date and time of the public opening of Financial Parts. The online opening of the Financial Parts of bids (for technically qualified bidders) shall take place at the following address. The Regional Director (Engineering), Central Ground Water Board, Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation, Government of India, Bhujal Bhawan, NH-IV, Faridabad-121001 E mail id: seop-cgwb@nic.in Country: INDIA |
| | I. Evaluation and Comparison of Bids |
| ITB 34.1(a) | Evaluation will be done for complete items as a whole of the tender. |

| | |
|------------------------|---|
| <p>ITB 34.4</p> | <p>Replace with following:</p> <p>The Purchaser's evaluation of a bid will exclude and not take into account:</p> <p>(a) In the case of Goods manufactured in India or goods of foreign origin already located in India, GST and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder;</p> <p>(b) Not Used.</p> <p>(c) any allowance for price adjustment during the period of execution of the contract, if provided in the bid.</p> <p>But, the purchaser's evaluation of a bid will include i) price for inland transportation, insurance, and other local services required to convey the Goods to their Final Destination; and (ii) price for Related Services, if any.</p> |
| <p>ITB 34.5</p> | <p>The adjustments shall be determined using the following criteria, from amongst those set out in Section III, Evaluation and Qualification Criteria:</p> <p>(a) the projected operating and maintenance costs for five years as defined in Technical Specifications in bid document. The bidder will have to quote the price in "Price and Completion Schedule- Related Services".</p> <p>and</p> <ol style="list-style-type: none"> 1. the cost of major replacement components, mandatory spare parts, and service: Not Applicable. 2. the availability in the Purchaser's Country of spare parts and after-sales services for the equipment offered in the bid: Not Applicable. 3. the projected operating and maintenance costs during the life of the equipment: Not Applicable. 4. the performance and productivity of the equipment offered: Not Applicable. |
| | <p>J. Award of Contract</p> |
| <p>ITB 41.1</p> | <p>The maximum percentage by which quantities may be increased is: 15%</p> <p>The maximum percentage by which quantities may be decreased is: 15%</p> |

SECTION III. EVALUATION AND QUALIFICATION CRITERIA

This Section complements the Instructions to Bidders. It contains the criteria that the Purchaser shall use to evaluate a bid and determine whether a Bidder qualifies in accordance with ITB 32&34. No other criteria shall be used.

1 Qualification (ITB 32)

1.1 Qualification Criteria (ITB 32.1)

The Purchaser shall assess each Bid against the following Qualification Criteria. Requirements not included in the text below shall not be used in the evaluation of the Bidder's qualifications.

(a) Financial Capability

The Bidder shall furnish documentary evidence that it meets the following financial requirement(s):

A) In case of individual Bidder

- (i) Capacity to have a cash flow - The Bidder must provide a letter from a reputed bank stating the availability of liquid assets and/ or credit facilities exclusively for this Contract only, of not less than **INR 1,26,96,000/- or its equivalent amount in a freely convertible currency.**
- (ii) The Minimum required annual turnover in respect of supply, installation and commissioning of goods and services for the successful Bidder in any two of the last **five (5)** years shall be of **INR 6,34,80,000/- or its equivalent amount in a freely convertible currency.** Period of 5 years shall be reckoned from 31st march of financial year preceding the year in which bid is published (i.e 2014-15, 2015-16, 2016-17, 2017-18 and 2018-19)
- (iii) Further, bidder should be in continuous business of supplying and after sale services of products similar to that specified in the 'Schedule of requirement' during the last 5 years prior to date of bid submission.
- (iv) Bidder shall furnish the legal status, place of registration and principal place of business of the company or firm or partnership, etc.;
- (v) Details of experience and past performance on equipment offered and on those of similar nature within the past seven years (Prior to the date of bid submission) and details of current contracts in hand and other commitments (suggested Proforma given in Section IV).
- (vi) The bidder should furnish a brief write-up, backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the supply of the required equipment within the specified time of completion after the meeting all their current commitments.
- (vii) Reports on Financial standing of the bidders such as profit and loss statements, balance sheets and auditor's report for the past three years, bankers certificate etc.
- (viii) A firm can submit only one bid in the same bidding process. A bidder who submits or participates in more than one bid will cause all the bids in which the bidder has participated to be disqualified.
- (ix) Should possess GST Registration. The GST Registration Certificate should be attached with the bid. In case of foreign bidder, if presently bidder is not having any office(s) in India, he has to provide the GST registration certificate within one month of award of contract. In this regard, an undertaking may be submitted as soon as the contract is awarded.

B) In case of Joint Venture (JV)

- i) Capacity to have a cash flow: The Bidders must provide a letter from a reputed bank stating the availability of liquid assets and/or credit facilities exclusively for this Contract only, of no less than **INR 1,58,70,000/- or its equivalent amount in a freely convertible currency** collectively.

- ii) In case of JV, the Minimum required annual turnover in respect of supply, installation and commissioning of goods for the successful Bidder in any two of the last **five (5)** years shall be of **INR 6,34,80,000/- or its equivalent amount in a freely convertible currency**. Collectively. Period of **5** years shall be reckoned from 31st march of financial year preceding the year in which bid is published. The lead partner must have minimum annual turnover of **INR 4,44,36,000/- or its equivalent amount in a freely convertible currency**. In any two of the last **five (5)** years while other partner must have minimum annual turnover of **INR 1,90,44,000/- or its equivalent amount in a freely convertible currency** in any two of the last **five (5)** years.
- iii) Further, one member of Joint Venture should be in continuous business of supplying and after sales services of products similar to that specified in the 'Schedule of requirement' during the last **5** years prior to date of bid submission while other member should be in continuous business of supplying and after sale services of products similar to that specified in the 'Schedule of requirement' at least 1 year prior to date of bid submission.
- iv) All members of Joint Venture shall furnish the legal status, place of registration and principal place of business of the company or firm or partnership, etc.;
- v) Details of experience and past performance of all members of Joint Venture on equipment offered and on those of similar nature within the past seven years (Prior to the date of bid submission) and details of current contracts in hand and other commitments (suggested Proforma given in Section IV).
- vi) The lead member of Joint Venture should furnish a brief write-up, backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the supply of the required equipment within the specified time of completion after the meeting all their current commitments.
- vii) Responsibilities in respect of lead firm as well as each of the Joint Venture members shall be clearly indicated in the JV agreement;
- viii) The Joint Venture agreement shall not be cancelled or amended unilaterally without consent of the Purchaser and a statement to this effect should appear in the JV agreement;
- ix) Reports on financial standing of the each JV members such as profit and loss statements, balance sheets and auditor's report for the past three years, banker's certificate, etc.

At least one member of Joint Venture should possess GST Registration.

(b) Experience and Technical Capacity

The Bidder shall furnish documentary evidence to demonstrate that it meets the following experience requirement(s):

i) Technical experience

A) In case of individual Bidder

The bidder must have supplied, tested, and commissioned the Digital/ Automatic Water Level Recorder stations with GSM / GPRS based telemetry to the extent of at least **100 stations** (comprising of minimum 1 data logger and sensor at each station) in any two of the year during a period of last 7 years from the last date of submission of bid document and should be in use satisfactorily with no adverse report for at least one year preceding the date of bid opening.

B) In case of Joint Venture (JV)

The JV partners must have supplied, tested and commissioned the Digital/ Automatic Water Level Recorder stations with GSM / GPRS based telemetry to the extent of **at least 100 stations** (comprising of minimum 1 data logger and sensor at each station) collectively in any two of the year during a period of last 7 years from the last date of submission of bid document. Out of which the one partner should have supplied, installed, commissioned and provided after sales service satisfactorily to the extent of at least minimum **70 stations**(comprising of minimum 1 data logger and sensor at each station) in any two of the year during a period of last 7 years from the last date of submission of bid document and other partner should have operated and maintained satisfactorily to the extent of at least minimum **30 stations** (comprising of minimum 1 data logger and sensor at each station) in any two of the year during a period of last 7 years from the last date of submission of bid document

ii) Manufacturer Authorization for DWLR station equipment

If the bidder/JV partners is/are not the manufacturer of the Digital Water Level Recorder (DWLR) station equipment (i.e. listed in table-1), the bidder/JV Partner shall furnish a legally enforceable authorization from manufacturer in the prescribed Form [Section-IV] assuring full guarantee and warranty obligations as per GCC and SCC for the goods offered.

If the bidder or JV partner, himself is a manufacturer of the DWLR station equipment (listed in Table-1), then a self-authorization suffices.

Further, bidder or JV partner should furnish the documentary evidence from the manufacturer of the equipment (listed in Table-1) to establish that the manufacturer has manufactured and supplied the quantity of the DWLR station equipment as per Table-1 below in any two year during a period of last 7 years from the last date of submission of bid document.

Table-1 Compliance for equipment manufacturer

| S No | Item | Total quantity to be supplied as per schedule of requirement | Minimum total sum of required quantity in any two of last Seven years |
|-------------|--|---|--|
| 1 | DWLR water level sensor (Non-Vented, Submersible pressure sensor with Temperature sensor) as per the technical specification | 529 | 150 |
| 2 | DWLR Data logger with GSM, GPRS modem as per the technical specification | 529 | 150 |

- III. The bidder should have after sales support in the region (within a radius of 500 km from the State Capital). If bidder does not have any after sales support office within 500 km from state Capital at the time of bidding, he shall require to be establish the same within one month after successful award of contract
- IV- Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or record of poor performance such as, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.

FINANCIAL PART

2. Margin of Preference (ITB 37) – Not Applicable

3. Evaluation (ITB 30, 31, and 34)

3.1. Evaluation Criteria (ITB 34.5)

The Purchaser shall use the criteria and methodologies listed in this Section to evaluate Bids. By applying the criteria and methodologies, the Purchaser shall determine the substantially responsive lowest-evaluated bid.

The Purchaser's evaluation of a bid may take into account, in addition to the Bid Price quoted in accordance with ITB Clause 14.8, one or more of the following factors as specified in ITB Sub-Clause 34.1 (f) and in BDS referring to ITB 34.5, using the following criteria and methodologies.

(a) The Purchaser's evaluation of a bid will take into account, in addition to the Bid Price quoted in accordance with ITB Clause 14.8, cost of comprehensive AMC for two year after including 5years warranty& Operation and Maintenance period. The amount of comprehensive AMC for two year shall be computed to current level by applying a discount factor of 10%.

3.2. Multiple Contracts (ITB 34.3)

Not Applicable as bid consists of a single schedule.

SECTION IV – BIDDING FORMS

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1.LETTER OF BID– TECHNICAL PART

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

Note: All italicized text is for use in preparing these forms and shall be deleted from the final products.

No alterations to the text except as provided in ITB20.2, shall be permitted and no substitutions shall be accepted except as provided in ITB 12.]

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

NCB No.: *[insert number of bidding process]*

Invitation for Bid No.: *[insert No of IFB]*

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

The Chairman,
Central Ground Water Board,
Government of India,
NH IV, Faridabad – 121001

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda No. issued in accordance with ITB 8: *[insert the number and issuing date of each Addenda]*;
- (b) We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
- (c) We have not been suspended nor declared ineligible by the Purchaser based on execution of a Bid Securing Declaration in the Purchaser's country in accordance with ITB 4.6;
- (d) We offer to supply in conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods and Related Services ***[insert a brief description of the Goods and Related Services]***;
- (e) Our bid shall be valid for the period of time specified in ITB Sub-Clause 18.1, from the date fixed for the bid submission deadline in accordance with ITB Sub-Clause 22, 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 are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.2(e), other than alternative bids submitted in accordance with ITB 13;
- (h) We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual

Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Purchaser's Country laws or official regulations or pursuant to a decision of the United Nations Security Council;

- (i) We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB 4.5;¹
- (j) 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;
- (k) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive;
- (l) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption; and
- (m) We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely, "Prevention of Corruption Act 1988."

Name of the Bidder _____ ***[insert complete name of person signing the Bid]***

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

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

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

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

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

¹*Bidder to use as appropriate*

2. LETTER OF BID– FINANCIAL PART

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

Note: All italicized text is for use in preparing these forms and shall be deleted from the final products.

No alterations to the text except as provided in ITB 20.2, shall be permitted and no substitutions shall be accepted except as provided in ITB 12.]

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

NCB No.: *[insert number of bidding process]*

Invitation for Bid No.: *[insert No of IFB]*

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

To:

The Chairman,
Central Ground Water Board,
Government of India,
NH IV, Faridabad – 121001

We, the undersigned Bidder, hereby submit the second part of our Bid, the Financial Part. In submitting our Financial Part we make the following additional declarations:

(a) Our bid shall be valid for the period of time specified in ITB Sub-Clause 18.1, from the date fixed for the bid submission deadline in accordance with ITB Sub-Clause 22, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(b) The total price of our Bid, excluding any discounts offered in item (c) below, is:

In case of only one lot, total price of the Bid **[insert the total price of the bid in words and figures];**

In case of multiple lots, total price of each lot **[insert the total price of each lot in words and figures];**

In case of multiple lots, total price of all lots (sum of all lots) **[insert the total price of all lots in words and figures];**

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

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

(d) The following commissions, gratuities, or fees have been paid or are to be paid with respect to the bidding process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*

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

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

(e) 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.

Name of the Bidder ***[insert complete name of person signing the Bid]***

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

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

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

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

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

3. BIDDER INFORMATION FORM

[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]

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

NCB No.: *[insert number of bidding process]*

Page _____ of _____ pages

| |
|---|
| 1. Bidder's Legal Name <i>[insert Bidder's legal name]</i> |
| 2. Bidder's actual or intended Country of Registration: <i>[insert actual or intended Country of Registration]</i> |
| 3. Bidder's Year of Registration: <i>[insert Bidder's year of registration]</i> |
| 4. Bidder's Legal Address in Country of Registration: <i>[insert Bidder's legal address in country of registration]</i> |
| 5. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i> |
| 6. Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation or Registration of firm named in 1, above, in accordance with ITB Sub-Clauses 4.3. <input type="checkbox"/> In case of government owned entity from the Purchaser's country, documents establishing legal and financial autonomy and compliance with commercial law and not dependent agency of borrower or sub-borrower or purchaser, in accordance with ITB Sub-Clause 4.5. <input type="checkbox"/> Included are the organizational chart ,a list of Board of Directors, and the beneficial ownership |

3B. BIDDER'S JV MEMBERS INFORMATION FORM

[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture].

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

ICB No.: *[insert number of bidding process]*

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

Page _____ of _____ pages

| |
|--|
| 1. Bidder's Legal Name: <i>[insert Bidder's legal name]</i> |
| 2. Bidder's JV Member's Legal Name: <i>[insert JV's Member legal name]</i> |
| 3. Bidder's JV Member's country of registration: <i>[insert JV's Member country of registration]</i> |
| 4. Bidder's JV Member's year of registration: <i>[insert JV's Member year of registration]</i> |
| 5. Bidder's JV Member's legal address in country of registration: <i>[insert JV's Member legal address in country of registration]</i> |
| 6. Bidder's JV Member's authorized representative information Name: <i>[insert name of JV's Member authorized representative]</i> Address: <i>[insert address of JV's Member authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Member authorized representative]</i> Email Address: <i>[insert email address of JV's Member authorized representative]</i> |
| 7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3. <input type="checkbox"/> In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5. |
| 8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. |

**4.FORM OF AFFIDAVIT FOR CORRECTNESS OF INFORMATION AND DOCUMENTS
SUBMITTED WITH BID**

[Reference ITB12.3]

[This affidavit should be on a non-judicial stamp paper of Rs.10/- and shall be attested by Magistrate/ Sub-Judge/ Notary Public]

I, *(name of the authorised representative of the Bidder)*
solemnly affirm and state as under:

1. I hereby certify that all the information and documents furnished with the Bid submitted online in response to IFB number date issued by *(authority inviting bids)* for *(name and identification of Goods & Related Services)* are true and correct.
2. *I hereby certify that I have been authorised by *(the Bidder)* to sign on their behalf, the Bid mentioned in paragraph 1 above.

Deponent

Place:
Date:

** This sub-paragraph is not applicable if the Bidder is an individual and is signing the Bid on his own behalf.*

5. Price Schedule Forms

*[The Bidder shall fill in these Price Schedule Forms in accordance with the instructions indicated. The list of line items in column 1 of the **Price Schedules** shall coincide with the List of Goods and Related Services specified by the Purchaser in the Schedule of Requirements.]*

1. PRICE SCHEDULE FOR SUPPLY OF GOODS AS PER SCHEDULE OF REQUIREMENTS (FOR 529 WELLS)

| Price in Rs. | | | | | | | Date: _____ NCB No: _____ Alternative No: _____ Page No. _____ of _____ | | | |
|--------------|---|-------------------|---|----------------------------|----------------|--|---|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Line Item No | Description of Goods | Country of Origin | Delivery Date | Quantity and physical unit | Unit price EXW | Total EXW price per line item (Col. 5×6) | Price per line item for inland transportation, insurance and other services required to convey the Goods to their final destination (ITB 14.8 (a)(iii)) | GST and other taxes payable per item if Contract is awarded (in accordance with ITB 14.8(a)(ii)) | Total Price per line item (Excluding GST and other taxes) (Col. 7+8) | |
| 1 | Digital Water Level recorders (DWLRs) with Telemetry | | | | | | | | | |
| 1a | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 30-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | 4 months from date of signing of contract | Nos (List provided) | | | | | | |
| 1b | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 45-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | 4 months from date of signing of contract | ----- Nos (List provided) | | | | | | |

| | | | | | | | | | |
|----|--|--|---|---------------------------------|--|--|--|--|--|
| 1c | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 75-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | 4 months from date of signing of contract | ----- Nos (List provided) | | | | | |
| 1d | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 105-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | 4 months from date of signing of contract | ----- Nos (List provided) | | | | | |
| 1e | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 120-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | 4 months from date of signing of contract | ----- Nos (List provided) | | | | | |

| | |
|---------------------|--|
| A. Total Price (Rs) | |
|---------------------|--|

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

Signature of Bidder *[signature of person signing the Bid]*

Date *[insert date]*

2. PRICE AND COMPLETION SCHEDULE - RELATED SERVICES (FOR 529 WELLS)

| Price in Rs. | | | | | Date: _____ | |
|--------------|---|-------------------|--|----------------------------|-------------------------|------------------------------------|
| | | | | | NCB No: _____ | |
| | | | | | Alternative No: _____ | |
| | | | | | Page No. _____ of _____ | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Service N° | Description of Services (excludes inland transportation and other services required in India to convey the goods to their final destination) | Country of Origin | Delivery Date at place of Final destination | Quantity and physical unit | Unit price | Total Price per Service (Col. 5*6) |
| S-1 | Digital Water Level recorders (DWLRs) with Telemetry | | | | | |
| S-1 | Installation, Testing and Commissioning of Digital Water Level recorders (DWLRs) with non-vented hydrostatic pressure type sensor and barometric pressure correction for individual station with desired measurement range and standard sensor cable as specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable to be installed at depth as per list and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | 9 months from date of signing of contract | 529 No. | | |
| S-2 | Integration of GSM & GPRS data with the existing Regional Data Center (NDC) at Chandigarh with all ancillary equipment as per technical specifications | | 4 months from date of signing of contract | 01No. | | |
| S-3 | Five Years Operation & Maintenance and Comprehensive Warranty for DWLRs with Telemetry system along with accessories, installed at designated locations and Data Center equipment as specified in schedule of requirement after final acceptance and upgradation of all software associated with DWLR systems. This includes replacement of batteries as & when required, replacement of spares/ parts/ equipments/ consumables, periodic inspections, repairing/service charges, the cost of | | Continuous activity for five years after successful commissioning and final acceptance certificate of DWLR | 01 Lot | | |

| | | | | | | |
|-------|--|--|--|---|--|--|
| | Communication using GSM & GPRS SIM and other related charges. Minimum One Service Engineer shall be placed at Regional Data Center & one in each Region for Operation of DWLR system with Telemetry. | | | | | |
| S-4 a | Comprehensive AMC for DWLR with telemetry Systems along with all accessories, installed at designated locations and Data Center equipments as specified in schedule of requirement after 5 years warranty period This includes the replacement of batteries as and when required, replacement of spares/ parts/ equipments/ consumables, periodic inspections, repairing/service charges, the cost of communication using GSM &GPRS, SIM and High speed Internet charges and other related charges. | | Continuous activity for two years after five years O&M and warranty period | Year 1 after expiry of O & M and warranty period of 5 years | | |
| S-4 b | | | | Year 2 after expiry of O & M and warranty period of 5 years | | |
| S-6 | Training of the purchaser's personnel at the supplier's plant and/or/onsite in assembly, startup, operation, maintenance and/or repair of DWLR with telemetry and relevant software and supplied goods. Course topics will include sensor calibration, data logger configuration, data downloading, data retrieval, collection, Trouble shooting, processing maintenance requirements and procedure for equipment configuration, installation, site testing and commissioning including training kit containing course material in soft and hard copies as per technical specification | | Continuous activity as per table in Schedule of Requirement | 24 trainings | | |
| | | | | Sum (Excluding GST & other taxes)Rs. (B) | | |
| | | | | GST | | |
| | | | | Total price Rs. (A+B) | | |

Name of Bidder [insert complete name of Bidder] Signature of Bidder [signature of person signing the Bid] Date [insert date]

6. Form of Bid Security **(Bank Guarantee)**

[The bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[Purchaser to insert its name and address]*

IFB No.: *[Purchaser to insert reference number for the Invitation for Bids]*

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

Date: *[Insert date of issue]*

BID GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ *[insert name of the Bidder, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its bid (hereinafter called "the Bid") for the execution of _____ under Invitation for Bids No. _____ ("the IFB").

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

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

- (a) has withdrawn its Bid during the period of bid validity set forth in the Applicant's Letter of Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the performance security, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the bidding process; or (ii) forty five days after the end of the Bid Validity Period.

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

[Signature(s)]

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

7.MANUFACTURER'S AUTHORIZATION

*[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are legally binding on the Manufacturer. The Bidder shall include it in its bid, if so indicated in the **BDS**.]*

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

NCB No.: *[insert number of bidding process]*

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

To: *[insert complete name of Purchaser]*

WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of Bidder]* to submit a bid the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods]*, and to subsequently negotiate and sign the Contract against the above IFB.

We hereby extend our full guarantee and warranty in accordance with Clause 28 of the General Conditions of Contract, with respect to the Goods offered by the above firm against this IFB.

We as a manufacturer of *[insert type of goods manufactured]* confirm to provide the spare & service support for a minimum period of 10 years after commissioning

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Duly authorized to sign this Authorization on behalf of: *[insert complete name of Bidder]*

Dated on _____ day of _____, _____ *[insert date of signing]*

Note – Modify this format suitably in cases where manufacturer's warranty and guarantee are not applicable for the items for which bids are invited. If the supply consists of number of items, indicate the specific item (s) for which alone the above authorization is required.

8. DECLARATION FOR CLAIMING EXCISE DUTY EXEMPTION

(Name of the Project)

Bid No.

Description of item to be supplied

(Information for issue of certificate for claiming exemption of Excise Duty (ED) in terms of Central excise notification No. 108/95)

(Bidder's Name and Address):

To

(Name of Purchaser)

.....

Dear Sir:

1. We confirm that we are solely responsible for obtaining deemed export benefits which we have considered in our bid and in case of failure to receive such benefits for reasons whatsoever, Purchaser will not compensate us.
2. We are furnishing below the information required by the Purchaser for issue of necessary certificate in terms of Central Excise notification no 108/95 read along with all subsequent amendments including the amendment dated 01-03-2008.
 - (i) Ex-factory price per unit on which ED is payable: *Rs. _____
 - (ii) No of Units to be supplied: _____

 - (iii) Total cost on which ED is payable (Rs.) _____

(The requirements listed above are as per Current notifications. These may be modified, as necessary, in terms of the rules in force)

(Signature) _____

(Printed Name) _____

(Designation) _____

(Common Seal) _____

** Please attach details item-wise with cost, if there are more than one items. The figures indicated should tally with what is given in the price schedule.*

9.PERFORMA FOR PERFORMANCE STATEMENT

[Please see ITB Clause 36.2 and Section III-
Evaluation and Qualification Criteria]

Proforma for Performance Statement (for a period of last three/five years)

Bid No. _____ Date of opening _____ Time _____ Hours

Name of the Firm _____

| <u>Order placed by (full address of Purchaser)</u> | <u>Order No. and date</u> | <u>Description and quantity of ordered equipment</u> | <u>Value of order</u> | <u>Date of completion of delivery</u> | | <u>Remarks indicating reasons for late delivery, if any</u> | <u>Has the equipment been satisfactorily functioning? (Attach a certificate from the Purchaser/Consignee)</u> |
|--|-----------------------------------|--|---------------------------|---|-------------|---|---|
| 1 | 2 | 3 | 4 | As per contract 5 | Actual 6 | 7 | 8 |
| | | | | | | | |

Note:

A) Delivery means the commencement of supply of data on commissioning

B) * - Performance certificate from the client indicating successful receipt of data for the period from ___ to ___ from ___no of locations, should be submitted for each order failing which the same will not considered.

Signature and seal of the Bidder _____

SECTION V. – ELIGIBLE COUNTRIES

Public Information Center

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

In reference to ITB 4.7 and 5.1, for the information of the Bidders, at the present time firms, goods and services from the following countries are excluded from this bidding process:

Under ITB 4.7(a) and 5.1: *None*

Under ITB 4.7(b) and 5.1: *None*

SECTION- VI. BANK POLICY - CORRUPT AND FRAUDULENT PRACTICES

Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011.

“Fraud and Corruption:

1.16 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.² In pursuance of this policy, the Bank:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;³
 - (ii) “fraudulent practice” is 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;⁴
 - (iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;⁵
 - (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;⁶
 - (v) “obstructive practice” is:
 - (aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially

² In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

³ For the purpose of this sub-paragraph, “*another party*” refers to a public official acting in relation to the procurement process or contract execution. In this context, “*public official*” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

⁴ For the purpose of this sub-paragraph, “*party*” refers to a public official; the terms “*benefit*” and “*obligation*” relate to the procurement process or contract execution; and the “*act or omission*” is intended to influence the procurement process or contract execution.

⁵ For the purpose of this sub-paragraph, “*parties*” refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other’s bid prices or other conditions.

⁶ For the purpose of this sub-paragraph, “*party*” refers to a participant in the procurement process or contract execution.

impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

- (bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 1.16(e) below.
- (b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- (c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- (d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,⁷ including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated⁸;
- (e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank.”

⁷ A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

⁸ A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

PART 2 - SUPPLY REQUIREMENTS

SECTION VII – SCHEDULE OF REQUIREMENTS

| | |
|--|-----|
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1. List of Goods and Delivery Schedule for 529 Numbers

| Line Item N° | Description of Goods | Quantity | Physical unit | Final (Site) Destination as specified in BDS | Delivery (as per Inco terms) Date | | |
|--------------|---|---------------|---------------|--|---|---|--------------------------------|
| | | | | | Earliest Delivery Date | Latest Delivery Date | Bidder's offered Delivery date |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Digital Water Level recorders DWLR with Telemetry | | | | | | |
| 1a | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 30-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | List provided | Nos. | As per list of Installation Sites for DWLR | 4 months from date of signing of contract | 4 months from date of signing of contract | |
| 1b | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 45-mts and sensor cable specified in Table-1 - List | List provided | Nos. | As per list of Installation Sites for DWLR | 4 months from date of signing of contract | 4 months from date of signing of contract | |

| | | | | | | | |
|----|---|---------------|------|--|---|---|--|
| | of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | | | | | |
| 1c | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 75-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | List provided | Nos. | As per list of Installation Sites for DWLR | 4 months from date of signing of contract | 4 months from date of signing of contract | |
| 1d | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 105-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter | List provided | Nos. | As per list of Installation Sites for DWLR | 4 months from date of signing of contract | 4 months from date of signing of contract | |

| | | | | | | | |
|----|---|---------------|------|--|---|---|--|
| | signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | | | | | | |
| 1e | Digital Water Level recorders (DWLRs) with non –vented hydrostatic pressure type sensor and barometric pressure correction for individual station with water level measurement range up to 120-mts and sensor cable specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable, to be installed at depth as per Table-1 and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | List provided | Nos. | As per list of Installation Sites for DWLR | 4 months from date of signing of contract | 4 months from date of signing of contract | |

2. List of Related Services [ITB Clause 14.8(b)] and Completion Schedule

| Service | Description of Service | Quantity | Physical Unit | Place where Services shall be performed | Final Completion Date(s) of Services |
|----------|--|----------|---------------|---|--|
| 1 | Digital Water Level Recorders (DWLRs) –with telemetry system | | | | |
| S-1a | Installation, Testing and Commissioning of Digital Water Level recorders (DWLRs) with non-vented hydrostatic pressure type sensor and barometric pressure correction for individual station with desired measurement range and standard sensor cable as specified in Table-1 - List of Installation Sites for DWLR along with junction boxes and 5 meter signal cable to be installed at depth as per list and necessary accessories with battery operated data logger and telemetry System based on GSM & GPRS as per the technical specifications to be installed at designated locations as per list | 529 | Nos | As per List of Installation Sites for DWLR | 9 months from the date of signing of the contract |
| S-2 | Integration of GSM & GPRS data with the existing Regional Office Data Center, Chandigarh (RODC) with all ancillary equipment as per technical specifications | 01 | Nos | As per List of Installation Sites for DWLR | 4 months from the date of signing of the contract |
| S-3 | Five Years Operation & Maintenance and Comprehensive Warranty for DWLRs with Telemetry system along with accessories, installed at designated locations and Data Center equipment as specified in schedule of requirement after final acceptance and upgradation of all software associated with DWLR systems. This includes replacement of batteries as & when required, replacement of spares/ parts/ equipments/ consumables, periodic inspections, repairing/service charges, the cost of Communication using GSM &GPRS SIM and other related charges. Minimum One Service Engineer shall be placed at Regional Office Data Center for Operation of DWLR system with Telemetry. | 01 | Lot | 1. Location of DWLRs as per List 2. Data Centre Equipment at Regional Office Data Centre, CGWB, Chandigarh | Continuous activity. for five years after successful commissioning and final acceptance certificate of DWLR |

| | | | | | |
|-----|--|----|------------------|--|--|
| S-4 | Comprehensive AMC for DWLR with telemetry System along with all accessories, installed at designated locations and Data Center equipments as specified in schedule of requirement after 5 years warranty period. This includes the replacement of batteries as and when required at bidder's cost; the cost of communication using GSM & GPRS, SIM and High speed Internet charges and other related charges | 1 | Year | 1. Location of DWLRs as per List 2. Data Centre Equipment at Regional Office Data Centre, CGWB, Chandigarh | Year One after expiry of O & M and warranty period of 5 year |
| | | 1 | Year | 1. Location of DWLRs as per List 2. Data Centre Equipment at Regional Data Centre, CGWB, Chandigarh | Year two after expiry of O & M and warranty period of 5 year |
| S-5 | Training of the purchaser's personnel at the supplier's plant and/or/onsite in assembly, startup, operation, maintenance and/or repair of DWLR with telemetry and relevant software and supplied goods. Course topics will include sensor calibration, data logger configuration, data downloading, data retrieval, collection, Trouble shooting, processing maintenance requirements and procedure for equipment configuration, installation, site testing and commissioning including training kit containing course material in soft and hard copies as per technical specification | 24 | Nos. Training | As per table in Schedule of Requirement Two each in CGWB Regional Offices (NWHR, NWR, UR, SUO) & at NDC, Faridabad. | Continuous activity |

Table-1 - LIST OF INSTALLATION DWLR AT SITE IN THE STATE OF JAMMU & KASHMIR, PUNJAB, HARYANA, UT OF CHANDIGARH, & DELHI

| S.No | State wise SI No | State | District | Block | Village | Latitude | Longitude | Depth constructed (m) | WL_Premonsoon 2018 (mbgl) | WL_Post monsoon 2018 (mbgl) | Tentative depth of installation of DWLR (m) |
|------|------------------|----------------|------------|------------|------------------------|----------|-----------|-----------------------|---------------------------|-----------------------------|---|
| 1 | 1 | Chandigarh, UT | Chandigarh | Chandigarh | Bhujal Bhawan Pz- Deep | 30.7597 | 76.8042 | 265.00 | 100.32 | 102.32 | 107.32 |
| 2 | 2 | Chandigarh, UT | Chandigarh | Chandigarh | Csio-combined | 30.7125 | 76.7853 | 146.50 | 52.49 | 53.40 | 58.40 |
| 3 | 3 | Chandigarh, UT | Chandigarh | Chandigarh | CSIO-S | 30.7125 | 76.7853 | 69.00 | 22.29 | 22.34 | 27.34 |
| 4 | 4 | Chandigarh, UT | Chandigarh | Chandigarh | Maloya Pz- Deep | 30.7542 | 76.7194 | 146.00 | 45.52 | 41.51 | 50.52 |
| 5 | 5 | Chandigarh, UT | Chandigarh | Chandigarh | NEW INDUST AREA | 30.6917 | 76.7861 | 119.00 | 23.64 | 23.44 | 28.64 |
| 6 | 6 | Chandigarh, UT | Chandigarh | Chandigarh | RAJENDRA PARK | 30.7667 | 76.8028 | 65.00 | 53.11 | 54.19 | 59.19 |
| 7 | 7 | Chandigarh, UT | Chandigarh | Chandigarh | Sec-27, AR Well | 30.7597 | 76.8042 | 150.00 | 42.38 | 41.81 | 47.38 |
| 8 | 8 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 10C (D) | 30.7500 | 76.7861 | 100.00 | 28.75 | 29.01 | 34.01 |
| 9 | 9 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 10C (S) | 30.7500 | 76.7861 | 121.00 | 14.45 | 19.56 | 24.56 |
| 10 | 10 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 31D (D) | 30.7056 | 76.7806 | 100.00 | 18.82 | 18.60 | 23.82 |
| 11 | 11 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 31D (S) | 30.7056 | 76.7806 | 19.00 | 13.07 | 12.74 | 18.07 |
| 12 | 12 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 37D (D) | 30.7375 | 76.7431 | 120.57 | 16.84 | 17.56 | 22.56 |
| 13 | 13 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 37D (S) | 30.7375 | 76.7431 | 18.00 | 5.10 | 4.46 | 10.10 |
| 14 | 14 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 39D (D) | 30.7375 | 76.7278 | 460.00 | 14.70 | 13.10 | 19.70 |
| 15 | 15 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 39D (S) | 30.7375 | 76.7278 | 16.50 | 5.85 | 5.75 | 10.85 |
| 16 | 16 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 44D (D) | 30.7097 | 76.8014 | 121.00 | 18.21 | 19.20 | 24.20 |
| 17 | 17 | Chandigarh, UT | Chandigarh | Chandigarh | SECT 44D (S) | 30.7097 | 76.8014 | 12.00 | 3.49 | 3.03 | 8.49 |
| 18 | 18 | Chandigarh, UT | Chandigarh | Chandigarh | Sector 52- PZ | 30.7083 | 76.7333 | 162.00 | 12.19 | 15.12 | 20.12 |
| 19 | 19 | Chandigarh, UT | Chandigarh | Chandigarh | Sector-46 (shallow) | 30.7033 | 76.7694 | 25.00 | 7.68 | 7.13 | 12.68 |
| 20 | 20 | Chandigarh, UT | Chandigarh | Chandigarh | Sector-39 (IMD)-S | 30.7404 | 76.7303 | 84.00 | 25.00 | 26.70 | 31.70 |
| 21 | 21 | Chandigarh, UT | Chandigarh | Chandigarh | Sector-39 (IMD)-S | 30.7404 | 76.7303 | 165.00 | 11.21 | 13.21 | 18.21 |

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|----|----|-------|------------|------------------|---------------------------|---------|---------|--------|-------|-------|-------|
| 22 | 1 | Delhi | North | NARELA | Auchandi Pz | 28.8194 | 76.9972 | 55.00 | 5.10 | 2.31 | 10.10 |
| 23 | 2 | Delhi | North | ALIPUR | Bakoli | 28.8153 | 77.1517 | 38.00 | 13.48 | 12.71 | 18.48 |
| 24 | 3 | Delhi | North | NARELA | Bankner Pz | 28.8514 | 77.0736 | 47.00 | 23.80 | 23.88 | 28.88 |
| 25 | 4 | Delhi | North | MODEL TOWN | Bhalaswa Lake Pz | 28.7364 | 77.1628 | 31.00 | 3.61 | 3.51 | 8.61 |
| 26 | 5 | Delhi | South | SAKET | Bhatti Pz | 28.4278 | 77.2083 | 86.00 | 50.95 | 49.61 | 55.95 |
| 27 | 6 | Delhi | Central | CIVIL LINES | Burari Pz | 28.7600 | 77.2075 | 36.00 | 4.30 | 2.46 | 9.30 |
| 28 | 7 | Delhi | New Delhi | DELHI CANTONMENT | Cvd Depot Cant (Deep) | 28.6033 | 77.1111 | 80.00 | 28.52 | 28.93 | 33.93 |
| 29 | 8 | Delhi | South West | KAPESHERA | Daulatpur Pz | 28.5431 | 76.9653 | 29.00 | 14.47 | | 19.47 |
| 30 | 9 | Delhi | South West | DWARKA | Dwarka S-16 (TP) | 28.5856 | 77.0261 | 34.00 | 23.12 | 23.70 | 28.70 |
| 31 | 10 | Delhi | South | MEHRAULI | Gadaipur Pz | 28.4769 | 77.1561 | 79.00 | 61.18 | 62.73 | 67.73 |
| 32 | 11 | Delhi | North | ALIPUR | Haiderpur Pz | 28.7289 | 77.1469 | 51.00 | 13.30 | 13.55 | 18.55 |
| 33 | 12 | Delhi | New Delhi | CHANAKYAPURI | India Gate Pz | 28.6125 | 77.2250 | 35.00 | 8.71 | 8.42 | 13.71 |
| 34 | 13 | Delhi | New Delhi | VASANT VIHAR | J N U Pz (Downstream) | 28.5358 | 77.1569 | 93.80 | 28.97 | 23.46 | 33.97 |
| 35 | 14 | Delhi | Central | CIVIL LINES | Jagatpur Pz 1 | 28.7433 | 77.2214 | 26.00 | 4.07 | 2.40 | 9.07 |
| 36 | 15 | Delhi | West | PATEL NAGAR | Janakpuri Pz | 28.6300 | 77.0914 | 55.00 | 13.61 | 13.21 | 18.61 |
| 37 | 16 | Delhi | South | MEHRAULI | Jaunapur DJB TW | 28.4681 | 77.1500 | 106.00 | 58.65 | 57.52 | 63.65 |
| 38 | 17 | Delhi | South West | NAJAFGARH | Jharoda Kalan Pz | 28.6389 | 76.9736 | 31.00 | 14.74 | 14.98 | 19.98 |
| 39 | 18 | Delhi | New Delhi | DELHI CANTONMENT | Kabul Line Pz | 28.5922 | 77.1275 | 48.00 | 31.12 | 32.37 | 37.37 |
| 40 | 19 | Delhi | North West | KANJHWARIA | Kanjhawala Pz | 28.7250 | 77.0000 | 27.00 | 2.83 | 1.37 | 7.83 |
| 41 | 20 | Delhi | South West | NAJAFGARH | Mandela Khurd Pz | 28.6072 | 76.8939 | 47.00 | 13.24 | | 18.24 |
| 42 | 21 | Delhi | North West | ROHINI | Mangolpur Pz | 28.6903 | 77.0792 | 36.00 | 4.91 | 3.75 | 9.91 |
| 43 | 22 | Delhi | West | RAJOURI GARDEN | Mayapuri Pz | 28.6186 | 77.1111 | 66.00 | 39.38 | 38.85 | 44.38 |
| 44 | 23 | Delhi | East | MAYUR VIHAR | Mayur Vihar B Block Ph II | 28.6164 | 77.3044 | 36.00 | 8.73 | 9.15 | 14.15 |
| 45 | 24 | Delhi | South East | DEFENCE COLONY | Nangli Rajapur Pz | 28.5944 | 77.2733 | 36.00 | 4.50 | 9.75 | 14.75 |
| 46 | 25 | Delhi | South West | DWARKA | Palam Signal Camp Pz | 28.5847 | 77.0936 | 70.00 | 56.92 | | 61.92 |
| 47 | 26 | Delhi | North | ALIPUR | Palla Zero RD | 28.8581 | 77.1964 | 42.00 | 11.56 | 11.13 | 16.56 |

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|----|----|-------|------------|------------------|--------------------------------|-----------|-----------|-------|-------|-------|-------|
| 48 | 27 | Delhi | West | PUNJABI BAGH | Peeragarhi Pz | 28.6781 | 77.0947 | 36.00 | 6.51 | 6.32 | 11.51 |
| 49 | 28 | Delhi | South | HAUZ KHAS | Pusp Vihar Pz | 28.5278 | 77.2267 | 92.00 | 53.60 | 53.78 | 58.78 |
| 50 | 29 | Delhi | North | NARELA | Qatlupur Pz | 28.8347 | 77.0225 | 50.00 | 4.44 | 2.05 | 9.44 |
| 51 | 30 | Delhi | North West | ROHINI | Rohini Sec 11 Pz | 28.7322 | 77.1044 | 24.00 | 8.30 | 7.22 | 13.30 |
| 52 | 31 | Delhi | North | ALIPUR | Rohini Sector 28 | 28.7528 | 77.0950 | 44.00 | 7.94 | 7.94 | 12.94 |
| 53 | 32 | Delhi | New Delhi | DELHI CANTONMENT | Shekhwati Line Pz | 28.5783 | 77.1078 | 65.00 | 47.32 | 47.53 | 52.53 |
| 54 | 33 | Delhi | South West | KAPESHERA | Shikarpur Shallow Pz | 28.5247 | 76.9533 | 40.00 | 10.52 | 10.52 | 15.52 |
| 55 | 34 | Delhi | New Delhi | VASANT VIHAR | Sultanpur IMS Pz | 28.4894 | 77.1458 | 73.00 | 60.47 | 61.78 | 66.78 |
| 56 | 35 | Delhi | North | ALIPUR | Tiggipur Shallow Pz | 28.8147 | 77.1975 | 38.00 | 9.74 | 8.37 | 14.74 |
| 57 | 36 | Delhi | North East | SEELAM PUR | Ushmanpur Pz | 28.6847 | 77.2492 | 37.00 | 6.87 | 2.16 | 11.87 |
| 58 | 1 | Delhi | South East | KALKAJI | Asola Pz | 28°24'45" | 77°16'00" | 60.00 | 51.15 | | 59.00 |
| 59 | 2 | Delhi | North | NARELA | Barwala Pz | 28°45'30" | 77°03'45" | 54.00 | 8.55 | | 20.00 |
| 60 | 3 | Delhi | South West | KAPESHERA | Chhawla Pz | 28°32'47" | 77°00'34" | 42.00 | 16.25 | | 30.00 |
| 61 | 4 | Delhi | East | MAYUR VIHAR | Chilla Regulator | 28°35'14" | 77°18'05" | 35.00 | 10.84 | | 20.00 |
| 62 | 5 | Delhi | East | PREET VIHAR | Gazi Pur Crossing | 28°37'41" | 77°19'05" | 45.00 | 24.05 | | 30.00 |
| 63 | 6 | Delhi | South | HAUZ KHAS | Hauz Khas Pz | 28°32'43" | 77°12'08" | 80.00 | 33.28 | | 40.00 |
| 64 | 7 | Delhi | North | NARELA | Kingsway Camp Police Ground Pz | 28°41'05" | 77°11'58" | 40.00 | 10.75 | | 20.00 |
| 65 | 8 | Delhi | New Delhi | CHANAKYAPURI | Lodhi Garden (D) | 28°35'25" | 77°12'59" | 63.00 | 8.30 | | 20.00 |
| 66 | 9 | Delhi | New Delhi | CHANAKYAPURI | Mahabir Vansth. | 28°36'15" | 77°10'30" | 87.00 | 29.58 | | 40.00 |
| 67 | 10 | Delhi | South West | NAJAFGARH | Mandela Khurd Pz | 28°36'26" | 76°53'38" | 45.00 | 13.24 | | 20.00 |
| 68 | 11 | Delhi | South West | NAJAFGARH | Najafgarh Town | 28°36'53" | 77°00'02" | 75.00 | 22.92 | | 30.00 |
| 69 | 12 | Delhi | North | ALIPUR | Singhola Pz | 28°50'36" | 77°07'46" | 45.00 | 21.58 | | 30.00 |
| 70 | 13 | Delhi | New Delhi | CHANAKYAPURI | Sunder Nursery Pz | 28°35'46" | 77°14'42" | 62.00 | 8.11 | | 20.00 |
| 71 | 14 | Delhi | West | RAJOURI GARDEN | Tagore Garden Pz | 28°38'38" | 77°06'46" | 55.00 | 15.72 | | 30.00 |
| 72 | 15 | Delhi | West | PATEL NAGAR | Vikashpuri Pz | 28°37'56" | 77°04'27" | 65.00 | 16.41 | | 30.00 |

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|-----|----|---------|---------------|--------------|----------------|---------|---------|--------|-------|-------|-------|
| 73 | 1 | Haryana | AMBALA | AMBALA-I | Ambala Harding | 30.3514 | 76.8472 | 450.00 | 13.11 | 11.68 | 18.11 |
| 74 | 2 | Haryana | AMBALA | AMBALA-II | Uplana D | 30.2833 | 77.0333 | 160.00 | 42.34 | 45.16 | 50.16 |
| 75 | 3 | Haryana | AMBALA | AMBALA-II | Gadauli-Pz-D | 30.3831 | 77.1592 | 300.00 | 43.10 | | 48.10 |
| 76 | 4 | Haryana | AMBALA | BARARA | Gadauli-Pz-M | 30.3831 | 77.1592 | 200.00 | 38.90 | | 43.90 |
| 77 | 5 | Haryana | AMBALA | BARARA | Gadauli-Pz-S | 30.3831 | 77.1592 | 100.00 | 38.35 | | 43.35 |
| 78 | 6 | Haryana | AMBALA | NARAINGARH | Jandheri Pz-D | 30.0933 | 76.6103 | 300.00 | 39.90 | | 44.90 |
| 79 | 7 | Haryana | AMBALA | NARAINGARH | Jandheri Pz-M | 30.0933 | 76.6103 | 200.00 | 37.50 | | 42.50 |
| 80 | 8 | Haryana | AMBALA | NARAINGARH | Jandheri Pz-S | 30.0933 | 76.6103 | 100.00 | 38.00 | | 43.00 |
| 81 | 9 | Haryana | BHIWANI | SHIWANI | Gurera-pz | 28.9458 | 75.5167 | 78.00 | 15.62 | 16.08 | 21.08 |
| 82 | 10 | Haryana | BHIWANI | BHIWANI | Sagban | 28.8722 | 75.9583 | 48.00 | 2.72 | 0.37 | 7.72 |
| 83 | 11 | Haryana | BHIWANI | LOHARU | Miran-Pz | 28.8486 | 75.7417 | 140.00 | 3.34 | 4.46 | 9.46 |
| 84 | 12 | Haryana | BHIWANI | SIWANI | Loharwala-100 | 28.6291 | 76.3604 | 100.00 | 3.44 | | 8.44 |
| 85 | 13 | Haryana | BHIWANI | SIWANI | Loharwala-200 | 28.6291 | 76.3604 | 200.00 | 3.37 | | 8.37 |
| 86 | 14 | Haryana | BHIWANI | SIWANI | Loharwala-300 | 28.6291 | 76.3604 | 300.00 | 3.77 | | 8.77 |
| 87 | 15 | Haryana | BHIWANI | SIWANI | Pataudi Khurd | 28.7972 | 75.8083 | 68.00 | 12.62 | 12.05 | 17.62 |
| 88 | 16 | Haryana | BHIWANI | SIWANI | Jhumpa Kalan | 28.7667 | 75.5292 | 60.00 | 32.53 | 35.12 | 40.12 |
| 89 | 17 | Haryana | BHIWANI | TOSHAM | Miran | 28.8417 | 75.7417 | 55.00 | 4.18 | 3.65 | 9.18 |
| 90 | 18 | Haryana | BHIWANI | TOSHAM | Singhani PZM | 28.6403 | 75.7958 | 154.00 | 81.83 | 82.74 | 87.74 |
| 91 | 19 | Haryana | CHARKHI DADRI | BADHRA | Tigrana S | 28.8570 | 76.1339 | 100.00 | 1.77 | | 6.77 |
| 92 | 20 | Haryana | CHARKHI DADRI | DADRI - I | Tigrana M | 28.8570 | 76.1339 | 200.00 | 2.00 | | 7.00 |
| 93 | 21 | Haryana | CHARKHI DADRI | DADRI - I | Tigrana D | 28.8570 | 76.1339 | 300.00 | 9.13 | | 14.13 |
| 94 | 22 | Haryana | CHARKHI DADRI | DADRI - I | Jui Kalan-Pz | 28.6333 | 75.9389 | 60.00 | 31.02 | 32.00 | 37.00 |
| 95 | 23 | Haryana | FARIDABAD | BALLABGARH | Bhopani | 28.4292 | 77.3917 | 54.00 | 22.75 | 22.50 | 27.75 |
| 96 | 24 | Haryana | FARIDABAD | FARIDABAD | NH-IV- CHQ | 28.4181 | 77.3139 | 105.50 | 48.12 | 49.22 | 54.22 |
| 97 | 25 | Haryana | FARIDABAD | FARIDABAD | Pali2 | 28.3681 | 77.2486 | 39.00 | 19.57 | 28.60 | 33.60 |
| 98 | 26 | Haryana | FARIDABAD | FARIDABAD | Kabulpur Pz | 28.2642 | 77.2456 | 252.00 | 19.67 | 19.28 | 24.67 |
| 99 | 27 | Haryana | FATEHABAD | BHATTU KALAN | Mehu Wala Pz | 29.4133 | 75.3278 | 80.00 | 3.92 | 3.82 | 8.92 |
| 100 | 28 | Haryana | FATEHABAD | BHUNA | Bannawali S | 29.3985 | 75.4299 | 100.00 | 4.68 | | 9.68 |
| 101 | 29 | Haryana | FATEHABAD | FATEHABAD | Bannawali-M | 30.3985 | 76.4299 | 200.00 | 4.66 | | 9.66 |

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|-----|----|---------|-----------|-------------|---------------------|---------|---------|--------|-------|-------|-------|
| 102 | 30 | Haryana | FATEHABAD | FATEHABAD | Khajuri Jatti-Pz | 29.4756 | 75.6111 | 100.00 | 4.24 | 4.85 | 9.85 |
| 103 | 31 | Haryana | FATEHABAD | TOHANA | Nangla-Pz-D | 29.6172 | 75.8914 | 300.00 | 10.83 | 14.50 | 19.50 |
| 104 | 32 | Haryana | FATEHABAD | TOHANA | Nangla-Pz-M | 29.6172 | 75.8914 | 200.00 | 11.73 | 11.90 | 16.90 |
| 105 | 33 | Haryana | FATEHABAD | TOHANA | Nangla-Pz-S | 29.6172 | 75.8914 | 100.00 | 8.89 | 8.79 | 13.89 |
| 106 | 34 | Haryana | FATEHABAD | Bhuna | Bhuna S | 29.5333 | 75.7042 | 75.00 | 18.70 | 18.45 | 23.70 |
| 107 | 35 | Haryana | GURGAON | FARUKHNAGAR | Pataudi-Pz | 28.3375 | 76.7542 | 50.00 | 40.00 | 39.78 | 45.00 |
| 108 | 36 | Haryana | GURGAON | FARUKHNAGAR | Jamalpur-Pz | 28.3708 | 76.8361 | 100.00 | 35.00 | 33.60 | 40.00 |
| 109 | 37 | Haryana | GURGAON | FARUKHNAGAR | Mouzabad | 28.2967 | 76.6903 | 68.00 | 40.20 | 38.86 | 45.20 |
| 110 | 38 | Haryana | GURGAON | FARUKHNAGAR | Fazilpur Badli-Pz | 28.4250 | 76.8583 | 113.00 | 31.98 | 30.12 | 36.98 |
| 111 | 39 | Haryana | GURGAON | PATAUDI | Khera Khurrampur-Pz | 28.4417 | 76.7722 | 102.00 | 19.60 | 18.85 | 24.60 |
| 112 | 40 | Haryana | HISAR | ADAMPUR | Adampur-Pz | 29.2783 | 75.4919 | 95.50 | 4.64 | 4.14 | 9.64 |
| 113 | 41 | Haryana | HISAR | ADAMPUR | Ghursal-Pz | 29.1708 | 75.4228 | 108.00 | 8.74 | 8.52 | 13.74 |
| 114 | 42 | Haryana | HISAR | HANSI | Khanda Kheri-Pz | 29.2089 | 76.2333 | 102.00 | 10.06 | 8.96 | 15.06 |
| 115 | 43 | Haryana | HISAR | HANSI | Uklana Mandi-Pz | 29.5083 | 75.8583 | 105.00 | 14.29 | 14.80 | 19.80 |
| 116 | 44 | Haryana | HISAR | HANSI | Banbhauri-Pz | 29.4000 | 76.0500 | 102.00 | 6.61 | 6.31 | 11.61 |
| 117 | 45 | Haryana | HISAR | AGROHA | Barwala-Pz | 29.3867 | 75.9167 | 100.00 | 8.87 | 8.26 | 13.87 |
| 118 | 46 | Haryana | HISAR | Agroha | Behbalpur-Pz | 29.2833 | 75.7894 | 109.00 | 1.43 | 1.52 | 6.52 |
| 119 | 47 | Haryana | HISAR | Agroha | Mangali-Pz | 29.0417 | 75.7222 | 109.00 | 4.90 | 4.06 | 9.90 |
| 120 | 48 | Haryana | HISAR | Agroha | Kherijalab-Pz | 29.3417 | 76.0833 | 100.00 | 10.70 | 9.70 | 15.70 |
| 121 | 49 | Haryana | HISAR | BARWALA | Sorkhi-Pz | 29.0583 | 76.1089 | 105.00 | 3.97 | 1.67 | 8.97 |
| 122 | 50 | Haryana | HISAR | BARWALA | Thurana | 29.1461 | 76.1189 | 112.00 | 3.00 | 2.15 | 8.00 |
| 123 | 51 | Haryana | HISAR | BARWALA | Agroha-Pz | 29.3250 | 75.6228 | 102.00 | 8.09 | 7.81 | 13.09 |
| 124 | 52 | Haryana | HISAR | HISAR - I | Kuleri -100 | 29.3606 | 75.6603 | 100.00 | 6.68 | | 11.68 |
| 125 | 53 | Haryana | HISAR | Hissar-I | Kuleri -200 | 30.3606 | 76.6603 | 200.00 | 6.52 | | 11.52 |
| 126 | 54 | Haryana | HISAR | Hissar-I | Kuleri -300 | 31.3606 | 77.6603 | 300.00 | 3.71 | | 8.71 |
| 127 | 55 | Haryana | HISAR | NARNAUD | Alipur Kharar-100 | 29.1217 | 75.8989 | 100.00 | 3.97 | | 8.97 |
| 128 | 56 | Haryana | HISAR | NARNAUD | Alipur Kharar-200 | 30.1217 | 76.8989 | 200.00 | 3.70 | | 8.70 |

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|-----|----|---------|---------|-------------|-------------------|---------|---------|--------|-------|-------|-------|
| 129 | 57 | Haryana | HISAR | NARNAUD | Alipur Kharar-300 | 31.1217 | 77.8989 | 300.00 | 3.64 | | 8.64 |
| 130 | 58 | Haryana | HISAR | Narnaud | Kapro-100 | 29.3789 | 76.1131 | 100.00 | 11.91 | | 16.91 |
| 131 | 59 | Haryana | HISAR | Narnaud | Kapro-200 | 30.3789 | 77.1131 | 200.00 | 11.91 | | 16.91 |
| 132 | 60 | Haryana | HISAR | Narnaud | Kapro-300 | 31.3789 | 78.1131 | 300.00 | 10.84 | | 15.84 |
| 133 | 61 | Haryana | JHAJJAR | BAHADURGARH | Gabhana | 28.5708 | 76.8417 | 63.00 | 1.11 | 1.13 | 6.13 |
| 134 | 62 | Haryana | JIND | SAFIDON | Rojhala-Pz-D | 29.3644 | 76.6069 | 300.00 | 14.00 | 15.50 | 20.50 |
| 135 | 63 | Haryana | JIND | SAFIDON | Rojhala-Pz-M | 29.3644 | 76.6069 | 200.00 | 11.50 | 11.68 | 16.68 |
| 136 | 64 | Haryana | JIND | SAFIDON | Rojhala-Pz-S | 29.3644 | 76.6069 | 100.00 | 11.14 | 6.50 | 16.14 |
| 137 | 65 | Haryana | JIND | UCHANA | Karsola-S | 29.1483 | 76.4136 | 100.00 | 3.30 | | 8.30 |
| 138 | 66 | Haryana | JIND | UCHANA | Karsola-M | 30.1483 | 77.4136 | 200.00 | 3.40 | | 8.40 |
| 139 | 67 | Haryana | JIND | UCHANA | Karsola-D | 31.1483 | 78.4136 | 300.00 | 4.10 | | 9.10 |
| 140 | 68 | Haryana | JIND | SAFIDON | Baroda | 29.4389 | 76.1889 | 80.00 | 19.00 | 18.68 | 24.00 |
| 141 | 69 | Haryana | JIND | JIND | Lochap Pz | 29.3583 | 76.4222 | 80.00 | 16.23 | 18.40 | 23.40 |
| 142 | 70 | Haryana | KAITHAL | GULHA | Sirsal-Pz | 29.6875 | 76.6667 | 101.00 | 28.10 | 28.29 | 33.29 |
| 143 | 71 | Haryana | KAITHAL | GULHA | Jakhauli-Pz | 29.6583 | 76.4292 | 100.00 | 13.80 | 14.11 | 19.11 |
| 144 | 72 | Haryana | KAITHAL | GULHA | Manaspatti-Pz | 29.8292 | 76.3292 | 90.00 | 38.38 | 41.19 | 46.19 |
| 145 | 73 | Haryana | KAITHAL | KAITHAL | Peoda_Pz | 29.7472 | 76.4167 | 95.00 | 15.78 | 14.16 | 20.78 |
| 146 | 74 | Haryana | KAITHAL | KAITHAL | Balbahera pz | 29.8000 | 76.3800 | 119.00 | 35.38 | 37.80 | 42.80 |
| 147 | 75 | Haryana | KAITHAL | KAITHAL | Siwan-Pz | 29.8833 | 76.3539 | 80.00 | 43.10 | 44.81 | 49.81 |
| 148 | 76 | Haryana | KAITHAL | PUNDRI | Pundri(d) | 29.7778 | 76.5750 | 211.00 | 32.15 | 33.01 | 38.01 |
| 149 | 77 | Haryana | KAITHAL | PUNDRI | Pundri(s) | 29.7778 | 76.5750 | 98.00 | 27.17 | 29.10 | 34.10 |
| 150 | 78 | Haryana | KAITHAL | PUNDRI | Padla 2(d) | 30.1000 | 76.3000 | 279.70 | 44.12 | 45.27 | 50.27 |
| 151 | 79 | Haryana | KAITHAL | PUNDRI | Balbehra-Pz | 29.8472 | 76.6614 | 106.00 | 35.38 | 37.80 | 42.80 |
| 152 | 80 | Haryana | KAITHAL | Kalayat | Balu-Pz-D | 29.6569 | 76.3569 | 300.00 | 29.96 | 27.00 | 34.96 |
| 153 | 81 | Haryana | KAITHAL | Kalayat | Balu-Pz-M | 29.6569 | 76.3569 | 200.00 | 16.68 | 11.33 | 21.68 |
| 154 | 82 | Haryana | KAITHAL | Kalayat | Balu-Pz-S | 29.6569 | 76.3569 | 100.00 | 7.80 | 6.35 | 12.80 |
| 155 | 83 | Haryana | KAITHAL | RAJOUND | Ghuna-Pz | 29.7658 | 76.2600 | 120.00 | 28.03 | 29.18 | 34.18 |
| 156 | 84 | Haryana | KAITHAL | Kalayat | Jajanpur-Pz-D | 29.9050 | 76.6067 | 300.00 | 26.30 | 34.24 | 39.24 |
| 157 | 85 | Haryana | KAITHAL | Kalayat | Jajanpur-Pz-M | 29.9050 | 76.6067 | 200.00 | 31.36 | 33.52 | 38.52 |
| 158 | 86 | Haryana | KAITHAL | Kalayat | Jajanpur-Pz-S | 29.9050 | 76.6067 | 100.00 | 31.60 | 33.77 | 38.77 |

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|-----|-----|---------|---------|-----------|--------------------|---------|---------|--------|-------|-------|-------|
| 159 | 87 | Haryana | KAITHAL | Kalayat | Majri-Pz-D | 29.9850 | 76.2383 | 200.00 | 51.24 | 52.11 | 57.11 |
| 160 | 88 | Haryana | KAITHAL | Kalayat | Rasulpur Ghamri-Pz | 29.9142 | 76.2606 | 119.60 | 41.97 | 43.73 | 48.73 |
| 161 | 89 | Haryana | KAITHAL | ASSANDH | Islam Nagar-Pz-D | 29.8750 | 77.1125 | 282.00 | 9.65 | 8.92 | 14.65 |
| 162 | 90 | Haryana | KARNAL | ASSANDH | Islam Nagar-Pz-M | 29.8750 | 77.1125 | 179.00 | 8.98 | 8.22 | 13.98 |
| 163 | 91 | Haryana | KARNAL | ASSANDH | Islam Nagar-Pz-S | 29.8750 | 77.1125 | 82.00 | 9.60 | 8.40 | 14.60 |
| 164 | 92 | Haryana | KARNAL | GHARAUNDA | KheriNaru-Pz-D | 29.6486 | 76.9136 | 300.00 | 15.00 | 14.87 | 20.00 |
| 165 | 93 | Haryana | KARNAL | GHARAUNDA | KheriNaru-Pz-M | 29.6486 | 76.9136 | 200.00 | 13.76 | 13.03 | 18.76 |
| 166 | 94 | Haryana | KARNAL | GHARAUNDA | KheriNaru-Pz-S | 29.6486 | 76.9136 | 100.00 | 14.40 | 12.96 | 19.40 |
| 167 | 95 | Haryana | KAITHAL | PUNDRI | Kaul-Pz | 29.8472 | 76.6614 | 113.00 | 28.30 | 30.95 | 35.95 |
| 168 | 96 | Haryana | KARNAL | GHARAUNDA | Jaroli Khurd-Pz | 29.7403 | 77.1042 | 90.00 | 8.05 | 6.19 | 13.05 |
| 169 | 97 | Haryana | KARNAL | GHARAUNDA | Mohidinpur-Pz | 29.5022 | 77.0014 | 100.00 | 15.78 | 15.48 | 20.78 |
| 170 | 98 | Haryana | KARNAL | GHARAUNDA | Nalvi Kalan-Pz | 29.6939 | 77.0986 | 86.00 | 13.60 | 12.40 | 18.60 |
| 171 | 99 | Haryana | KARNAL | INDRI | Faridpur-Pz | 29.4611 | 77.0375 | 100.00 | 27.17 | 26.25 | 32.17 |
| 172 | 100 | Haryana | KARNAL | INDRI | Jalmana PZ | 29.6694 | 76.7236 | 70.00 | 26.20 | 28.45 | 33.45 |
| 173 | 101 | Haryana | KARNAL | ASSANDH | Mound M | 29.5181 | 76.5472 | 185.00 | 26.56 | 27.77 | 32.77 |
| 174 | 102 | Haryana | KARNAL | INDRI | Faridpur-PZ | 29.4819 | 77.0506 | 76.00 | 27.17 | 26.25 | 32.17 |
| 175 | 103 | Haryana | KARNAL | KARNAL | Mundi Garhi--PZ | 29.5306 | 77.0842 | 70.00 | 12.05 | 10.65 | 17.05 |
| 176 | 104 | Haryana | KARNAL | KARNAL | Chorkharsa-Pz | 29.6267 | 76.6728 | 78.40 | 29.00 | 32.43 | 37.43 |
| 177 | 105 | Haryana | KARNAL | KARNAL | Garhi Khajur M | 29.5333 | 77.0569 | 180.00 | 17.35 | 16.69 | 22.35 |
| 178 | 106 | Haryana | KARNAL | KARNAL | Garhi Khajur S | 29.5333 | 77.0569 | 85.00 | 15.99 | 19.77 | 24.77 |
| 179 | 107 | Haryana | KARNAL | KARNAL | Sadarpur-PZ | 29.5642 | 77.0736 | 80.00 | 8.79 | 9.41 | 14.41 |
| 180 | 108 | Haryana | KARNAL | KARNAL | Kamal D | 29.6833 | 76.9500 | 263.00 | 24.42 | 24.97 | 29.97 |
| 181 | 109 | Haryana | KARNAL | KARNAL | Phurlak M | 29.5500 | 76.9333 | 184.00 | 24.11 | 23.54 | 29.11 |
| 182 | 110 | Haryana | KARNAL | KARNAL | Phurlak S | 29.5500 | 76.9333 | 64.00 | 22.55 | 25.61 | 30.61 |
| 183 | 111 | Haryana | KARNAL | KARNAL | Jundla1 | 29.6431 | 76.8667 | 63.00 | 21.31 | 22.33 | 27.33 |
| 184 | 112 | Haryana | KARNAL | KARNAL | Shekhpur 2(d) | 29.7167 | 77.0167 | 258.00 | 19.30 | 18.47 | 24.30 |
| 185 | 113 | Haryana | KARNAL | NISSANG | Chochra-PZ | 29.6322 | 76.6311 | 80.00 | 26.52 | 25.47 | 31.52 |
| 186 | 114 | Haryana | KARNAL | NISSANG | Sambli-Pz-M | 29.7583 | 76.8000 | 106.61 | 25.10 | 27.45 | 32.45 |
| 187 | 115 | Haryana | KARNAL | NISSANG | Sambli-Pz-S | 29.7583 | 76.8000 | 63.10 | 24.35 | 25.15 | 30.15 |

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|-----|-----|---------|--------------|-------------|----------------------|---------|---------|--------|-------|-------|-------|
| 188 | 116 | Haryana | KARNAL | NISSANG | Amupur-PZ | 29.7600 | 76.7258 | 75.00 | 28.89 | 28.41 | 33.89 |
| 189 | 117 | Haryana | KARNAL | NISSANG | Amin S | 29.8722 | 76.8444 | 64.00 | 32.34 | 33.57 | 38.57 |
| 190 | 118 | Haryana | KARNAL | INDRI | Kalri Jagir S | 29.9472 | 77.1333 | 66.00 | 5.96 | 6.17 | 11.17 |
| 191 | 119 | Haryana | KURUKSHETRA | PEHOWA | Sirsala-Pz | 30.0003 | 76.5019 | 100.00 | 29.15 | 30.18 | 35.18 |
| 192 | 120 | Haryana | KURUKSHETRA | PEHOWA | Ban- Pz | 29.9922 | 77.0908 | 93.00 | 29.44 | 30.50 | 35.50 |
| 193 | 121 | Haryana | KURUKSHETRA | PEHOWA | Baronda-Pz | 29.9556 | 77.0522 | 103.00 | 21.70 | 23.08 | 28.08 |
| 194 | 122 | Haryana | KURUKSHETRA | PEHOWA | Bachki-Pz | 30.0394 | 76.7556 | 100.00 | 34.50 | 37.72 | 42.72 |
| 195 | 123 | Haryana | KURUKSHETRA | PEHOWA | Murtzapur-Pz | 29.9889 | 76.7514 | 96.00 | 33.98 | 35.96 | 40.96 |
| 196 | 124 | Haryana | KURUKSHETRA | BABAIN | Jogna Khera | 29.9736 | 76.8278 | 103.00 | 33.30 | 34.83 | 39.83 |
| 197 | 125 | Haryana | KURUKSHETRA | BABAIN | Jogna Khera | 29.9736 | 76.8278 | 156.00 | 34.84 | 37.85 | 42.85 |
| 198 | 126 | Haryana | KURUKSHETRA | KURUKSHETRA | Khanpur Jattan D-Pz. | 30.1269 | 76.8408 | 300.00 | 42.23 | 44.86 | 49.86 |
| 199 | 127 | Haryana | KURUKSHETRA | KURUKSHETRA | Khanpur Jattan M -Pz | 30.1250 | 76.8608 | 200.00 | 43.97 | 42.44 | 48.97 |
| 200 | 128 | Haryana | KURUKSHETRA | KURUKSHETRA | Khanpur Jattan S | 30.1275 | 76.8594 | 100.00 | 35.12 | 36.15 | 41.15 |
| 201 | 129 | Haryana | KURUKSHETRA | PEHOWA | Ishaque S | 30.0167 | 76.4917 | 60.00 | 34.86 | 38.32 | 43.32 |
| 202 | 130 | Haryana | KURUKSHETRA | PEHOWA | Pehowa (D) | 29.9833 | 76.5806 | 194.00 | 38.28 | 40.53 | 45.53 |
| 203 | 131 | Haryana | KURUKSHETRA | PEHOWA | Manthana-PZ | 29.9558 | 76.4925 | 75.00 | 33.85 | 36.50 | 41.50 |
| 204 | 132 | Haryana | KURUKSHETRA | PEHOWA | Bodhni (m) | 30.0542 | 76.5583 | 152.00 | 36.57 | 38.91 | 43.91 |
| 205 | 133 | Haryana | KURUKSHETRA | PEHOWA | Batheri-PZ | 29.9392 | 76.5922 | 75.00 | 37.08 | 39.07 | 44.07 |
| 206 | 134 | Haryana | KURUKSHETRA | KURUKSHETRA | Hatira (s) | 29.9500 | 76.7625 | 66.00 | 29.22 | 30.38 | 35.38 |
| 207 | 135 | Haryana | KURUKSHETRA | KURUKSHETRA | Hatira (m) | 29.9500 | 76.7625 | 193.00 | 34.85 | 35.92 | 40.92 |
| 208 | 136 | Haryana | KURUKSHETRA | SHAHBAD | Kaulapur S | 30.0250 | 76.8958 | 73.00 | 38.80 | 41.51 | 46.51 |
| 209 | 137 | Haryana | KURUKSHETRA | SHAHBAD | Umri-PzCGWB | 29.9461 | 76.9061 | 103.00 | 41.87 | 43.34 | 48.34 |
| 210 | 138 | Haryana | KURUKSHETRA | SHAHBAD | Khanpur Jatta D-Pz | 30.0400 | 76.9572 | 302.00 | 43.51 | 44.63 | 49.63 |
| 211 | 139 | Haryana | KURUKSHETRA | SHAHBAD | Khanpur Jattan S -Pz | 30.1250 | 76.8608 | 55.00 | 39.30 | 41.90 | 46.90 |
| 212 | 140 | Haryana | KURUKSHETRA | SHAHBAD | Berthala S | 30.1292 | 76.9428 | 78.00 | 39.33 | 41.22 | 46.22 |
| 213 | 141 | Haryana | MAHENDRAGARH | | Deroli Ahir | 28.1733 | 76.1564 | 38.50 | 17.07 | 13.90 | 22.07 |
| 214 | 142 | Haryana | MAHENDRAGARH | | Buwana-Pz | 28.3861 | 76.1778 | 118.00 | 55.30 | 56.10 | 61.10 |
| 215 | 143 | Haryana | PALWAL | HATHIN | Khambi | 27.9708 | 77.4167 | 200.15 | 3.95 | 2.90 | 8.95 |

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|-----|-----|---------|-----------|------------|-------------------|---------|---------|--------|-------|-------|-------|
| 216 | 144 | Haryana | PALWAL | HATHIN | Pehladpur-Pz | 28.0225 | 77.1767 | 100.00 | 7.50 | 5.54 | 12.50 |
| 217 | 145 | Haryana | PALWAL | HODAL | Lakhnaka | 28.0347 | 77.1875 | 92.70 | 8.50 | 8.70 | 13.70 |
| 218 | 146 | Haryana | PALWAL | HODAL | Badraun | 28.1944 | 77.3778 | 52.00 | 8.90 | 7.35 | 13.90 |
| 219 | 147 | Haryana | PALWAL | PALWAL | Barauli-Pz | 28.0778 | 77.4389 | 52.00 | 14.02 | 14.24 | 19.24 |
| 220 | 148 | Haryana | PALWAL | PALWAL | Mandkola | 28.1492 | 77.1853 | 159.00 | 1.60 | 1.84 | 6.84 |
| 221 | 149 | Haryana | PANCHKULA | BARWALA | Barwala-D | 30.5667 | 76.9333 | 150.00 | 18.51 | 19.84 | 24.84 |
| 222 | 150 | Haryana | PANCHKULA | BARWALA | Barwala-S | 30.5667 | 76.9333 | 75.00 | 12.50 | 14.32 | 19.32 |
| 223 | 151 | Haryana | PANIPAT | SAMALKHA | Patti Kalyana M | 29.2097 | 77.0278 | 187.00 | 32.55 | 35.56 | 40.56 |
| 224 | 152 | Haryana | PANIPAT | SAMALKHA | Patti Kalyana S | 29.2097 | 77.0278 | 68.00 | 34.49 | 35.97 | 40.97 |
| 225 | 153 | Haryana | PANIPAT | SAMALKHA | Dakadla M | 29.2236 | 77.0667 | 187.00 | 28.31 | 30.15 | 35.15 |
| 226 | 154 | Haryana | PANIPAT | SAMALKHA | Dakadla S | 29.2236 | 77.0667 | 85.00 | 24.42 | 26.28 | 31.28 |
| 227 | 155 | Haryana | PANIPAT | PANIPAT | Bhallour Pz | 29.3100 | 77.0983 | 63.00 | 14.84 | 15.04 | 20.04 |
| 228 | 156 | Haryana | PANIPAT | PANIPAT | Hathwala-Pz | 29.2264 | 77.1181 | 114.00 | 16.06 | 16.78 | 21.78 |
| 229 | 157 | Haryana | PANIPAT | BAPOLI | Sink | 29.3186 | 76.6403 | 70.00 | 6.54 | 5.61 | 11.54 |
| 230 | 158 | Haryana | PANIPAT | BAPOLI | Lohari (s) | 29.3583 | 76.8389 | 33.00 | 3.71 | 2.56 | 8.71 |
| 231 | 159 | Haryana | PANIPAT | SAMALKHA | Khelalla Pehl S | 29.2931 | 76.9792 | 70.00 | 29.10 | 31.22 | 36.22 |
| 232 | 160 | Haryana | PANIPAT | SAMALKHA | Etola-Pz-M | 29.3472 | 76.7417 | 75.00 | 13.96 | 14.62 | 19.62 |
| 233 | 161 | Haryana | PANIPAT | SAMALKHA | Etola-Pz-S | 29.3472 | 76.7417 | 55.00 | 13.25 | 14.30 | 19.30 |
| 234 | 162 | Haryana | PANIPAT | SAMALKHA | Karhansh Pz | 29.2558 | 77.0100 | 87.00 | 36.08 | 37.35 | 42.35 |
| 235 | 163 | Haryana | PANIPAT | SAMALKHA | Babail M-Pz | 29.4292 | 77.0500 | 204.00 | 26.12 | 27.26 | 32.26 |
| 236 | 164 | Haryana | PANIPAT | SAMALKHA | Babail Pz S | 29.4292 | 77.0500 | 75.00 | 24.00 | 24.01 | 29.01 |
| 237 | 165 | Haryana | REWARI | KHOL | Mandola-Pz | 28.2278 | 76.3556 | 132.00 | 69.40 | 69.70 | 74.70 |
| 238 | 166 | Haryana | REWARI | KHOL | Rholiawas-Pz | 28.2417 | 76.5083 | 80.00 | 12.85 | 12.15 | 17.85 |
| 239 | 167 | Haryana | SIRSA | ODHAN | Saktakhera S | 29.8903 | 74.6283 | 100.00 | 7.87 | 8.50 | 13.50 |
| 240 | 168 | Haryana | SIRSA | ODHAN | Saktakhera-M | 30.8903 | 75.6283 | 200.00 | 5.03 | | 10.03 |
| 241 | 169 | Haryana | SIRSA | ODHAN | Saktakhera-D | 31.8903 | 76.6283 | 300.00 | 5.22 | | 10.22 |
| 242 | 170 | Haryana | SIRSA | ELLLENABAD | Sherawali Dhani-S | 29.3933 | 74.6176 | 100.00 | 15.55 | 16.24 | 21.24 |
| 243 | 171 | Haryana | SIRSA | RANIA | Sherawali Dhani-M | 30.3933 | 75.6176 | 200.00 | 18.24 | 21.65 | 26.65 |
| 244 | 172 | Haryana | SIRSA | RANIA | Mammer Khera-Pz | 29.6722 | 74.6569 | 105.00 | 20.06 | 19.92 | 25.06 |
| 245 | 173 | Haryana | SIRSA | RANIA | Dariyawala-S | 29.6162 | 74.8899 | 100.00 | 14.21 | | 19.21 |

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|-----|-----|---------|-------------|---------------------|----------------------|---------|---------|--------|-------|-------|-------|
| 246 | 174 | Haryana | SIRSA | RANIA | Dariyawala-M | 30.6162 | 75.8899 | 200.00 | 15.21 | | 20.21 |
| 247 | 175 | Haryana | SIRSA | NATHUSARI CHOPRA | Dariyawala-D | 31.6162 | 76.8899 | 300.00 | 16.00 | | 21.00 |
| 248 | 176 | Haryana | SIRSA | NATHUSARI CHOPRA | Jamal- Pz | 29.3278 | 74.9861 | 108.00 | 5.95 | 6.27 | 11.27 |
| 249 | 177 | Haryana | SIRSA | NATHUSARI CHOPRA | Kumahria-S | 28.2572 | 74.1444 | 100.00 | 11.49 | | 16.49 |
| 250 | 178 | Haryana | SIRSA | SIRSA | Kumahria-M | 29.2572 | 75.1444 | 200.00 | 11.56 | | 16.56 |
| 251 | 179 | Haryana | SONIPAT | GANAUR | Khanpur Kalan- Pz | 29.1597 | 76.8278 | 89.00 | 3.44 | 4.14 | 9.14 |
| 252 | 180 | Haryana | SONIPAT | GANAUR | KheoraPz | 28.9667 | 77.1208 | 69.00 | 29.94 | 29.62 | 34.94 |
| 253 | 181 | Haryana | SONIPAT | GANAUR | Mohana Pzm | 29.1542 | 77.1125 | 60.00 | 4.40 | 3.77 | 9.40 |
| 254 | 182 | Haryana | SONIPAT | GANAUR | Rukhi-Pz | 29.0839 | 76.6750 | 80.00 | 1.85 | 0.71 | 6.85 |
| 255 | 183 | Haryana | SONIPAT | SONEPAT | Barwasni Pz (d) | 29.0000 | 76.9667 | 321.00 | 10.78 | 7.52 | 15.78 |
| 256 | 184 | Haryana | SONIPAT | SONEPAT | Barwasni Pz (s) | 29.0000 | 76.9667 | 70.32 | 9.94 | 8.72 | 14.94 |
| 257 | 185 | Haryana | SONIPAT | SONEPAT | Barauli-Pz | 29.0194 | 77.0294 | 111.00 | 10.59 | 11.52 | 16.52 |
| 258 | 186 | Haryana | SONIPAT | SONEPAT | Janti Khurd-Pz | 28.8458 | 77.1583 | 103.00 | 13.18 | 14.32 | 19.32 |
| 259 | 187 | Haryana | SONIPAT | GOHANA | Bega Pz | 29.1542 | 77.1125 | 47.00 | 18.38 | 18.59 | 23.59 |
| 260 | 188 | Haryana | SONIPAT | RAI | Jhakauli- Pz | 28.9319 | 77.1639 | 44.00 | 23.00 | 19.56 | 28.00 |
| 261 | 189 | Haryana | SONIPAT | RAI | Rasoi Pz | 28.9028 | 77.1139 | 53.00 | 19.60 | 19.23 | 24.60 |
| 262 | 190 | Haryana | SONIPAT | RAI | Rathdhana-Pz | 28.9083 | 77.1806 | 124.23 | 25.04 | 26.84 | 31.84 |
| 263 | 191 | Haryana | SONIPAT | RAI | Kami- PZ | 29.0292 | 77.0167 | 111.14 | 39.60 | 40.13 | 45.13 |
| 264 | 192 | Haryana | SONIPAT | RAI | Pugthala-Pz | 29.1675 | 76.8875 | 101.00 | 10.38 | 10.79 | 15.79 |
| 265 | 193 | Haryana | SONIPAT | RAI | Purkhas-Pz | 29.0653 | 76.8319 | 111.00 | 19.02 | 21.17 | 26.17 |
| 266 | 194 | Haryana | YAMUNANAGAR | CHACHHRAULI | Naggal M | 30.0694 | 77.2808 | 200.00 | 7.30 | 5.74 | 12.30 |
| 267 | 195 | Haryana | YAMUNANAGAR | JAGADHRI | Naggal-S | 30.0694 | 77.2808 | 70.00 | 6.12 | 5.00 | 11.12 |
| 268 | 196 | Haryana | YAMUNANAGAR | JAGADHRI | Damla-Pz | 30.0833 | 77.2167 | 35.00 | 12.30 | 14.65 | 19.65 |
| 269 | 197 | Haryana | YAMUNANAGAR | JAGADHRI | Shahabpura-Pz | 30.1308 | 77.1128 | 55.00 | 29.84 | 30.66 | 35.66 |
| 270 | 198 | Haryana | YAMUNANAGAR | JAGADHRI | Shahabpura-Pz | 30.1269 | 77.1150 | 60.00 | 30.23 | 27.88 | 35.23 |
| 271 | 199 | Haryana | YAMUNANAGAR | JAGADHRI | Dhaurang M | 30.0667 | 77.1917 | 185.00 | 20.16 | 18.88 | 25.16 |

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|-----|-----|---------|-------------|-------------|-------------------|-------------|-------------|--------|-------|-------|-------|
| 272 | 200 | Haryana | YAMUNANAGAR | RADAUR | Jhiwarheri M | 30.1250 | 77.0861 | 199.60 | 33.32 | 33.30 | 38.32 |
| 273 | 201 | Haryana | YAMUNANAGAR | RADAUR | Masana Jattan-Pz | 30.1319 | 77.1239 | 107.00 | 29.30 | 32.59 | 37.59 |
| 274 | 202 | Haryana | YAMUNANAGAR | RADAUR | Bhambauli-2 (d) | 30.1667 | 77.2000 | 421.00 | 26.05 | 18.14 | 31.05 |
| 275 | 203 | Haryana | YAMUNANAGAR | RADAUR | Dhanauri S | 30.2792 | 77.3583 | 57.00 | 15.21 | 16.20 | 21.20 |
| 276 | 204 | Haryana | YAMUNANAGAR | SADHURA | Sadhaura M | 30.3833 | 77.2250 | 185.00 | 19.06 | 22.30 | 27.30 |
| 277 | 1 | Haryana | BHIWANI | BADHRA | GOPI | 28°33'10" N | 75°57'20" E | 110.00 | 61.77 | | 70.00 |
| 278 | 2 | Haryana | FATEHABAD | RATIA | AHARWAN | 29°36'28" N | 75°32'30" E | 104.00 | 64.24 | | 70.00 |
| 279 | 3 | Haryana | GURGAON | PATAUDI | Lokra* | 28°16'50" N | 76°45'20" E | 93.00 | 37.40 | | 50.00 |
| 280 | 4 | Haryana | HISAR | HISAR -I | HISSAR | 29°08'24" N | 75°43'20" E | 102.00 | 7.85 | | 20.00 |
| 281 | 5 | Haryana | HISAR | HISSAR - II | BALSMAND | 29°20'20" N | 75°30'00" E | 108.00 | 17.67 | | 30.00 |
| 282 | 6 | Haryana | HISAR | NARNAUD | NARNAUD | 29°07'00" N | 75°34'00" E | 100.00 | 16.01 | | 30.00 |
| 283 | 7 | Haryana | JIND | NARWANA | MOHAL KHERA | 29°38'10" N | 76°07'50" E | 80.00 | 7.65 | | 20.00 |
| 284 | 8 | Haryana | KAITHAL | KALAYAT | GUHNA | 29°45'57" N | 76°15'38" E | 109.00 | 28.18 | | 40.00 |
| 285 | 9 | Haryana | KAITHAL | RAJOUND | KATHANA | 29°32'45" N | 76°23'35" E | 97.00 | 16.35 | | 30.00 |
| 286 | 10 | Haryana | KARNAL | ASSANDH | MOUND S | 29°31'05" N | 76°32'50" E | 73.00 | 25.70 | | 40.00 |
| 287 | 11 | Haryana | KARNAL | GHARAUNDA | DHINGER MAJRA | 29°30'10" N | 76°55'15" E | 92.00 | 35.60 | | 50.00 |
| 288 | 12 | Haryana | KARNAL | INDRI | NANHERA/ | 29°52'10" N | 77°05'30" E | 65.00 | 24.80 | | 30.00 |
| 289 | 13 | Haryana | KARNAL | NILOKHERI | DADUPUR | 29°45'57" N | 76°58'20" E | 75.00 | 19.89 | | 30.00 |
| 290 | 14 | Haryana | KARNAL | NISSANG | RORAN MAJRA | 29°47'15" N | 76°43'45" E | 57.00 | 31.15 | | 40.00 |
| 291 | 15 | Haryana | KURUKSHETRA | ISMALABAD | MALIKPUR-SINGHPUR | 30°00'00" N | 76°45'05" E | 89.00 | 42.28 | | 50.00 |
| 292 | 16 | Haryana | KURUKSHETRA | LADWA | DABKHERA | 30°00'02" N | 76°45'13" E | 80.00 | 35.65 | | 50.00 |
| 293 | 17 | Haryana | KURUKSHETRA | PEHOWA | BODHNI | 30°03'15" N | 76°33'30" E | 67.00 | 36.09 | | 50.00 |

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|-----|----|---------|-----------------|-------------|---------------------|----------------|-----------------|--------|-------|--|-------|
| 294 | 18 | Haryana | KURUKSHETRA | SHAHBAD | SMALKHI | 30°14'06" N | 76°49'4 0" E | 83.00 | 48.28 | | 60.00 |
| 295 | 19 | Haryana | KURUKSHETRA | THANESAR | Kaulapur | 30°01'30" N | 76°53'4 5" E | 73.00 | 42.58 | | 50.00 |
| 296 | 20 | Haryana | PALWAL | HASSANPUR | PIRGARHI | 28°02'40" N | 77°28'2 0" E | 102.00 | 9.92 | | 20.00 |
| 297 | 21 | Haryana | PALWAL | HODEL | DIGHOUT | 27°58'15" N | 77°25'0 0" E | 40.00 | 12.06 | | 20.00 |
| 298 | 22 | Haryana | PALWAL | PIRTHLA | JAWAN | 28°13'40" N | 77°25'0 0" E | 76.00 | 18.13 | | 30.00 |
| 299 | 23 | Haryana | PANIPAT | BAPOLI | SANAULI KHURD | 29°22'50" N | 77°07'2 5" E | 67.00 | 16.15 | | 30.00 |
| 300 | 24 | Haryana | PANIPAT | ISRANA | PUTHER | 29°14'00" N | 76°52'4 0" E | 48.00 | 11.78 | | 20.00 |
| 301 | 25 | Haryana | PANIPAT | SAMALKHA | HATHWALA | 29°13'35" N | 77°07'0 5" E | 84.00 | 14.75 | | 20.00 |
| 302 | 26 | Haryana | REWARI | KHOL | MANDOLA | 28°13'40" N | 76°21'2 0" E | 119.00 | 66.70 | | 80.00 |
| 303 | 27 | Haryana | SIRSA | BARAGUDHA | PHAGGU | 29°37'20" N | 75°01'2 0" E | 90.00 | 5.01 | | 10.01 |
| 304 | 28 | Haryana | SIRSA | DABWALI | CHOTALA | 29°46'25" N | 74°31'3 0" E | 85.00 | 12.00 | | 20.00 |
| 305 | 29 | Haryana | SIRSA | ELLLENABAD | BHURTWALA | 29°25'30" N | 74°46'1 5" E | 103.00 | 9.40 | | 20.00 |
| 306 | 30 | Haryana | SIRSA | NS CHOPRA | DARBAKALAN | 29°23'30" N | 75°05'2 0" E | 102.00 | 1.90 | | 10.00 |
| 307 | 31 | Haryana | SIRSA | ODHAN | KALAN WALI MANDI | 29°50'20" N | 74°59'2 0" E | 89.00 | 8.64 | | 20.00 |
| 308 | 32 | Haryana | SIRSA | RANIA | MUMMERKHE RA | 29°40'20" N | 74°39'2 5" E | 105.00 | 19.52 | | 30.00 |
| 309 | 33 | Haryana | SIRSA | SIRSA | SIRSA | 29°32'09" N | 75°02'5 8" E | 112.00 | 39.90 | | 50.00 |
| 310 | 34 | Haryana | SONIPAT | GANAUR | DATAULI | 29°09'35" N | 77°04'5 0" E | 78.00 | 25.85 | | 40.00 |
| 311 | 35 | Haryana | SONIPAT | SONEPAT | MURTHAL | 29°02'26" N | 77°05'2 8" E | 76.00 | 34.35 | | 40.00 |
| 312 | 36 | Haryana | YAMUNA NAGAR | CHACHHRAULI | CHACHHRAUL I | 30°15'00" N | 77°22'0 0" E | 93.00 | 16.50 | | 30.00 |
| 313 | 37 | Haryana | YAMUNA NAGAR | JAGADHRI | BAMBAULI | 30°10'00" N | 77°12'0 0" E | 50.00 | 18.12 | | 30.00 |
| 314 | 38 | Haryana | YAMUNA NAGAR | MUSTAFABAD | JHIWAR HERI | 30°07'30" N | 77°05'1 0" E | 63.00 | 32.36 | | 40.00 |
| 315 | 39 | Haryana | YAMUNA NAGAR | RADAUR | DHAURANG | 30°04'00" N | 77°11'3 0" E | 55.00 | 16.15 | | 30.00 |

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|-----|----|-------------------|--------------|-------------|-----------------------|-------------|-------------|--------|-------|-------|-------|
| 316 | 40 | Haryana | YAMUNA NAGAR | SADHURA | SADHURA | 30°03'07" N | 77°07'18" E | 47.00 | 8.30 | | 20.00 |
| 317 | 41 | Haryana | KARNAL | GHARAUNDA | Kutail | 29°35'10" | 77°01'20" | 65.00 | 27.50 | | 40.00 |
| 318 | 1 | Jammu and Kashmir | Jammu | Miran Sahib | Miran Sahib-2 | 32.6420 | 74.8076 | 57.16 | 13.66 | 3.20 | 18.66 |
| 319 | 2 | Jammu and Kashmir | Jammu | Miran Sahib | Miran Sahib-3 | 32.6420 | 74.8076 | 39.48 | 13.70 | 2.78 | 18.70 |
| 320 | 3 | Jammu and Kashmir | Jammu | R.S. Pura | R.S.Pura-2 | 32.6114 | 74.7361 | 100.00 | 15.62 | 2.40 | 20.62 |
| 321 | 4 | Jammu and Kashmir | Jammu | R.S. Pura | Baspur Bangla-1 | 32.6151 | 74.6961 | 100.00 | 15.20 | 7.20 | 20.20 |
| 322 | 5 | Jammu and Kashmir | Jammu | R.S. Pura | Baspur Bangla-2 | 32.6151 | 74.6961 | 100.00 | 13.76 | 6.40 | 18.76 |
| 323 | 6 | Jammu and Kashmir | Jammu | R.S. Pura | Baspur Bangla-3 | 32.6151 | 74.6961 | 47.21 | 14.90 | 6.32 | 19.90 |
| 324 | 7 | Jammu and Kashmir | Jammu | R.S. Pura | Chakrohi-1 | 32.5367 | 74.7193 | 100.00 | 15.72 | 3.40 | 20.72 |
| 325 | 8 | Jammu and Kashmir | Jammu | R.S. Pura | Chakrohi-2 | 32.5367 | 74.7193 | 100.00 | 14.11 | 3.80 | 19.11 |
| 326 | 9 | Jammu and Kashmir | Jammu | Samba | Pandorian-1 | 32.5604 | 74.8617 | 100.00 | 16.64 | 4.65 | 21.64 |
| 327 | 10 | Jammu and Kashmir | Jammu | Samba | Pandorian-2 | 32.5604 | 74.8617 | 64.16 | 10.38 | 4.30 | 15.38 |
| 328 | 11 | Jammu and Kashmir | Samba | Samba | Ramgarh-2 | 32.5078 | 74.9692 | 56.36 | 5.34 | 1.20 | 10.34 |
| 329 | 12 | Jammu and Kashmir | Srinagar | Srinagar | Botanical Garden - I | 34.0908 | 74.8832 | 250.00 | 15.00 | 6.00 | 20.00 |
| 330 | 13 | Jammu and Kashmir | Srinagar | Srinagar | Botanical Garden - II | 34.0908 | 74.8832 | 250.00 | 17.00 | 4.00 | 22.00 |
| 331 | 14 | Jammu and Kashmir | Ganderbal | Ganderbal | Shuhama | 34.1995 | 74.8257 | 200.00 | 27.00 | 4.00 | 32.00 |
| 332 | 1 | Punjab | AMRITSAR | AJNALA | Urdhan-Pz-D | 31.8786 | 74.8661 | 298.00 | 9.61 | 9.63 | 14.63 |
| 333 | 2 | Punjab | AMRITSAR | AJNALA | Urdhan-Pz-M | 31.8786 | 74.8661 | 252.00 | 9.47 | 9.58 | 14.58 |
| 334 | 3 | Punjab | AMRITSAR | AJNALA | Urdhan-Pz-S | 31.8786 | 74.8661 | 200.00 | 9.54 | 9.79 | 14.79 |
| 335 | 4 | Punjab | BARNALA | BARNALA | Bamala (m) | 30.3625 | 75.5250 | 301.80 | 38.67 | 39.97 | 44.97 |
| 336 | 5 | Punjab | BARNALA | BARNALA | Bamala (s) | 30.3625 | 75.5250 | 86.00 | 38.71 | 39.89 | 44.89 |
| 337 | 6 | Punjab | BATHINDA | BATHINDA | Ganga-Pz | 30.3619 | 74.8347 | 57.00 | 15.65 | 16.75 | 21.75 |
| 338 | 7 | Punjab | BATHINDA | BATHINDA | Gulabgarh 1 (vs) | 30.1500 | 75.0000 | 30.00 | 13.15 | 13.58 | 18.58 |
| 339 | 8 | Punjab | BATHINDA | BATHINDA | Gulabgarh 2 (s) | 30.1500 | 75.0000 | 59.10 | 14.13 | 14.13 | 19.13 |

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| 340 | 9 | Punjab | BATHINDA | BATHINDA | Gulabgarh 3 (m) | 30.1500 | 75.0000 | 297.90 | 15.26 | 14.16 | 20.26 |
| 341 | 10 | Punjab | BATHINDA | BATHINDA | Kheliwala (d) | 30.3000 | 74.9167 | 545.00 | 17.90 | 23.90 | 28.90 |
| 342 | 11 | Punjab | BATHINDA | NATHANA | Kalyan Sukha M | 30.3742 | 75.1089 | 205.18 | 27.40 | 27.65 | 32.65 |
| 343 | 12 | Punjab | BATHINDA | NATHANA | Kalyan Sukha-D | 30.3731 | 75.1156 | 277.00 | 27.45 | 27.65 | 32.65 |
| 344 | 13 | Punjab | BATHINDA | NATHANA | Kalyan Sukha-S | 30.3731 | 75.1156 | 75.00 | 27.55 | 27.69 | 32.69 |
| 345 | 14 | Punjab | BATHINDA | RAMPURA | Badijala-Pz | 30.2350 | 75.3478 | 63.14 | 29.51 | 31.95 | 36.95 |
| 346 | 15 | Punjab | BATHINDA | SANGAT | Sangat -Pz | 30.0914 | 74.8289 | 41.35 | 7.49 | 5.70 | 12.49 |
| 347 | 16 | Punjab | BATHINDA | TALWANDI SABO | Guru Sar-Pz | 29.9931 | 75.0917 | 50.77 | 9.47 | 9.78 | 14.78 |
| 348 | 17 | Punjab | FARIDKOT | FARIDKOT | Sukhwala-Pz | 30.6464 | 74.6394 | 50.00 | 2.11 | 2.23 | 7.23 |
| 349 | 18 | Punjab | FARIDKOT | FARIDKOT | Tehna-Pz | 30.6900 | 74.7906 | 85.00 | 9.60 | 9.10 | 14.60 |
| 350 | 19 | Punjab | FARIDKOT | FARIDKOT | Wara Dwarka-Pz | 30.5519 | 74.7542 | 75.00 | 4.17 | 3.71 | 9.17 |
| 351 | 20 | Punjab | FARIDKOT | FARIDKOT | Nangal-Pz | 30.6661 | 74.8586 | 65.00 | 9.46 | 9.90 | 14.90 |
| 352 | 21 | Punjab | FARIDKOT | KOTKAPURA | Deviwala-D | 30.6122 | 74.8706 | 300.00 | 7.16 | 9.06 | 14.06 |
| 353 | 22 | Punjab | FARIDKOT | KOTKAPURA | Deviwala-M | 30.6122 | 74.8706 | 200.00 | 6.80 | 7.95 | 12.95 |
| 354 | 23 | Punjab | FARIDKOT | KOTKAPURA | Deviwala-S | 30.6122 | 74.8706 | 100.00 | 8.08 | 6.44 | 13.08 |
| 355 | 24 | Punjab | FATEH GARH | AMLOH | Bhaddal Tuha-Pz | 30.5908 | 76.2333 | 90.00 | 41.29 | 46.60 | 51.60 |
| 356 | 25 | Punjab | FATEH GARH | BASSI PATHANA | Bhateri1 | 30.7000 | 76.5375 | 60.00 | 33.03 | 34.18 | 39.18 |
| 357 | 26 | Punjab | FATEH GARH | FATEH GARH | Inayatpur-PZ-D | 30.6478 | 76.3900 | 288.00 | 20.80 | 21.64 | 26.64 |
| 358 | 27 | Punjab | FATEH GARH | FATEH GARH | Inayatpur-PZ-M | 30.6478 | 76.3900 | 198.00 | 20.76 | 21.37 | 26.37 |
| 359 | 28 | Punjab | FATEH GARH | FATEH GARH | Inayatpur-PZ-S | 30.6178 | 76.4225 | 103.00 | 20.18 | 21.02 | 26.02 |
| 360 | 29 | Punjab | FATEH GARH | SIRHIND | Sadowal | 30.6478 | 76.3900 | 175.00 | 23.15 | 23.90 | 28.90 |
| 361 | 30 | Punjab | FATEH GARH | KHERA | Badalialasingh | 30.6417 | 76.5167 | 55.00 | 38.08 | 39.04 | 44.04 |
| 362 | 31 | Punjab | FAZILKA | KHUIAN SARWAR | Jaimal Singhwala Pz | 31.0611 | 74.8250 | 50.00 | 9.70 | 11.28 | 16.28 |
| 363 | 32 | Punjab | FAZILKA | KHUIAN SARWAR | Khuiansarwar-Pz | 30.1128 | 74.0778 | 57.00 | 1.95 | 2.09 | 7.09 |
| 364 | 33 | Punjab | FAZILKA | FAZILKA | Bannawala | 30.2819 | 74.0278 | 17.00 | 2.38 | 3.17 | 8.17 |
| 365 | 34 | Punjab | FAZILKA | FAZILKA | Sham Singhwala-Pz | 30.8083 | 74.4833 | 50.00 | 5.23 | 4.94 | 10.23 |

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| 366 | 35 | Punjab | FAZILKA | GURU HARSAHAI | Swah Wala- Pz | 30.6275 | 74.3103 | 56.68 | 10.45 | 10.99 | 15.99 |
| 367 | 36 | Punjab | FIROZPUR | FIROZPUR | Mohre Wala-Pz | 30.8572 | 74.5781 | 56.95 | 7.05 | 7.05 | 12.05 |
| 368 | 37 | Punjab | FIROZPUR | MAMDOT | Malsian-Pz | 30.8167 | 74.3806 | 47.73 | 11.98 | 13.37 | 18.37 |
| 369 | 38 | Punjab | GURDASPUR | FATEHGARH CHURIA | Ghania Ki bangar- Pz | 31.8667 | 75.0500 | 62.76 | 8.46 | 7.80 | 13.46 |
| 370 | 39 | Punjab | GURDASPUR | QUADIAN | Harchowal-Pz-D | 31.7881 | 75.4303 | 302.00 | 16.24 | 15.77 | 21.24 |
| 371 | 40 | Punjab | GURDASPUR | QUADIAN | Harchowal-Pz-M | 31.7881 | 75.4303 | 202.00 | 14.09 | 12.97 | 19.09 |
| 372 | 41 | Punjab | GURDASPUR | QUADIAN | Harchowal-Pz-S | 31.7881 | 75.4303 | 91.60 | 14.00 | 12.79 | 19.00 |
| 373 | 42 | Punjab | GURDASPUR | DERA BABA NANAK | Mulowali 1(vs) | 31.9917 | 75.0083 | 10.00 | 4.58 | 4.36 | 9.58 |
| 374 | 43 | Punjab | GURDASPUR | DERA BABA NANAK | Mulowali 2(m) | 31.9917 | 75.0083 | 129.00 | 6.36 | 6.17 | 11.36 |
| 375 | 44 | Punjab | GURDASPUR | KALANAUR | Saleh Chak-S | 32.0500 | 75.1833 | 302.00 | 4.17 | 4.28 | 9.28 |
| 376 | 45 | Punjab | GURDASPUR | KALANAUR | Salehchak(vs) | 32.0500 | 75.1833 | 40.00 | 3.94 | 3.94 | 8.94 |
| 377 | 46 | Punjab | HOSHIARPUR | DASUA | Dasuya1 (d) | 31.8000 | 75.6667 | 260.00 | 9.33 | 9.23 | 14.33 |
| 378 | 47 | Punjab | HOSHIARPUR | GARHSHANKAR | Garhshankar (s) | 31.2500 | 76.0500 | 55.00 | 25.63 | 26.40 | 31.40 |
| 379 | 48 | Punjab | HOSHIARPUR | MAHILPUR | Mahilpur-Pz | 31.3583 | 76.0417 | 65.36 | 23.07 | 19.82 | 28.07 |
| 380 | 49 | Punjab | HOSHIARPUR | GARHSHANKAR | Simbli- OW | 31.1431 | 76.1783 | 256.00 | 20.77 | 18.55 | 25.77 |
| 381 | 50 | Punjab | HOSHIARPUR | GARHSHANKAR | Simbli-Pz | 31.1431 | 76.1783 | 110.00 | 19.66 | 16.58 | 24.66 |
| 382 | 51 | Punjab | HOSHIARPUR | BHUNGA | Adowal Garhi-Pz | 31.9625 | 75.6186 | 71.89 | 22.55 | 24.65 | 29.65 |
| 383 | 52 | Punjab | HOSHIARPUR | BHUNGA | Garh Di Wala-Pz | 31.7500 | 75.7417 | 68.84 | 17.02 | 15.23 | 22.02 |
| 384 | 53 | Punjab | HOSHIARPUR | HOSHIARPUR - II | Phuglana- Pz | 31.3836 | 75.8336 | 77.36 | 28.45 | 25.01 | 33.45 |
| 385 | 54 | Punjab | HOSHIARPUR | HOSHIARPUR - II | Rampur Colony (HSP) pz-medium | 31.5028 | 75.9472 | 150.00 | 16.30 | 17.35 | 22.35 |
| 386 | 55 | Punjab | HOSHIARPUR | HOSHIARPUR - II | Rampur Colony(HSP) pz-deep | 31.5028 | 75.9472 | 290.00 | 29.75 | 31.58 | 36.58 |
| 387 | 56 | Punjab | JALANDHAR | JALANDHAR-EAST | Lallian kalan Pz-D | 31.2625 | 75.4917 | 350.00 | 36.20 | 37.82 | 42.82 |

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| 388 | 57 | Punjab | JALANDHAR | JALANDHAR-EAST | Lallian kalan Pz-M | 31.2625 | 75.4917 | 165.00 | 32.33 | 34.58 | 39.58 |
| 389 | 58 | Punjab | JALANDHAR | JALANDHAR-EAST | Lallian kalan Pz-S | 31.2625 | 75.4917 | 50.00 | 37.59 | 38.13 | 43.13 |
| 390 | 59 | Punjab | JALANDHAR | JALANDHAR-WEST | Kartarpur 1(d) | 31.4361 | 75.4986 | 229.00 | 22.97 | 22.58 | 27.97 |
| 391 | 60 | Punjab | JALANDHAR | BHOGPUR | Kharal Kalan Pz-M | 31.6028 | 75.6500 | 250.00 | 15.33 | 15.32 | 20.33 |
| 392 | 61 | Punjab | JALANDHAR | BHOGPUR | Kharal Kalan Pz- D | 31.6033 | 75.6500 | 350.00 | 14.60 | 15.18 | 20.18 |
| 393 | 62 | Punjab | JALANDHAR | ADAMPUR | Adampur 1(d) | 31.4222 | 75.7083 | 127.00 | 28.96 | 27.50 | 33.96 |
| 394 | 63 | Punjab | JALANDHAR | ADAMPUR | Adampur 3(s) | 31.4222 | 75.7083 | 39.00 | 8.71 | 7.23 | 13.71 |
| 395 | 64 | Punjab | JALANDHAR | JALANDHAR-CITY | Jalandhar 1(d) | 31.3250 | 75.5889 | 302.72 | 37.96 | 38.08 | 43.08 |
| 396 | 65 | Punjab | JALANDHAR | JALANDHAR-CITY | Jalandhar 3(vs) | 31.3250 | 75.5889 | 46.00 | 42.96 | 43.12 | 46.00 |
| 397 | 66 | Punjab | JALANDHAR | NAKODAR | Nakodar 1(d) | 31.1333 | 75.4850 | 304.00 | 23.60 | 24.65 | 29.65 |
| 398 | 67 | Punjab | JALANDHAR | NAKODAR | Nakodar 3(s) | 31.1333 | 75.4850 | 50.00 | 35.43 | 36.45 | 41.45 |
| 399 | 68 | Punjab | JALANDHAR | NURMAHAL | Sarih Pz-M | 31.1292 | 75.5500 | 150.00 | 30.74 | 32.42 | 37.42 |
| 400 | 69 | Punjab | JALANDHAR | PHILLAUR | Phillaur 1(d) | 31.0292 | 75.7931 | 302.32 | 17.73 | 17.42 | 22.73 |
| 401 | 70 | Punjab | JALANDHAR | RURKA KALAN | Goraya- D Pz | 31.1222 | 75.7569 | 322.00 | 24.20 | 25.14 | 30.14 |
| 402 | 71 | Punjab | JALANDHAR | RURKA KALAN | Goraya-Pz | 31.1222 | 75.7569 | 171.00 | 23.84 | 25.64 | 30.64 |
| 403 | 72 | Punjab | JALANDHAR | SHAHKOT | Malsian-D Pz | 31.1250 | 75.3611 | 354.00 | 22.40 | 24.48 | 29.48 |
| 404 | 73 | Punjab | JALANDHAR | SHAHKOT | Malsian-M Pz | 31.1250 | 75.3611 | 255.00 | 27.19 | 28.82 | 33.82 |
| 405 | 74 | Punjab | JALANDHAR | SHAHKOT | Shahkot(D) | 31.0794 | 75.3303 | 261.00 | 28.07 | 27.59 | 33.07 |
| 406 | 75 | Punjab | KAPURTHALA | DHILWAN | Bholath D | 31.5347 | 75.5056 | 265.00 | 9.08 | 8.92 | 14.08 |
| 407 | 76 | Punjab | KAPURTHALA | DHILWAN | Bholath M | 31.5347 | 75.5056 | 95.00 | 10.24 | 9.43 | 15.24 |
| 408 | 77 | Punjab | KAPURTHALA | DHILWAN | Bholath S | 31.5347 | 75.5056 | 95.00 | 10.22 | 9.82 | 15.22 |
| 409 | 78 | Punjab | KAPURTHALA | DHILWAN | Bhatnura Khurd- D | 31.6042 | 75.5878 | 300.00 | 18.01 | 13.34 | 23.01 |
| 410 | 79 | Punjab | KAPURTHALA | DHILWAN | Bhatnura Khurd- M | 31.6042 | 75.5878 | 150.00 | 15.48 | 15.19 | 20.48 |
| 411 | 80 | Punjab | KAPURTHALA | KAPURTHALA | Hussainpura-D Pz | 31.5708 | 75.5711 | 350.00 | 24.90 | 22.65 | 29.90 |
| 412 | 81 | Punjab | KAPURTHALA | KAPURTHALA | Hussainpura-M Pz | 31.5708 | 75.5711 | 230.00 | 20.72 | 21.69 | 26.69 |

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| 413 | 82 | Punjab | KAPURTHALA | KAPURTHALA | Hussainpura-S Pz | 31.5708 | 75.5711 | 75.00 | 26.46 | 26.02 | 31.46 |
| 414 | 83 | Punjab | KAPURTHALA | KAPURTHALA | Kapurthala1 (d) | 31.3694 | 75.3806 | 271.00 | 26.33 | 25.19 | 31.33 |
| 415 | 84 | Punjab | KAPURTHALA | PHAGWARA | Phagwara D Pz | 31.2292 | 75.7792 | 301.70 | 29.79 | 29.02 | 34.79 |
| 416 | 85 | Punjab | KAPURTHALA | SULTANPUR LODHI | Sultanpur1 (d) | 31.2194 | 75.2000 | 243.00 | 13.66 | 14.33 | 19.33 |
| 417 | 86 | Punjab | KAPURTHALA | SULTANPUR LODHI | Talwandi Chaudary -Pz | 31.2958 | 75.2000 | 68.10 | 11.10 | 11.60 | 16.60 |
| 418 | 87 | Punjab | LUDHIANA | JAGRAON | Jagraon 2(s) | 30.7750 | 75.4708 | 84.00 | 16.54 | 17.24 | 22.24 |
| 419 | 88 | Punjab | LUDHIANA | JAGRAON | Jagraon1(d) | 30.7750 | 75.4708 | 250.00 | 23.64 | 23.64 | 28.64 |
| 420 | 89 | Punjab | LUDHIANA | KHANNA | Maksudra-Pz | 30.7019 | 76.2186 | 153.54 | 9.43 | 9.34 | 14.43 |
| 421 | 90 | Punjab | LUDHIANA | LUDHIANA - I | P.A.U.Ludhiana 1(d) | 30.9028 | 75.8111 | 302.16 | 30.90 | 34.14 | 39.14 |
| 422 | 91 | Punjab | LUDHIANA | LUDHIANA - II | Mangat-Pz-D | 30.9786 | 75.9119 | 302.83 | 12.54 | 12.50 | 17.54 |
| 423 | 92 | Punjab | LUDHIANA | LUDHIANA - II | Mangat-Pz-M | 30.9786 | 75.9119 | 203.85 | 13.11 | 11.57 | 18.11 |
| 424 | 93 | Punjab | LUDHIANA | SIDHWAN BET | Sidhwan Bet-Pz | 30.9233 | 75.4400 | 66.33 | 9.80 | 9.43 | 14.80 |
| 425 | 94 | Punjab | LUDHIANA | DEHLON | Gopalpur 1(d) | 30.7375 | 75.8417 | 302.16 | 19.50 | 19.96 | 24.96 |
| 426 | 95 | Punjab | LUDHIANA | SUDHAR | Hallwara-Pz-M | 30.7233 | 75.6400 | 203.85 | 27.26 | 28.54 | 33.54 |
| 427 | 96 | Punjab | LUDHIANA | SUDHAR | Hallwara-Pz-S | 30.7233 | 75.6394 | 103.00 | 27.89 | 28.33 | 33.33 |
| 428 | 97 | Punjab | LUDHIANA | MACHHIWARA | Samrala 1(d) | 30.8833 | 76.2000 | 293.26 | 18.95 | 14.74 | 23.95 |
| 429 | 98 | Punjab | LUDHIANA | MACHHIWARA | Samrala 2(s) | 30.8833 | 76.2000 | 74.35 | 14.94 | 14.59 | 19.94 |
| 430 | 99 | Punjab | MANSA | BUDHLADA | Mofar-Pz | 29.7792 | 75.4194 | 257.00 | 17.62 | 18.29 | 23.29 |
| 431 | 100 | Punjab | MANSA | BHIKHI | Bhikhi 1 (s) | 30.0667 | 75.5375 | 57.10 | 18.02 | 18.74 | 23.74 |
| 432 | 101 | Punjab | MUKTSAR | LAMBI | Lambi- Pz | 30.0583 | 74.6033 | 152.00 | 2.55 | 2.12 | 7.55 |
| 433 | 102 | Punjab | MUKTSAR | MALOUT | Khunde Halal-Pz | 30.3642 | 74.4033 | 40.98 | 2.09 | 1.55 | 7.09 |
| 434 | 103 | Punjab | MUKTSAR | MUKTSAR | Doda-Pz | 30.3356 | 74.6231 | 41.17 | 3.45 | 0.86 | 8.45 |
| 435 | 104 | Punjab | MUKTSAR | MUKTSAR | Dohak-D | 30.6281 | 74.6031 | 168.00 | 1.28 | 135.00 | 140.00 |
| 436 | 105 | Punjab | MUKTSAR | MUKTSAR | Dohak-S | 30.6281 | 74.6031 | 100.00 | 1.95 | 2.05 | 7.05 |
| 437 | 106 | Punjab | PATIALA | NABHA | Chehal-Pz | 30.5386 | 76.2369 | 156.45 | 25.30 | 25.25 | 30.30 |
| 438 | 107 | Punjab | PATIALA | NABHA | Rajgarh | 30.4156 | 76.7322 | 176.38 | 26.15 | 26.36 | 31.36 |
| 439 | 108 | Punjab | PATIALA | NABHA | Ramgarh | 30.5550 | 76.7147 | 156.68 | 34.10 | 32.53 | 39.10 |
| 440 | 109 | Punjab | PATIALA | NABHA | Bhojo majri 07pz | 30.4153 | 76.1744 | 40.00 | 27.03 | 26.60 | 32.03 |

| | | | | | | | | | | | |
|-----|-----|--------|-------------|------------------|-------------------|---------|---------|--------|-------|-------|-------|
| 441 | 110 | Punjab | PATIALA | NABHA | Kalyan 07pz | 30.3528 | 76.3083 | 40.00 | 26.87 | 28.18 | 33.18 |
| 442 | 111 | Punjab | PATIALA | BHUNER HERI | Miranpur- Pz | 30.2083 | 76.4944 | 100.00 | 31.96 | 31.96 | 36.96 |
| 443 | 112 | Punjab | PATIALA | PATIALA | Birkauli | 30.4139 | 76.5139 | 51.00 | 29.88 | 30.70 | 35.70 |
| 444 | 113 | Punjab | PATIALA | GHANAUR | Kami Kalan | 30.3778 | 76.6792 | 30.00 | 13.18 | 11.97 | 18.18 |
| 445 | 114 | Punjab | PATIALA | RAJPURA | Rajpura deep Pz | 30.4833 | 76.6042 | 253.00 | 40.04 | 40.80 | 45.80 |
| 446 | 115 | Punjab | PATIALA | RAJPURA | Rajpura Pz M | 30.3500 | 76.3542 | 49.00 | 37.57 | 39.86 | 44.86 |
| 447 | 116 | Punjab | PATIALA | RAJPURA | Thua | 30.5000 | 76.5542 | 74.00 | 35.41 | 38.44 | 43.44 |
| 448 | 117 | Punjab | RUPNAGAR | CHAMKAUR SAHIB | Rurki Heeran-Pz | 30.8500 | 76.4278 | 101.71 | 20.55 | 20.22 | 25.55 |
| 449 | 118 | Punjab | RUPNAGAR | MORINDA | Chatamli- Pz | 30.8117 | 76.5383 | 88.34 | 39.65 | 39.27 | 44.65 |
| 450 | 119 | Punjab | SANGRUR | DHURI | Bhojowali-Pz | 30.3378 | 75.9247 | 168.00 | 38.10 | 39.42 | 44.42 |
| 451 | 120 | Punjab | SANGRUR | DHURI | Ghanauri Kalan-Pz | 30.4239 | 75.7767 | 150.06 | 40.80 | 42.18 | 47.18 |
| 452 | 121 | Punjab | SANGRUR | DHURI | Ladda-Pz | 30.3733 | 75.8556 | 71.47 | 34.93 | 37.17 | 42.17 |
| 453 | 122 | Punjab | SANGRUR | DHURI | Bugra (main) | 30.2861 | 75.7611 | 246.00 | 35.54 | 33.75 | 40.54 |
| 454 | 123 | Punjab | SANGRUR | DHURI | Bugra 1 | 30.2861 | 75.7611 | 130.00 | 34.22 | 33.44 | 39.22 |
| 455 | 124 | Punjab | SANGRUR | DHURI | Benra | 30.3339 | 75.8492 | 101.00 | 36.04 | 36.90 | 41.90 |
| 456 | 125 | Punjab | SANGRUR | MALER KOTLA - II | Bagarian-Pz | 30.4589 | 76.0208 | 65.81 | 31.46 | 32.31 | 37.31 |
| 457 | 126 | Punjab | SANGRUR | AMARGARH | Manvi-Pz | 30.5475 | 76.0169 | 152.00 | 25.26 | 24.34 | 30.26 |
| 458 | 127 | Punjab | SANGRUR | BHAWANIGARH | Majji-PZ | 30.2875 | 76.0972 | 200.00 | 29.39 | 35.62 | 40.62 |
| 459 | 128 | Punjab | SAS NAGAR | DERA BASSI | Lalru-S | 30.4828 | 76.7972 | 85.00 | 18.62 | 21.20 | 26.20 |
| 460 | 129 | Punjab | SAS NAGAR | DERA BASSI | Lalru-D | 30.4828 | 76.7972 | 165.00 | 26.38 | 27.52 | 32.52 |
| 461 | 130 | Punjab | SAS NAGAR | DERA BASSI | Handesaran-D | 30.4278 | 76.6667 | 244.00 | 69.95 | 71.12 | 76.12 |
| 462 | 131 | Punjab | SBS NAGAR | BALACHAUR | Mahendpur-Pz | 31.1356 | 76.2189 | 350.00 | 34.77 | 40.24 | 45.24 |
| 463 | 132 | Punjab | SBS NAGAR | BALACHAUR | Mauhra-Pz | 31.1167 | 76.0056 | 71.60 | 35.13 | 34.11 | 40.13 |
| 464 | 133 | Punjab | SBS NAGAR | SAROYA | Balachaur1 (d) | 31.0981 | 76.3014 | 292.50 | 26.98 | 22.67 | 31.98 |
| 465 | 134 | Punjab | SBS NAGAR | NAWANSHAHR | Bahlora Kallan-Pz | 31.0167 | 76.1639 | 62.41 | 6.83 | 5.27 | 11.83 |
| 466 | 135 | Punjab | TARAN TARAN | PATTI | Barwala-D | 31.2244 | 74.8036 | 202.00 | 23.64 | 27.67 | 32.67 |
| 467 | 136 | Punjab | TARAN TARAN | PATTI | Barwala-S | 31.3792 | 75.0958 | 100.00 | 24.18 | 28.21 | 33.21 |
| 468 | 137 | Punjab | TRAN TARAN | TRAN TARAN | Daburji-D | 31.5000 | 74.9042 | 201.00 | 26.42 | 27.15 | 32.15 |
| 469 | 138 | Punjab | TRAN TARAN | TRAN TARAN | Daburji-S | 31.1500 | 74.6333 | 86.00 | 21.38 | 22.35 | 27.35 |

| | | | | | | | | | | | |
|-----|-----|--------|--------------------|---------------------|--------------------|----------------|-----------------|--------|-------|--|-------|
| 470 | 139 | Punjab | Amritsar | Ajnala | Gago Mahal | 31°54'00" N | 74°40'0 0" E | 69.00 | 6.40 | | 20.00 |
| 471 | 140 | Punjab | Amritsar | Chogawan | Chogawan | 31°43'00" N | 74°40'0 0" E | 67.00 | 11.11 | | 20.00 |
| 472 | 141 | Punjab | Amritsar | Jandiala Guru | Jandiala Guru | 31°34'00" N | 75°02'0 0" E | 69.01 | 19.37 | | 30.00 |
| 473 | 142 | Punjab | Amritsar | Tarsika | Nawan Tandel | 31°40'00" N | 75°09'5 0" E | 70.00 | 11.70 | | 20.00 |
| 474 | 143 | Punjab | Bamala | Mahal Kalan | Mahal Kalan | 30°31'22" N | 75°33'3 3" E | 67.45 | 32.71 | | 40.00 |
| 475 | 144 | Punjab | Bamala | Sehna | Bhadaur | 30°28'30" N | 75°19'1 8" E | 74.45 | 27.99 | | 40.00 |
| 476 | 145 | Punjab | Bathinda | Phul | Dhapali | 30°21'45" N | 75°14'3 0" E | 60.61 | 25.02 | | 30.00 |
| 477 | 146 | Punjab | Bathinda | Bhagta Bhai Ke* | Kothaguru | 30°26'01" N | 75°05'5 9" E | 45.52 | 24.13 | | 30.00 |
| 478 | 147 | Punjab | Faridkot | Faridkot | Sher Singh Wala | 30°40'14" N | 74°37'2 3" E | 48.45 | 3.62 | | 10.00 |
| 479 | 148 | Punjab | Faridkot | Kot Kapura | Beed Sikhanwala | 30°36'30" N | 74°51'5 6" E | 56.45 | 9.89 | | 20.00 |
| 480 | 149 | Punjab | Fatehgarh Sahib | Bassi Pathana | Bassi Pathana | 30°42'45" N | 76°22'4 0" E | 38.00 | 19.48 | | 30.00 |
| 481 | 150 | Punjab | Fatehgarh Sahib | Sirhind | Nalini | 30°30'00" N | 76°25'3 0" E | 71.00 | 21.64 | | 30.00 |
| 482 | 151 | Punjab | Fazilka | Fazilka | Dipulana | 30°27'10" N | 74°05'5 5" E | 46.45 | 6.25 | | 20.00 |
| 483 | 152 | Punjab | Ferozepur | Zira | Lauhke Kalan | 31°03'47" N | 74°50'4 5" E | 61.64 | 17.81 | | 30.00 |
| 484 | 153 | Punjab | Gurdaspur | Kahnuwan | Sathial Nanokot | 31°54'00" N | 75°26'0 0" E | 68.00 | 12.78 | | 20.00 |
| 485 | 154 | Punjab | Gurdaspur | Kalanaur | Kalanaur | 32°01'00" N | 75°08'0 0" E | 56.00 | 6.15 | | 20.00 |
| 486 | 155 | Punjab | Gurdaspur | Sri Hargobindpur | Dekoha | 31°39'00" N | 75°23'0 0" E | 69.95 | 15.19 | | 20.19 |
| 487 | 156 | Punjab | Hoshiarpur | Dasuya | Dasuya | 31°48'00" N | 75°40'0 0" E | 95.00 | 8.70 | | 20.00 |
| 488 | 157 | Punjab | Jalandhar | Adampur | Adampur | 31°25'20" N | 75°42'3 0" E | 127.00 | 4.15 | | 10.00 |
| 489 | 158 | Punjab | Jalandhar | Bhogpur | Kheral Kalan | 31°36'12" N | 75°39'0 0" E | 40.00 | 14.80 | | 20.00 |
| 490 | 159 | Punjab | Jalandhar | Jalandhar-East | Jalandhar | 31°19'30" N | 75°35'2 0" E | 168.00 | 38.75 | | 50.00 |
| 491 | 160 | Punjab | Jalandhar | Jalandhar-West | Kartarpur | 31°26'10" N | 75°29'5 5" E | 80.00 | 18.89 | | 30.00 |

| | | | | | | | | | | | |
|-----|-----|--------|-------------|-----------------------------|--------------------------|----------------|------------------|--------|-------|--|-------|
| 492 | 161 | Punjab | Jalandhar | Nakodar | Nakodar | 31°08'00" N | 75°29'0 6" E | 123.00 | 35.74 | | 50.00 |
| 493 | 162 | Punjab | Jalandhar | Phillaur | Phillaur | 31°01'45" N | 75°47'3 5" E | 132.00 | 17.78 | | 30.00 |
| 494 | 163 | Punjab | Jalandhar | Rurka Kalan | Jandiala* | 31°09'30" N | 75°37'00 5" E | 70.00 | 31.15 | | 40.00 |
| 495 | 164 | Punjab | Jalandhar | Shahkot | shahkot | 31°04'46" N | 75°19'4 9" E | 125.00 | 17.80 | | 30.00 |
| 496 | 165 | Punjab | Kapurthala | Kapurthala | Kapurthala | 31°22'10" N | 75°22'5 6" E | 56.00 | 21.50 | | 30.00 |
| 497 | 166 | Punjab | Kapurthala | Nadala | Bhatnura Khurd | 31°36'15" N | 75°35'1 6" E | 100.00 | 15.55 | | 30.00 |
| 498 | 167 | Punjab | Kapurthala | Phagwara | Phagwara | 31°13'45" N | 75°46'4 5" E | 81.00 | 27.10 | | 40.00 |
| 499 | 168 | Punjab | Ludhiana | Dehlon | Gopalpur | 30°44'15" N | 75°50'3 0" E | 65.00 | 18.66 | | 30.00 |
| 500 | 169 | Punjab | Ludhiana | Doraha | Doraha | 30°48'00" N | 76°01'1 5" E | 61.00 | 7.53 | | 20.00 |
| 501 | 170 | Punjab | Ludhiana | Khanna | Ikloha | 30°42'07" N | 76°13'0 7" E | 67.00 | 22.75 | | 30.00 |
| 502 | 171 | Punjab | Ludhiana | Ludhiana | Pb. Agri. Uni. campus | 30°54'10" N | 75°48'4 0" E | 77.00 | 28.69 | | 40.00 |
| 503 | 172 | Punjab | Ludhiana | Sidhwan Bet | Sidhwan Bet | 30°55'24" N | 75°26'2 4" E | 64.00 | 9.39 | | 20.00 |
| 504 | 173 | Punjab | Mansa | Budhlada | Budhlada | 29°55'42" N | 75°33'4 2" E | 74.45 | 12.41 | | 20.00 |
| 505 | 174 | Punjab | Moga | Bagha Purana | Budh Singh Wala | 30°37'04" N | 75°04'3 8" E | 51.08 | 23.91 | | 30.00 |
| 506 | 175 | Punjab | Moga | Dharamkot (Kot Isa Khan) | Baje Ke | 31°00'00" N | 75°09'0 2" E | 79.08 | 15.77 | | 30.00 |
| 507 | 176 | Punjab | Moga | Moga I | Chogawan | 30°50'09" N | 75°16'0 8" E | 69.07 | 32.42 | | 40.00 |
| 508 | 177 | Punjab | Moga | Nihal Singh Wala | Nihal Singh Wala | 30°36'39" N | 75°10'5 9" E | 54.07 | 31.85 | | 40.00 |
| 509 | 178 | Punjab | Mohali | Dera Bassi | Handesra | 30°25'30" N | 76°40'0 0" E | 50.00 | 17.48 | | 30.00 |
| 510 | 179 | Punjab | Mohali | Kharar | Landran | 30°41'38" N | 76°39'4 0" E | 58.50 | 17.15 | | 30.00 |
| 511 | 180 | Punjab | Nawan Shahr | Aur | Raipur Dhaba | 31°04'00" N | 76°00'1 0" E | 67.99 | 17.50 | | 30.00 |
| 512 | 181 | Punjab | Patiala | Nabha | Sangatpur | 30°21'22" N | 76°14'3 5" E | 78.00 | 19.05 | | 30.00 |
| 513 | 182 | Punjab | Patiala | Patiala | Lachkani | 30°24'30" N | 76°20'1 5" E | 82.00 | 23.15 | | 30.00 |

| | | | | | | | | | | | |
|-----|-----|-------------|------------|---------------------|--------------------|----------------|------------------|--------|-------|------|-------|
| 514 | 183 | Punjab | Patiala | Patran | Patran | 29°57'24" N | 76°03'2 4" E | 69.48 | 57.20 | | 68.48 |
| 515 | 184 | Punjab | Patiala | Samana | Samana | 30°08'42" N | 76°11'5 3" E | 68.45 | 35.50 | | 50.00 |
| 516 | 185 | Punjab | Sangrur | Lehar Gaga | Chural Kalan* | 29°49'10" N | 75°48'00 0" E | 165.00 | 29.57 | | 40.00 |
| 517 | 186 | Punjab | Sangrur | Sangrur | Longowal | 30°11'30" N | 75°40'3 0" E | 46.45 | 28.48 | | 40.00 |
| 518 | 187 | Punjab | Sangrur | Sunam | Sunam | 30°07'24" N | 75°48'5 3" E | 78.45 | 34.97 | | 39.97 |
| 519 | 188 | Punjab | Tam Taran | Bhikhiwind | Bhikhiwind | 31°20'30" N | 74°41'3 0" E | 54.00 | 15.93 | | 30.00 |
| 520 | 189 | Punjab | Tam Taran | Chola Sahib | Chola Sahib | 31°15'00" N | 74°50'3 0" E | 64.00 | 18.35 | | 30.00 |
| 521 | 190 | Punjab | Tam Taran | Gandiwind | Gandiwind | 31°31'00" N | 74°42'0 0" E | 68.00 | 12.32 | | 20.00 |
| 522 | 191 | Punjab | Tam Taran | Khadur Sahib | Khadur Sahib | 31°26'00" N | 75°07'5 0" E | 65.00 | 19.20 | | 30.00 |
| 523 | 192 | Punjab | Tam Taran | Naushehra Panuan | Sahebpura | 31°23'30" N | 74°55'5 0" E | 65.00 | 20.75 | | 30.00 |
| 524 | 193 | Punjab | Tam Taran | Valtoha | Ratoke | 31°09'00" N | 74°38'0 0" E | 75.00 | 19.99 | | 30.00 |
| 525 | 194 | Punjab | MOGA | MOGA-II | DAGRU | 30°49'26" N | 75°01'35" E | 61.61 | 35.00 | | 40.00 |
| 526 | 195 | Punjab | KAPURTHALA | SULTANPUR LODHI | SULTANPUR LODHI | 31°13'10" N | 75°12'00" E | 106.00 | 19.00 | | 30.00 |
| 527 | 196 | Punjab | MANSA | SARDULGARH | RAIPUR | 29°41'40" N | 75°13'45" E | 53.45 | 9.00 | | 20.00 |
| 528 | 197 | Punjab | Jalandhar | Nurmahal | Sarih | 31°07'45" N | 75°33'00" E | 100.00 | 28.40 | | 40.00 |
| 529 | 1 | UTTARAKHAND | HARIDWAR | Roorkee | Roorkee | 29.8647 | 77.8983 | 205.00 | 7.70 | 5.38 | 12.70 |

- Note: 1. The sites listed above are tentative and the purchaser reserves right to change the site for which no additional cost shall be paid.**
2. The depth of DWLR setting may vary depending on the water level during installation.
3. The well should be cleaned by the contractor before lowering the instrument with its accessories.
4 Quantities may increase or decrease.

3. TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

1.0 SCOPE OF WORK

- (i) Complete supply, installation, testing, commissioning of remote stations including associated civil works, sensors, data logger, software, hardware and ancillaries' equipment, etc.
- (ii) The scope of work also includes supply of data during Five (5) years comprehensive warranty period and two (2) years AMC period to commence immediately after the expiry of warranty period.
- (iii) Technical design, supply, installation, testing, commissioning of Digital Water Level Recorder (DWLR) for the real time ground water level data collection network and establish data communications using **GSM & GPRS telemetry** between the remote stations and existing Data Centre at Chandigarh, later to National data centre, CGWB, Faridabad and through the e-SWIS at New Delhi. This includes, but is not limited to acquiring service, and maintaining all aspects of the service during the Comprehensive warranty period.
- (iv) Establish communication between remote DWLR stations with existing GSM & GPRS receiving system along with all required arrangement at Regional Data Center, Chandigarh to collect GSM & GPRS data from DWLR station network. And required all acquiring hardware and software, installation, configuration. The data is to be submitted in the requisite format and hence no data processing software has to be provided by the bidder at National data centre
- (v) Perform on-site assembly, start-up of the supplied goods.
- (vi) Complete commissioning integration, testing & organization of the whole system.
- (vii) Provide operation & maintenance services during Five (5) years comprehensive warranty period and two (2) years AMC period to commence immediately after the expiry of warranty period, which shall include all components at the remote DWLR stations as well as all newly acquired equipment's in the existing data center. The **AMC** must be comprehensive without any exclusion except from force majeure will be permitted.
- (viii) Provide installation and maintenance reports as required by the Purchaser and any delay is not acceptable in time schedule provided by supplier.
- (ix) Supply detailed operation and maintenance manual for each component in the system and compile Knowledge and working supply type Manual for training purpose (including multimedia training kits).
- (x) Provide classroom and field training to the sufficient number of **CGWB** personnel on the DWLR data acquisition system. This includes operation and maintenance procedures. Training will also occur at selected field locations as selected by the Purchaser.

- (xi) A guarantee by the manufacturer that all equipment being provided will be supported for a minimum of ten years after the commissioning of the Digital Water Level Recorder (DWLR) Systems. .
- (xii) Calibration and validation of the installed system shall continue during the entire **Warranty** period on half yearly basis.
- (xiii) The remote stations shall store the data for at least one year.
- (xiv) Supply a detailed operation and maintenance manual for each appropriate unit of supplied goods.
- (xv) Security of installed equipment's against theft and vandalism will be the responsibility of the Bidder for whole contract period including AMC period till successful installation, commissioning, and successful site acceptance testing.
- (xvi) Although all accessories and fixtures required for installation of the equipment & their specifications have been specified in technical specifications however, bidder shall ensure the satisfactory performance & functioning of DWLR system complete, for this if any accessory or items are required that shall be provided by bidder, the cost towards that is deemed to be included in the cost tendered by the bidder, no extra cost shall be paid to the bidder on this account.
- (xvii) Ensure that all software licenses and maintenance agreements are in the name of Purchaser and should seek full support and updates for such software for the duration of the warranty period and Annual Maintenance Services Period. All the software licenses should be valid for the design life of the system that is 10 years from date of commissioning.

2.0 Technical Specifications of Equipment

The Goods and Related Services shall comply with following Technical Specifications and Standards:

(A) Specifications of the DWLR, hydrostatic Type (GW) with Telemetry System

Specifications for Water Level and Temperature sensor

| Feature | Value |
|--|--|
| Site Conditions | |
| Ambient Temperature | From 0 to 60 °C |
| Humidity | 5-100 % |
| Altitude | 0-2500 meter |
| DWLR Water Level Sensor with Temperature Sensor | |
| Sensor Type | Submersible pressure transducer with Non-Vented Pressure Sensor with Barometric Pressure Correction for Individual Sensor |
| Range | (30m, 45m, 75m, 105m, 120m) |
| Installation Depth (Cable length) | As per the attached list (Installation depth of the sensor shall be equivalent to the total depth of piezometer of the respective location minus 1-3 m as specified by the Purchaser) |

| | |
|--|---|
| Dimension | Outer diameter of sensor unit: <80mm, (for sensor) |
| Material | stainless Steel (SS-316) or other better corrosion resistant material |
| Ingress Protection | IP68 for sensor |
| Accuracy | 0.2% FSO |
| Resolution | 3 mm |
| Reproducibility | 0.1% full scale or better |
| Long Term Stability | 0.1% Full scale and should ensure long term stability without any field calibration requirements except barometric compensation |
| Temperature Measuring Range | 0 to 50°C |
| Temperature Measuring Accuracy | Better than $\pm 0.2^{\circ}\text{C}$ |
| Burst Pressure | ≥ 3 Time Full scale |
| Overload Pressure | 2 Time full scale without effect on calibration |
| Over-voltage Protection on supply & sensor wires | Should include lightening, over-voltage and surge protection |
| Output | SDI-12, RS-485, 4-20 mA or compatible with data logger. |
| Installation | The system should be provided with a suspension bracket , Well enclosure /canopy & junction boxes (if required) allowing secure installation within the Piezometers' headwork, including appropriate cable mounting accessories to allow the sensor to be adjusted to the required depth. |
| Direct Read Sensor Cable | <p>The cable shall have following features:</p> <ul style="list-style-type: none"> • Strength members for good longitudinal stability of cable • The cable and contacts should be fixed or quick connect • Cable screen to be connected to the data logger ground terminal to minimize electrical interference. • A cable suspension bracket allowing the DWLR to be adjusted to the required depth, in a stable and reproducible manner. • Corrosion and moisture free as the equipment has to work under water condition. • Cable should have good flexibility. • Should be of Polyurethane Jacket or better • The electrical wires shall have sufficient conductivity to allow for extension of the cable to up to 200m without degrading accuracy, stability and data communication. • 25mm dia PVC pipe with BIS mark should be provided for housing the cables in the bore-hole. |

| Data logger | |
|--|--|
| Atmospheric Pressure correction | Atmospheric Pressure corrections to be made automatically |
| Data Logger Input | Level sensor*, Temperature sensor * only compensated water levels need to be transmitted to data base, however barometric pressure/uncompensated water levels may be stored in data logger and shall be transferred to the data base periodically. |
| Resolution of Measurement | 16-bit ADC with +/- 1 LSB accuracy |
| Measuring interval and measuring modes | Should be programmed to store data from 1 minute one reading to 24 hours one reading. |
| Settling up Time | < 30minutes |
| Recording Capacity | Shall store data of at least 1 year |
| Memory Type | Non-Volatile flash memory that can store one year of data (with 15minute logging interval) & expandable up to minimum 1 GB using USB/SD Card |
| Power Supply | Should be equipped with lithium or alkaline battery pack, giving at least 2 years operation (with one transmission and four recordings per day). Battery must be replaceable in the field or in local offices of the implementing Agency or supplier. Replacement of batteries must be readily available in India. |
| Battery Voltage Monitoring | Monitoring and transmission of Battery Voltage level |
| Data logger Location | Data logger should be located on top (on ground surface). |
| Built in clock | Accurate to ± 1 minute per year |
| Displayed Time Resolution | 1 second or better |
| Over-voltage Protection on supply & sensor wires | Should include lightning, over-voltage and surge protection |
| Protection | IP68 with Impact Resistant for Water level sensor IP65 (for data logger) with Impact Resistant |
| Port for configuration | One serial port for communication with laptop for programming |
| Ports for telemetry | Port for communication with GSM & GPRS telemetry |
| Operating System | Windows based software for system configuration / communication |
| Licenses | All required licenses shall be included |
| Real time clock | Time synchronization facility shall be provided with IST |

| | |
|----------------------------------|---|
| Accessories | Serial cable and adaptor if required along with all accessories and fixing units etc. |
| Communication Interface | |
| Computer Interface | The Logger must be capable of connection to a computer via USB 2.0/USB 3.0 and supply should include the necessary interface cables. |
| File Format | The format of the data downloaded by communication interface shall be in standard CSV format (as specified in technical Specifications) which is compatible with e-SWIS software. |
| GSM &GPRS Transmitter | |
| Transmission System | GSM /GPRS/edge-based data transmission system |
| Frequency range | 900 MHz: 824-960 MHz/1800MHz:1710-1880 MHz 4G and better |
| Performance | Data Reception availability of 95% or better |
| Communication Direction | Utilize GPRS network for two-way connection with connection with FTP, TCP/IP (INTERNET) connection and SMS server |
| Transmission trigger | Data collection to be triggered by interrogation from Data Center, or by event-based transmission triggered by remote site |
| Power Saving | Ability to disable interrogation system in order to save power at remote site |
| Communication Protocol | Data transmission to execute HTTP Post or FTP, SMS to transmit data to the Data Center |
| Accessories | All associated equipment, including Antenna all cables and mounting hardware |
| Software for Data logger | |
| Operating System | Windows based software for system configuration, transfer and analysis of data to computer |
| Version | English language version |
| License | All required licenses included |
| General Features | |
| Battery | The battery should be easy to replace, and easily available in the market. |
| Tools | Complete tool kit for installation and routine maintenance |
| Manuals | Full documentation and maintenance instructions in English |
| ---Training | As per mutual consent at the time of installation of telemetry system |

Bidder is to acquire, manage, and operate data collection, storage and dissemination to support the following activities during 5 years warranty period and 2 years comprehensive AMC period for DWLRs with telemetry system.

Note: A server and storage system for additional backup shall be provided at National Data Center

| S No. | Parameter | Functionality requirement |
|-------|------------------------------------|---|
| 1 | Data collection performance | <p>Bidder should be seamless data and responsible for</p> <ul style="list-style-type: none"> • Real-time data collection at all DWLR stations& shall ensure seamless data transfer. • The data from DWLR stations will be transmitted through GSM/GPRS in the standard CSV format (as specified in technical Specifications) to FTP server at RODC, CGWB, Chandigarh (A). National Data Center (NDC), Faridabad and e-SWIS. • Data Transfer from RODC to NDC server & E-SWIS software through internet. This data will be processed and disseminated via E-SWIS cloud. • The processed data from e-SWIS in the form of reports/ bulletins will be transmitted to existing National Data Centre. |
| 2 | Data maintenance | All activities pertaining to installation, data services, Operation & maintenance at the remote DWLR station will be maintained by the bidder during the warranty and maintenance period and will include a log of activities during every station visit. |
| 3 | Reports & Bulletins Storage system | Storage of all data, reports & bulletins in the proper manner and easy to access. This data will be backed up in such a way that it is not possible to lose data that has already been stored with the use of mirrored or replicated storage in such a way that no data is lost. |
| 4 | Help desk | Bidder to operate help desk to respond to queries from the purchaser. Help desk will be able to solve any problems related to data collection, processing, and dissemination to the purchaser. Help desk shall be available from 8am to 6pm, Monday – Sat. |

4.0 Specifications for Data Transmission System (Telemetry)

The transmission system should be tightly integrated with the DWLR System (DAS), along with compact remote/field mounted systems consisting of sensor, data logger, modem and antenna.

- (i) The system should be watertight (IP68 for sensor & IP65 for data logger or equivalent) and impact resistant;

- (ii) The system should allow easy access for monitoring measurements without removing complete system.
- (iii) System must be power-supplied by standard lithium/ alkaline batteries for operation time of at least **two years** by one set of batteries (one transmission per day, 4 measurements per day) and must be placed in a water resistant (IP65 or equivalent) enclosure. The replacement of batteries during five **years** warranty would be responsibility of the bidder, **at bidder's cost**.
- (iv) The system must have integrated energy management system using free programmable time slots for measurement and transmission to minimize power consumption;
- (v) The connectors should be water-tight (IP68 or equivalent).
- (vi) An alarm notification must be sent by the system via SMS to user defined phone numbers through suitable means of communication for user defined parameters. This includes battery performance (battery voltage).
- (vii) Standard USB / RS232 communication interface should be available for set up and configuration and must be easily accessible.
- (viii) Data logger shall be provided with Atmospheric Pressure sensor at individual station, & Atmospheric Pressure correction shall applied automatically on the raw water level reading from non-vented water level sensor. The details of correction procedure shall be fully documented in user manual. Provision shall be made to view and store the raw and compensated water level data along with atmospheric pressure and Water Temperature data in data logger memory.
Only compensated water level need to transmitted to data base, however barometric pressure/uncompensated water levels may be stored in data logger and shall be transferred to the data base periodically.
- (ix) All measurement and set up options, data download and programming of data logger shall also be done by online session similar to all functions at site by direct connection to a PC
- (x) Data download / retrieval from remote DWLR station to central server PC via GSM &GPRS network shall be provided. The data from remote station should be in standard CSV format (as specified in technical Specifications) which is compatible with e-SWIS software
- (xi) The software should be provided to allow download of the data from the DWLR data logger to a Laptop/hand held devices in the field.The downloaded data shall be in standard CSV format (as specified in technical specifications) which is compatible with e-SWIS software.

5.0 Specifications for Data Processing Hardware at Data Centre

The Bidder shall provide one high end server with monitor and 3 KVA online UPS with power backup of 4 hour and one computer node (workstation) at the Data Center along with A3 size color printer & 42" LED display. All the consumables (including batteries) except cartridge and papers shall be responsibility of the Bidder during the entire period of warranty and AMC. The minimum specification of server, computer node, Display system are as below:

Hardware at Regional Office Data Centre, Chandigarh should have following major equipment;

- a) Server with monitor as per the following specifications
- b) Necessary data switch, router and firewall for minimum 8Mbps internet speed, static IP
- c) 3 KVA online UPS with 4 hours backup time
- d) Computer Node (Workstation) PC

- e) A 3 Size color Printer
- f) 42" LED Display unit

5.1 Server Technical Specification:

- a) Server having two nos. of x86 64-bit processor (Intel Xeon E5-2620 v4 or better)
- b) 64 GB DDRIII expandable to 256 GB or more
- c) Integrated Graphics Controller
- d) SAS RAID Controller supporting RAID 0, 1,
- e) 2*600 GB SAS Hot Swap HDD (10 K or higher RPM),
- f) Dual 1 Gbps Network port,
- g) DVD writer,
- h) 23" LED Monitor with a resolution 1920X1080 or better,
- i) OEM Keyboard and OEM Mouse
- j) Server Chassis having Redundant Hot Swappable Power Supply with 8 Hot Swap drive bays,
- k) Certification for Linux and Windows,
- l) All required device drivers for System Configuration and Server Management Support including additional data storage facility of 8TB for 5 years and all accessories.
- m) Software: Perpetual license for window server (2012 or later), perpetual license for MS Office, firewall system with Good antivirusetc.

5.2 Computer Node (Workstation)

| | |
|------------------------|---|
| Operating system | Windows 10 Home/Professional |
| Chipset | Intel H270 and above or equivalent |
| Processor | Intel® Core™ i7-6700T with Intel® HD Graphics 530 (2.8 GHz, up to 3.6 GHz, 8 MB cache, 4 cores) and above or equivalent |
| Memory | 8 GB DDR3L and above or equivalent (RAM) |
| Hard drive description | 1 TB 7200 rpm SATA or better |
| Display | 58.42 cm (23) diagonal WLED-backlit (1920 x 1080). Touch-enabled (optional) |
| Optical drive | DVD-Writer |
| Network interface | Integrated 10/100/1000 Gigabit Ethernet LAN |
| Wireless | 802.11b/g/n (1x1) and Bluetooth® 4.0 combo (Optional) |
| Port | 4 USB 2.0; 2 USB 3.0; 1 headphone/microphone combo |

| | |
|------------------------|---|
| Pointing device | USB wired/wireless optical mouse |
| Keyboard | USB wired/wireless standard keyboard |
| Pre-installed software | Preinstalled MS Office Lifetime with Good antivirus is preferred. |

5.3 **Printers Specifications**

A3 size color printer shall be procured for National Data Center from a reputed manufacturer.

- i. A3 color printer
- ii. Functions: Print, Copy, Scan
- iii. Printing Up to 20 page/minute
- iv. Black & color printing: As fast as 9.5 sec per page
- v. Recommended monthly page volume: 250 to 2000
- vi. Processor speed: 600MHz
- vii. Connectivity: ePrint capability
- viii. Paper handling input, standard: 100 sheet input tray
- ix) Paper handling output, standard: 100-sheet face-down bin

5.4 **DISPLAY UNIT (LED)**

- i) Screen Type: 42" Screen LED
- ii) Display resolution: 1920 x 1080
- iii) Colors: 256K colors
- iv) Interfaces: 1 x Ethernet (RJ45) (max. 12Mbit/s), HDMI port, USB port 1 x USB, Multimedia card / SD card slot combined.
- iv) Industrial Ethernet: 1 x Ethernet (RJ45)
- v) Protocols: Protocol (Ethernet) TCP/IP
- vi) Image formats Supported: JPEG, JPS, MPO
- v) Sound technology: Dolby digital

6.0 **Transmission of Data format to RODC, NDC, Faridabad & e-SWIS Software:**

The format for GSM / GPRS communication is as specified below

Table below gives the GSM / GPRS data parameters and their identification code format which is required to transmit the data from data logger to FTP server.

FORMAT:

&Station ID, Date and Time, Mobile Number, Battery, Water Temp, Corrected Water Level

Above data string will be ended with New-Line character and a separate data string will be for each measurement cycle.

Example Data Spring:

&738D1E76,07/01/19 00:00,9849556430,13.5, 22.3,26.347

&738D1E76,07/01/19 06:00,9849556430,13.5, 24.5,26.347

&738D1E76,07/01/19 12:00,9849556430,13.5, 26.8,26.347

&738D1E76,07/01/19 18:00,9849556430,13.5, 24.3,26.347

| Sl.No. | Channel no. | Parameter |
|---------------|-----------------------|---|
| 1. | Station ID | Start of String should be '&' and Eight Characters Station ID provider by bidder |
| 2. | Date and Time | Measurement date and Time in DD/MM/YY HH:MM in IST of the measurement cycle |
| 3. | Mobile Number | Mobile no (10 digit) of remote station SIM |
| 4. | Battery | Battery voltage in Volts with 1 right digit at measurement date and time |
| 5. | Water Temp | Water Temperature in °C with 1 right digit at Measurement date and time |
| 6. | Corrected Water Level | Water level after atmospheric pressure compensation in Mts. with 3 right digit at measurement date and time |

Note:

1. If any sensor is not connected then it should transmit '--' characters in place of the sensor value.
2. Attached format is indicative, recommended for standardised data acquisition for development of unified Water Information System.

7.0 TRAINING AND DOCUMENTATION

The Bidder is required to provide an extensive training programme for the system. The training set forth in the following paragraphs is a minimum requirement and the bidder should propose any additional training that he considers critical for long term success of the system operations.

The Bidder is expected to provide an outline or table indicating the contents of each of the required courses. The table shall describe the specific topics to be covered for each day of the training period.

The Bidder is responsible for the salaries of the training instructors and all training materials. The costs of travel, transportation and per diem for the trainees shall be borne by the Purchaser.

Training shall be provided by the bidder in several phases. The training shall include both classroom and field trainings and will be continued during all five years. The bidder is required to have DWLR equipment specialists.

7.1 The Bidder shall provide mandatory trainings as training modules as part of the Tender given as under:

| S. No. | Description | Numbers of trainings | Number of Participants per session |
|--------|---|--|------------------------------------|
| 1 | User Training Course for senior management. (one day) | 2(1 before/ during commissioning and 1 during warranty and AMC) | 15 |
| 2 | Operation and Maintenance course (3 days). Course topics will include sensor calibration, data logger configuration, data downloading, data retrieval, collection, compilation, processing, maintenance requirements, and procedures for equipment configuration, installation, site testing and commissioning. | 22 (1 before /during commissioning and 1 during warranty and AMC) at CGWB Regional offices (NWR, NWR, UR & SUO Delhi) & at NDC, Faridabad. | 10 |

All aspects of the electrical, instrumentation and telemetry equipment being supplied shall be covered in the courses and full documentation shall be provided. The documentation and kits shall be got approved from purchaser in advance. The course shall provide detail documentation and shall ensure that the purchaser's personnel shall be able to modify settings/ parameters without reference back to the Supplier. The places / sites where this training will be decided later by the purchaser.

The training course will take place as decided by the Purchaser. In case of formal training, the Purchaser will provide classroom and other logistics. The Bidder will facilitate the professional and the training materiel. On-the-job training will be provided by the Bidder in conjunction with the installation of the DWLRs and during the course of maintenance as required.

7.2 TA/ DA of the trainees shall be borne by the purchaser.

7.3 Training kit containing course material in soft as well as hard copy shall be provided by the Bidder.

7.4 All logistical arrangement such as projector, training space etc. for training is to be made by purchaser

8.0 PREVENTIVE MAINTENANCE

The bidder shall be responsible for operation and maintenance of all stations /components of installations, commissioning, site acceptance and operation tests. All equipment maintenance cost, repairs,

replacements and repairs to civil work shall be borne by the bidder during the warranty AMC Period. The scope of O&M support would include all materials and services including major replacement of components, mandatory spare parts required to ensure smooth and sustainable operations of the entire system. The bidder shall provide monthly maintenance reports during the course of maintenance. The bidder shall supply a Manual specifying all the faults experienced by the system together with an account of how such faults have been rectified. Bidder shall provide the list of mandatory spare parts & shall ensure the availability of sufficient mandatory spare parts in its godown for fulfilling its service obligations during warranty and AMC period. The same can be inspected by Engineer-in Charge or its authorized representative.

The bidders shall ensure the following visits at remote site for preventive maintenance. The bidder should take time stamped geo tagged photographs of the equipment during each maintenance visit (either scheduled or unscheduled visit). The photographs should show the condition of equipment before maintenance, during maintenance and after maintenance.

SCHEDULE SHOWING FREQUENCY OF SCHEDULED VISITS FOR ROUTINE AND PREVENTIVE MAINTENANCE

| Sl. No. | Station Category | Minimum Annual Preventive Visits | Remarks |
|----------------|-------------------------|---|--------------------------------------|
| 1 | Data Server maintenance | 4 | Every Quarter and also on need basis |
| 2 | DWLR stations | 4 | Every Quarter and also on need basis |

8.1 Operation & Maintenance

- Bidder shall provide at least one dedicated Service Engineer cum operator at the Regional Office Data Center for Operation of DWLR system and ensure seamless data transfer from remote stations to Regional & National Data Center (NDC), CGWB, Faridabad FTP server through GSM/GPRS network & from RODC to NDC & E-SWIS software through internet. And also the processed data from e-SWIS in the form of reports/ bulletins will be transmitted to Regional & National Data Centre which should be stored in a proper manner and easy to access.
- The Service Engineer shall have experience of working on similar systems for period of at least 3 years and shall be well versed with Operation and Maintenance aspects of DWLR systems.
- Operation and Maintenance shall include free of cost repairs/ replacement of hardware and Software necessary to keep the system functional for the period of five years from Date of Installation, and further during 2 years of AMC.

TECHNICAL RESPONSIVENESS FORM

Bidder shall furnish clause by clause commentary against the laid down technical specification and standards as per the format given below:

(A) Summary of Instructions

- (i) Particulars of Manufacturer and local agent cum representative are to be given under rows Model and Address.
- (ii) All entry boxes in column **“Specification and Standards as offered in by Bidder”** shall be filled-in accurately and comprehensively. Quantitative fields shall be filled in accurately. It is not acceptable to use ‘Yes’, No, Compliant or similar evading words. Following format is designed to help the Bidder to understand the requirements of the equipment being procured. The Bidder must describe in the format how his bid responds to the technical requirements of the equipment. Bidder to note that one or two word responses (e.g. “Yes”, “No” “will comply” or similar evading words) are normally not sufficient to confirm the responsiveness with the technical requirements, hence elaborate responses are sought from the bidders. **In case deviation on the following technical requirements of equipment is not as per the minimum criteria mentioned, the bids may be declared “non-responsive”.**
- (iii) Requested materials and information shall be enclosed with the bid and be unambiguously associated with instruments as offered in the bid
- (iv) Negligence to comply with the instructions and requirements as stated above makes the bid liable to be rejected.
- (v) Abbreviations: OD-Outer Diameter; ID-Inner Diameter; FS-Full Scale; Pa-Pascal (unit of pressure), DWLR-Digital Water Level Recorder; DRS-Data Retrieval System; HHT-Hand Held Terminal, DCP- Data Collection Platform, AWLR- Automatic Water Level Recorder
- (vi) Sample interval is the interval at which samples or sensor readings are taken. The recording /measurement interval defines the interval at which the data records are stored in memory. A data record can represent a single sample or the average of a number of samples. In particular the result of the wave suppression filter is a single record representing the average value of a number of samples.

B) Entries requiring special attention:

- (i) The longitudinal properties of the suspension cable affect the accuracy directly. Bidder to specify all factors affecting the longitudinal properties of the suspension cable: e.g. length creeps due to sensor and cable weight (submerged) longitudinal temperature coefficient, uncoiling after installation, expansion/contraction of jack due to temperature and aging, etc.

(C) Bidder shall provide information in the formats given below:

(i) Make/ Model/ Local Agent etc.:

| Bidder | DWLR Sensor make/ model | Data Logger make/ model | Local Agent |
|---------------------------------------|---|---|--|
| Name / Complete Address/Website/Email | Model: Manufacturer: Name: Place: Tel: Fax: E-mail: Web: | Model: Manufacturer: Name: Place: Tel: Fax: E-mail: Web: | Name: Address: Tel: Fax: E-mail: Web: |

(ii) Clause by Clause Commentary against laid down technical specifications:

Specifications of the DWLR, hydrostatic Type (GW) with telemetry system

| Name of Goods-Its Features | Required Specifications and standards as per bidding document | |
|-----------------------------------|--|--|
| Site Conditions | | |
| Ambient Temperature | From 0 to 60 degree | |
| Humidity | 5-100 % | |
| Altitude | 0- 2500 meter | |

DWLR -- Water level and Temperature Sensor

| | |
|-----------------------------------|---|
| Sensor Type | Submersible pressure transducer with Non-Vented Pressure Sensor with Barometric Pressure Correction for Individual Sensor. |
| Range | (30m, 45m, 75m, 105m, 120m) |
| Installation Depth (Cable length) | As per the attached list (Installation depth of the sensor shall be equivalent to the total depth of piezometer of the respective location minus 1-3 m as specified by the Purchaser) |
| Dimension | Outer diameter of sensor unit: < 80mm, (for sensor) |
| Material | stainless Steel (SS-316) or other better corrosion resistant material |
| Ingress Protection | IP68 for sensor |

| | |
|--|--|
| Overall Accuracy | 0.2% FSO |
| Resolution | 3 mm |
| Reproducibility | 0.1% full scale or better |
| Long Term Stability | 0.1% Full scale and should ensure long term stability without any field calibration requirements except barometric compensation. |
| Temperature Measuring Range | 0 to 50°C |
| Temperature Measuring Accuracy | Better than $\pm 0.2^\circ\text{C}$ |
| Burst Pressure | ≥ 3 Time Full scale |
| Overload Pressure | 2 Time full scale without effect on calibration |
| Over-voltage Protection on supply & sensor wires | Should include lightening, over-voltage and surge protection |
| Output | SDI-12, RS-485, 4-20 mA or compatible with data logger. |
| Installation | The system should be provided with a suspension bracket, Well enclosure /canopy & junction boxes (if required) allowing secure installation within the Piezometers' headwork, including appropriate cable mounting accessories to allow the sensor to be adjusted to the required depth. |
| Direct Read <u>Sensor</u> Cable | <p>The cable shall have following features:</p> <ul style="list-style-type: none"> • Strength members for good longitudinal stability of cable • The cable and contacts should be fixed or quick connect • Cable screen to be connected to the data logger ground terminal to minimize electrical interference. • A cable suspension bracket allowing the DWLR to be adjusted to the required depth, in a stable and reproducible manner. • Corrosion and moisture free as the equipment has to work under water condition. • Cable should have good flexibility. • Should be of Polyurethane Jacket or better. The electrical wires shall have sufficient conductivity to allow for extension of the cable to up to 200m without degrading accuracy, stability and data communication. |

DWLR Data logger

| | |
|---------------------------------|---|
| Atmospheric Pressure correction | Atmospheric Pressure corrections to be applied automatically |
| Resolution of measurement | 16-bit ADC with +/- 1 LSB accuracy |
| Measuring interval | Should be programmed to store data from 1 minute one reading to 24 hours one reading. |

| | |
|--|--|
| Settling up Time | < 30 minutes after submersion. |
| Recording Capacity | Shall store the data for at least 1 year |
| Memory Type | Non-Volatile flash memory that can store one year of data (with 15minute logging interval) |
| Power Supply | Should be equipped with lithium or alkaline battery pack, giving at least 2 years operation (with one transmission and four recordings per day). Battery must be replaceable in the field or in local offices of the implementing Agency or supplier. Replacement of batteries must be readily available in India. |
| Battery Voltage Monitoring | Monitoring and transmission of Battery Voltage level |
| Data logger Location | Data logger should be located on top (on ground surface). |
| Built in clock | Accurate to ± 1 minute per Year |
| Displayed time resolution | 1 second or better |
| Over-voltage Protection on supply & sensor wires | Should include lightening, over-voltage and surge protection |
| Protection | IP68 with Impact Resistant for Water level sensor IP65 (for data logger) with Impact Resistant |
| Port for configuration | One serial port for communication with laptop for programming |
| Ports for telemetry | Port for communication with GSM &GPRS telemetry |
| Operating System | Windows based software for system configuration / communication |
| Licenses | All required licenses shall be included |
| Real time clock | Time synchronization facility shall be provided with IST |
| Accessories | Serial cable and adaptor if required along with all accessories and fixing units etc. |

Communication Interface

| | |
|--------------------|---|
| Computer Interface | The Logger must be capable of connection to a computer via USB 2.0/USB 3.0 and supply should include the necessary interface cables. |
| File Format | The format of the data downloaded by communication interface shall be in standard CSV format (as specified in technical Specifications) which is compatible with e-SWIS software. |

GSM &GPRS Transmitter

| | |
|---------------------|--|
| Transmission System | GSM /GPRS/edge-based data transmission system |
| Frequency range | 900 MHz: 824-960 MHz/1800MHz:1710-1880 MHz 4G and better |
| Performance | Data Reception availability of 95% or better |

| | |
|-------------------------|---|
| Communication Direction | Utilize GPRS network for two-way connection with connection with FTP, TCP/IP (INTERNET) connection and SMS server |
| Transmission trigger | Data collection to be triggered by interrogation from Data Center or by event-based transmission triggered by remote site |
| Power Saving | Ability to disable interrogation system in order to save power at remote site |
| Communication Protocol | Data transmission to execute HTTP Post or FTP, SMS to transmit data to the Data Center |
| Accessories | All associated equipment, including Antenna all cables and mounting hardware |

Software for Data logger

| | |
|------------------|--|
| Operating System | Windows based software for system configuration, transfer and analysis of data to computer |
| Version | English language version |
| License | All required licenses included |

General Features

| | |
|--------------------------------|--|
| Battery | The battery should be easy to replace, and easily available in the market. |
| Tools | Complete tool kit for installation and routine maintenance |
| Manuals | Full documentation and maintenance instructions in English |
| Training | As per mutual consent at the time of installation of telemetry system |
| GSM / GPRS transmission format | As specified in the technical Specification table for GSM /GPRS communication format |

Specifications of Data Acquisition Software (DAS):

| SI | Required Specification and Standards as per Bidding Document | Specification and Standards as offered in by Bidder | Remarks |
|----|---|---|---------|
| 1 | <p>Data collection performance :</p> <p>Bidder should ensure seamless data and responsible for</p> <ul style="list-style-type: none"> Real-time data collection at all DWLR stations& shall ensure seamless data transfer. The data from DWLR stations will be transmitted through GSM/GPRS in the standard CSV format (as specified in | | |

| | | | |
|---|---|--|--|
| | <p>technical Specifications) to FTP server at the Regional office data centre, Chandigarh</p> <ul style="list-style-type: none"> From RODC, the data will be transmitted to NDC, Faridabad & E-SWIS software through internet. This data will be processed and disseminated via E-SWIS cloud. <p>The processed data from e-SWIS in the form of reports/ bulletins will be transmitted to RODC, Chandigarh & National Data Centre, Faridabad.</p> | | |
| 2 | <p>Data maintenance :</p> <p>All activities pertaining to installation, data services, Operation & maintenance at the remote DWLR station will be maintained by the bidder during the warranty and maintenance period and will include a log of activities during every station visit.</p> | | |
| 3 | <p>Reports & Bulletins Storage system: Storage of all data, reports& bulletins in the proper manner and easy to access. This data will be backed up in such a way that it is not possible to lose data that has already been stored with the use of mirrored or replicated storage.</p> | | |
| 4 | <p>Help desk :</p> <p>Bidder to operate help desk to respond to queries from the purchaser. Help desk will be able to solve any problems related to data collection, processing, and dissemination to the purchaser. Help desk shall be available from 8am to 6pm, Monday – Sat.</p> | | |

Specifications for Data Transmission System:

| Sl. No: | Required Specification and Standards as per Bidding Document | Specification and Standards as offered in by Bidder | Remarks |
|---------|---|---|---------|
| | The transmission system should be tightly integrated with the DWLR System, along with compact remote/field mounted consisting of sensor, data logger, modem | | |

| | | | |
|---|--|--|--|
| | and antenna and other accessories complete. | | |
| 1 | The system should be watertight (IP68 for sensor & IP65 for data logger or equivalent) and impact resistant; | | |
| 2 | The system should allow easy access for monitoring measurements without removing complete system. | | |
| 3 | System must be power-supplied by standard lithium/alkaline batteries for operation time of at least two years by one set of batteries (one transmission per day, 4 measurements per day) and must be placed in a water resistant (IP65 or equivalent) enclosure. The replacement of batteries during five years warranty and two years of O&M would be responsibility of the bidder, at bidder's cost . | | |
| 4 | The system must have integrated energy management system using free programmable time slots for measurement and transmission to minimize power consumption; | | |
| 5 | The connectors should be water-tight (IP68 or equivalent). | | |
| 6 | An alarm notification must be sent by the system via SMS to user defined phone numbers through suitable means of communication for user defined parameters. This includes battery performance (battery voltage). | | |
| 7 | Standard USB/RS232 communication interface should be available for set up and configuration and must be easily accessible. | | |
| 8 | Data logger shall be provided with Atmospheric Pressure sensor at individual station, & Atmospheric Pressure correction shall applied automatically on the raw water level reading from non-vented water level sensor. The details of correction procedure shall be fully documented in user manual. Provision shall be made to | | |

| | | | |
|----|---|--|--|
| | view and store the raw and compensated water level data along with atmospheric pressure and Water Temperature data in data logger memory | | |
| 9 | All measurement and set up options, data download and programming of data logger shall also be done by online session similar to all functions at site by direct connection to a PC | | |
| 10 | Data download / retrieval from remote DWLR station to central server PC via GSM & GPRS network shall be provided. The data from remote station should be in standard CSV format (as specified in technical Specifications) which is compatible with e-SWIS software | | |
| 11 | The software should be provided to allow download the data from the DWLR data logger to a Laptop/hand held devices in the field. The downloaded data shall be in standard CSV format (as specified in technical specifications) which is compatible with e-SWIS software. | | |

| Specifications of Data Server | | <u>Make:</u> <u>Model No:</u> <u>Manufacturer Name, address, email, phone, website, fax</u> | |
|--------------------------------------|--|--|----------------|
| S. No: | Required Specification and Standards as per Bidding Document | Specification and Standards as offered in by Bidder | Remarks |
| 1. | <ul style="list-style-type: none"> • Server having two nos. of x86 64-bit processor (Intel Xeon E5-2620 v4 or better), • 64 GB DDRIII expandable to 256 GB or more, • Integrated Graphics Controller, • SAS RAID Controller supporting RAID 0, 1, • 2*600 GB SAS Hot Swap HDD (10 K or higher RPM), • Dual 1 Gbps Network port, • DVD WRITER, | | |

| | | | |
|--|---|--|--|
| | <ul style="list-style-type: none"> • 23" LED Monitor with a resolution 1920X1080 or better, • OEM Keyboard and OEM Mouse, • Server Chassis having Redundant Hot Swappable Power Supply with 8 Hot Swap drive bays, • Certification for Linux and Windows, • All required device drivers for System Configuration and Server Management Support including data storage facility of 8TB for 5 years and all accessories and • Perpetual license for window server (2012 or later), perpetual license for MS Office, firewall system with Good antivirusetc. | | |
|--|---|--|--|

| Specifications of Computer node (Workstation) | | <u>Make:</u> | |
|---|---|--|----------------|
| | | <u>Model No:</u> | |
| | | <u>Manufacturer Name, address, email, phone, website, fax</u> | |
| Required Specification and Standards as per Bidding Document | | Specification and Standards as offered in by Bidder | Remarks |
| 1 | Windows 10 Home/Professional | | |
| 2 | Intel H270 and above or equivalent | | |
| 3 | Intel® Core™ i7-6700T with Intel® HD Graphics 530 (2.8 GHz, up to 3.6 GHz, 8 MB cache, 4 cores) and above or equivalent | | |
| 4 | 8 GB DDR3L and above or equivalent (RAM) | | |
| 5 | 1 TB 7200 rpm SATA or better | | |
| 6 | 58.42 cm (23) diagonal WLED-backlit (1920 x 1080). Touch-enabled (optional) | | |
| 7 | DVD-Writer | | |
| 8 | Integrated 10/100/1000 Gigabit Ethernet LAN | | |
| 9 | 802.11b/g/n (1x1) and Bluetooth® 4.0 combo (Optional) | | |
| 10. | 4 USB 2.0; 2 USB 3.0; 1 headphone/microphone combo | | |

| | | | |
|-----|---|--|--|
| 11. | USB wired/wireless optical mouse | | |
| 12 | USB wired/wireless standard keyboard | | |
| 13 | Preinstalled MS Office Lifetime with Good antivirus is preferred. | | |

| | | |
|---|--|----------------|
| Specifications of Color printer | <u>Make:</u> | |
| | <u>Model No:</u> | |
| | <u>Manufacturer Name, address, email, phone, website, fax</u> | |
| Required Specification and Standards as per Bidding Document | Specification and Standards as offered in by Bidder | Remarks |
| A3 Size color printer | | |
| Functions: Print, Copy, Scan | | |
| Printing Up to 20 page/minute | | |
| Black & color printing: As fast as 9.5 sec per page | | |
| Recommended monthly page volume: 250 to 2000 | | |
| Processor speed: 600MHz | | |
| Connectivity: ePrint capability | | |
| Paper handling input, standard: 100sheet input tray | | |
| Paper handling output, standard: 100-sheet face-down bin | | |

| | | |
|--|--|----------------|
| Specifications of Display Unit (LED) | <u>Make:</u> | |
| | <u>Model No:</u> | |
| | <u>Manufacturer Name, address, email, phone, website, fax</u> | |
| Required Specification and Standards as per Bidding Document | Specification and Standards as offered in by Bidder | Remarks |
| Screen Type : 42" Screen LED | | |
| Display resolution: 1920 x 1080 | | |
| Colors: 256K colors | | |
| Interfaces: 1 x Ethernet (RJ45) (max. 12Mbit/s), HDMI port, USB port 1 x USB Multimedia card / SD card slot combined | | |
| Industrial Ethernet : 1 x Ethernet (RJ45) | | |

| | | |
|---------------------------------------|--|--|
| Protocols: Protocol (Ethernet) TCP/IP | | |
| Image formats Supported: JPEG,JPS,MPO | | |
| Sound technology : Dolby digital | | |

4. DRAWINGS

These Bidding Documents includes *no* drawings.

5. INSPECTIONS AND TESTS

The following inspections and tests shall be performed:

General:

1. After manufacture, the supplier shall get each equipment/item of Goods inspected in manufacturer/s works as per approved datasheets and QAP and forward to the Purchaser along with his letter seeking to inspect an equipment/item of Goods conform to contract specifications.
2. Upon receipt of the test certificate and calibration certificates, the purchaser or its representative shall arrange for inspection and/or test of any or part or all the equipment/Goods prior to issuance of dispatch clearance. In cases where the supplies are received from abroad, the purchaser may waive the pre-dispatch inspection.
3. However, the inspection and dispatch clearance by the Purchaser or the waiver thereof shall not prejudice the right of the Purchaser or its consignee to test the equipment/goods on receipt at destination. Upon receipt of the goods at final destination, the Purchaser shall have the right to inspect and/or test the equipment/Goods to confirm their conformity to contract specifications.
4. If the equipment fails to meet the contract specifications during inspection, whether pre dispatch or upon receipt of at final destination, the supplier shall take immediate steps to remedy the deficiency or replace the defective equipment to ensure that all supplies meet with the specifications specified in the contract

Inspection and tests prior to shipment of Goods and at final acceptance are as follows:

1. The inspection of the Goods shall be carried out to check whether the Goods are in conformity with the approved technical specifications attached to the contract and shall be in line with the inspection/test procedures laid down in the Technical Specifications and the General Conditions of contract. Following broad test procedure will generally be followed for inspection and testing of instruments. The supplier may dispatch the goods to the ultimate consignee after internal inspection testing along with the supplier's inspection report and manufacturer's warranty certificate based on the inspection waiver from purchaser. The purchaser will test the equipment after completion of the installation and commissioning at the site of the installation.
 - a. Site Preparation and Installation: The Purchaser will designate the installation sites before the scheduled installation date to allow the Supplier to perform a site inspection before the installation of the DWLRs and associated telemetry system
 - b. For site preparation, the supplier should furnish all details (installation drawings) to the purchaser sufficiently in advance so as to get the works completed before receipt of the equipment.

2. Complete hardware and software as specified in 'List of Goods and Delivery Schedule' Under the Schedule of Requirement should be supplied, installed and commissioned properly by the supplier prior to commencement of performance tests.
3. The acceptance test will be conducted by the purchaser/their consultant or any other person nominated by the purchaser, at its option. The acceptance will involve **trouble-free operation for seven consecutive days**. There shall not be any additional charges for carrying out acceptance tests. No malfunction, partial or complete failure of any part of hardware attached to printers, drivers etc. or bugs in the software should occur. All the software should be complete and no missing modules/sections will be allowed. The supplier shall maintain necessary log in respect of the results of the tests to establish to the entire satisfaction of the purchaser, the successful completion of the test specified. An average uptake efficiency of 90% for the duration of test period shall be considered as satisfactory.
4. In the event of the hardware and software failing to pass the acceptance test, a period not exceeding two weeks will be given to rectify the defects and clear the acceptance test, failing which the purchaser reserves the rights to get the equipment replaced by the supplier at no extra cost to the purchaser.
5. DWLRs procured would be subject to the Acceptance Protocol given below

ACCEPTANCE PROTOCOL

1. General

- a. The delivery of goods/equipment and software should be in accordance with the contract agreement and the process of delivery will adhere to the following 'Acceptance Protocol'. The Acceptance Protocol shall serve as a formal guidance during delivery of the DWLRs. Its primary goals are twofold.
 - i. Ascertain the delivery and completeness of all ordered products and related documents.
 - ii. Check the functioning of the equipment and software in a formal way against the specifications by application of Acceptance Tests. The tests also verify the accuracy and stability of the equipment.
- b. The Acceptance Protocol shall be executed in close co-operation between the Supplier and the Client.
- c. Products shall be accepted only if they meet the requirements and are functioning in compliance with the technical specifications, and the related documents are complete and correct. Defective products and any other discrepancies shall have to be replaced/ resolved, within a pre-defined time frame as specified in bid document.

2. Documents

- a. The following documents shall accompany the delivery of the instruments and software:
 - i. Administrative and Quality Assurance (QA) documents
 - ii. Test and calibration documents
 - iii. Manuals and Guidelines

All documents shall have identification and references to subject or instrument, date, time, location and officer in charge.

- b. The Acceptance Report lays down the findings and observations during the execution of the Acceptance Protocol and is a formal document to record the acceptance or rejection of any item

as covered in the Bid document. Any flaws or findings are to be reported. The forms and checklists filled out during the execution of the Acceptance Protocol are to be enclosed with the Acceptance Report. The Supplier receives a signed copy of the Acceptance Report, which the Supplier can use as proof that the items listed in the report were accepted.

c. The content of the various documents shall be as follows:

2.1 Administrative and QA documents: These QA documents shall include:

- i) Production documents associated with the instruments.
- ii) Type codes, serial numbers and other identification data on, possibly externally procured, sensors and major assemblies, to clearly demarcate the sensors/major assemblies associated with each DWLR.
- iii) Shipping documents indicating instrument/product type, serial number, measuring range, cable length and other similar data.

2.2 Test and calibration documents:

- i) A comprehensive Method Statement on the applied calibration and in-factory test procedures shall accompany the bid. The Method Statement should define the test and calibration methods applied on the instruments and the components thereof. The Method Statement shall also include, for each calibrated product, an audit trail to national standards on all instruments and facilities used for testing and calibration. The Audit Trail Report shall associate the calibration of the reference instruments and test equipment to the national calibration standards.
- ii) If the Supplier or Manufacturer is not in a position to deliver an Audit Trail Report to the national standards, the Manufacturer shall explain what the quality standards are and how they are maintained and monitored.
- iii) Conditions during calibration, such as room and/or instrument temperature, equipment and facilities used, shall be included in the calibration and test documents.
- iv) The test and calibration documents shall contain the data generated during calibration and testing, including:
 - Calibration data supplied by the Manufacturer of pressure sensor
 - Calibration and test data of the data-logger electronics
 - Calibration data on overall DWLR calibration, i.e. comprising both pressure sensor and electronics. A table listing applied reference pressures versus instrument readings is to be delivered for each sensor and instrument. Furthermore, that table shall also show the test conditions during calibration
 - Data on hysteresis test, temperature tests, zero stability test, scale stability test
 - Humidity test, in particular for vented gauge pressure sensors
 - Temperature cycling of sensor and electronics
 - Spray test on enclosure(s), connectors and cables

2.3 Manuals and Guidelines

- i) The manuals shall meet the requirements on style and clarity, completeness, preciseness, detail and accessibility. This includes:
 - System manual,
 - Operation, Maintenance and Service manuals,
 - Observation guideline, and

- Training handouts.

3. Acceptance Tests

1. General

- i) Qualified engineers under responsibility of a test manager shall execute the Acceptance Tests. The progress of the Acceptance Tests would be monitored and supervised by the Client and/or his authorised representative. The Client may have any tests redone or additional tests executed as deemed required based on the results of previous tests conducted. The Client's and/or his authorised representative shall have the right of access to any instrument and may request any data or information at any time. The Supplier has the obligation to deliver requested information without delay; i.e. collected test data and documents must be available at the test site.
- ii) It is important that all activities (what, when, where, who, which instrument, etc.) are annotated and uniquely linked to the individual instruments.
- iii) The Acceptance Tests mainly comprise three levels viz.:
 - Functional Tests: The Functional Tests shall verify the proper functioning of the instruments and the associated software. Primary goal is to verify that the instrument performs its functions according to the bid specifications.
 - Accuracy Tests: The Accuracy Tests shall verify that each individual instrument is functional and operates according to the bid specifications. A number of relatively simple accuracy tests are routinely exercised on the instruments.
 - Overall Test: The main purpose of the Overall Test is to verify the common features that are identical to all the instruments in a series. Typical components of the Overall Test are: - in-built software functions, materials of the instrument, cables, connectors, etc. Further tests include battery and memory autonomy, details of sensor specifications like temperature effects, hysteresis, long term stability etc.
 - The above tests can be executed at any one of the following locations:-Premises of the Manufacturer/Supplier; Premises of the Client; Independent organisation; at Site of installation
- iv) The charges for testing shall be borne by the Manufacturer/Supplier. The Client and/or his authorised representative may at his cost opt to be present during the performances of the tests.
- v) If the tests are executed at the Client's premises, the charge for testing shall be borne by the Client and the Supplier shall be responsible for conducting the tests. The bidder in his bid shall indicate the name of independent organisation and the charges for testing. The Client reserves the right to accept the independent organisation and its charges or get the tests done by any other agencies. However, the Supplier would be permitted to be present at these tests.

(Explanatory Note: Test report from manufacturer would be acceptable. In case purchaser desires to test the system from independent agency (ies), testing charges would be borne by purchaser.)
- vi) The details of these tests are as follows.

1.1. Functional Tests: The Functional Tests include: visual inspection, and user tests.

1.1.1 Visual Inspection: Visual inspection includes the following activities.

- i) All items are visually checked for damage, e.g. on cables, sensor and housing.
- ii) Availability of non-removable identification codes and specifications are verified, e.g. serial number, type identification, manufacturer and measuring range.
- iii) Cables have to be marked: each cable is to have an identification code and name.
- iv) Cable connectors shall have their ends marked suitably to indicate the device to which it is to be connected, e.g. PC, HHT, Power Supply etc. Suitable precaution shall be taken so that the connectors are not connected to wrong terminals, i.e. it shall be impossible to connect a power cable to a communication bulkhead socket.

1.1.2 User tests

- i) All instruments have to be identical except for measuring range, cable length, identification code and similar aspects. Consequently, there is no need to check the functionality of all systems. It is assumed that the functional compliance with the specifications is tested under the Overall Tests. The objective of the user test is to detect any malfunction and/or defect. From practical point of view, the user tests can be coupled with other test, e.g. the stability tests.
- ii) Basic functions to be tested are:
 - Pre-deployment preparation, e.g. setting of clock, erasing of memory, setting data logging parameters, entry of identification data
 - Facilities for execution of on-site functional checks
 - Data retrieval and data transfer to PC
 - Battery status and voltage
 - Simple output test by observing pressure reading while the sensor is immersed in a bucket filled with water

1.2 Accuracy Tests: The Accuracy tests include:

- accuracy tests on clock, and
- accuracy tests on pressure measurement

1.2.1 Accuracy tests on clock

- i) The clock of the data logger shall be carefully checked against national time, e.g. taking the radio broadcast time beeps as a reference. The data logger clock is set precisely and checked at the start of the individual tests and upon instrument and/or data retrieval. In between, the clock should not be readjusted.
- ii) The clock test shall cover at least 3 days to get sufficient time resolution. The reference clock, e.g. a watch, must be carefully tuned against national time prior to and during the tests. The clock drift, converted to seconds per month (31 days) shall comply with the defined specifications. This test method makes use of the specified time resolution of 1 s.

1.2.2 Accuracy tests on pressure measurement

- i) The accuracy test on the pressure sensor is an overall accuracy test covering both the pressure and electronics systems. The pressure tests are to be executed against accurately known reference pressure(s). Pressure can be generated from compressed air (gas) or by submerging the sensor to known depths in water.

- ii) Reference pressure may be created via a precision pressure reduction valve from a source of compressed air. A high precision sensor like a Digi Quartz pressure sensor or a Dead Weight Tester can be implemented to quantify the applied pressure. Pressure should be measured in kPa (or mbar).
- iii) When applying the immersion method it is much more difficult to check the instruments because water density affects the reading. Moreover, it is not simple to establish the exact depth of sensor immersion. And especially in narrow wells, while immersing a pressure sensor on its cable into a well, the water level will rise due to the additional volume of the immersed pressure sensor and cable. The water level will gradually fall again, when the well level adjusts again to equilibrium with the ground water level. In order to achieve a high accuracy these effects have to be assessed.
- iv) The pressure sensor tests include:
 - Zero stability test
 - Scale test
 - Scale stability test
- v) The pressure sensor tests shall focus on temperature effects on zero, scale and cable length, and in addition to that establish quantitative data on drift of zero, scale and creep of cable length.

1.2.2.1 Zero stability test

- i) During the zero-test the instruments are in logging mode, say at an interval of 30 minutes, and shall be kept in a separate room where they will not be touched for at least 3 days. The instruments must be dry, i.e. not in a bucket of water, to exclude any water effect on the sensor, and hence, the instrument reading is expected to be 0.0.
- ii) Under this test, each instrument will record its short term zero drift and inherently the effectiveness of the air-pressure compensation method. During the zero-test, the instruments shall be in the same and constant position, vertical or horizontal. The room temperature shall vary over 5 °C or more, e.g. due to daily temperature fluctuation, this to assess temperature effects on the instrument reading. This requirement may affect the choice of venue for the zero-tests. To avoid any adverse temperature strain, no direct sunlight shall fall on the instruments. At the end of the test, the collected data are offloaded from the data logger memory and analysed for zero stability. As the instruments are kept in air and are not touched, the reading shall be stable and not change over time that is not beyond permissible limits.
- iii) Room temperature is to be logged against time, preferably by digital method. In case the DWLR has a built-in temperature sensor, that sensor may be used for temperature logging. The pressure sensors shall not be tested in an air-conditioned room for several reasons. First, temperature fluctuations may be so rapid that the sensor temperature compensation scheme may not be able to cope with it. Moreover, rapid air-pressure fluctuations may not be handled properly by the air-vent system and/or the pressure measurement method. This is to be understood from the perspective that the instruments are designed to operate in wells where changes occur but not rapidly. One or more fans may be operated continuously to minimise temperature gradient across the test room.
- iv) To test the creep and elongation of the electrical cum suspension cable some vertical open space is required, e.g. a stairwell can be used for this purpose. However, it is important that the cable is protected against touch to avoid interference with the

measurements. The cable is loaded with some weight to emulate the weight of cable and sensor. The length of cable under tests shall be as long as possible, i.e. 10 m or more, to get the best accuracy of the tests. The lowest point is suspended to about 0.15 m above the floor. The gap between lowest point and floor is monitored against time. Initially readings are taken every 30 minutes for 12 hours, subsequently the reading interval may be increased to 6 hours. The cable test shall be executed during 7 days. Resolution of measurement should be 1 mm or better. The result is to be presented in mm length change per meter suspended cable length. Only one cable is to be tested.

1.2.2.2 Scale test: A precisely known pressure is applied on the instrument and the instrument reading is taken. The instrument reading is converted into level or pressure whatever is applicable. The calculated value is compared with the applied value; the difference is regarded as the FS error. In case the specifications of the applied pressure sensor may give reason to doubt the instrument's linearity, then a mid-scale test is to be executed as well.

1.2.2.3 Scale stability test: Scale stability is tested by subjecting the instrument to the full-scale pressure for at least 24 hours. During the test, the applied pressure/level is to be accurately monitored by taking reference readings either by a reference logger of high accuracy or by manual readings. The accuracy and resolution of the reference measurement must be 1 mm water column or 0.01 kPa (0.1 mbar).

1.3 Overall Test: Part of the Overall Test is also covered under the Functional Tests and Accuracy Tests. The Overall Test comprises tests on:

- autonomy
- fitness for environment
- functionality
- calibration
- stability
- reproducibility, and
- main power failure

Details of the various tests are as follows.

1.3.1 **Autonomy:** Two autonomy tests shall be conducted:

- battery capacity versus the power consumption per measurement, and
 - memory capacity
- i) Battery autonomy test: To execute the test, the instrument is set to a fast data collection interval and the capacity, i.e. the number of samples, is established by a continuous process of data collection until the batteries are depleted. The test shall be executed on new batteries. In this context, the batteries are deemed depleted when the instrument stops functioning because the battery voltage watch-dog function detects a too low battery voltage or the normal operation of the instrument stops.
- ii) Memory capacity verification: The memory is filled at the highest data-recording rate and the volume of collected data is verified against the bid specification. This test could be combined with the battery autonomy test and the samples are taken at a high rate to minimize the test duration.

1.3.2 Fitness for environment

- i) Connectors, cable glands, cables and housing must be suitable for the environment of operation, be it submersed, in a well or above the ground. Water ingress can be assessed by visual inspection and / or by insulation measurement. Visual inspection may only reveal ingress of a significant amount of water. The insulation measurement is more sensitive, especially for cables, connectors and encapsulated electronics, but requires specialised equipment.
- ii) The above-surface components have to be compatible with IP65 standard and shall be tested accordingly by exposing them to a heavy shower for 3 minutes. Subsequently the ingress of water is assessed by opening of the instrument and connectors.
- iii) The submersible components must comply with IP68 standards. To verify this, the instrument shall be suspended in a well for at least one week, to a maximum depth, without affecting the calibration of the pressure sensor and not exceeding 2 times the rated measuring range. Although most pressure sensors can withstand considerably more than 2 times the rated measuring range, there is no need to exceed this. Prior to this test, the zero and scale of the sensor have to be established and verified again upon recovery.

1.3.3 Functionality

- i) Functionality has to be verified for all requirements for operation of the DWLR with reference to the bid specifications and the instrument specifications as given by the Manufacturer. Missing functionality shall be reported.
- ii) All (software) functions as stated in the instrument manual(s) and the instrument specifications are tested for correct functioning. Any detected flaws are reported which shall be repaired/rectified by the Manufacturer/Supplier within seven days.

1.3.4 Calibration

- i) The instrument calibration is checked for compliance with the bid specifications. In particular accuracy, stability, linearity, hysteresis and reproducibility are verified.
- ii) The scale or sensitivity of the complete instrument, including sensor and electronics, is to be checked for at least 11 pressures, equally distributed over the full measuring range. Furthermore, the calibration data as delivered with the instrument are verified for accuracy and consistency with data obtained from the calibration tests. The calibration may be executed by application of accurately known air-pressure or by immersion in a well. The temperature effects on the calibration should also be verified at low, mid and maximum range temperatures.
- iii) **Note:** Prior to execution of immersion tests, the effective position of the sensor membrane relative to the sensor housing is to be assessed and measured, e.g. by execution of a bucket experiment. In this experiment, the sensor is partly immersed in a water filled bucket to a depth where the related reading has changed by several centimetres, relative to the 'in-air' reading. During the test, the position of the water surface on the sensor's body shall be observed and marked accordingly. The 'effective-sensor-zero' lies below the water surface during the test. The position of the effective-sensor-zero is below the above mentioned water-surface mark by the equivalent of the sensor reading expressed in centimetres. The effective-sensor-zero may be close to the sensor membrane but not necessarily coincides with it.

1.3.5 **Stability:** Stability related to the DWLR is defined as a variation over time of the instrument specifications, whereas the circumstances and pressure do not vary. Parameters to be checked are:

- zero: offset stability
- scale: full scale stability
- cable: length (extension/contraction) and creep stability

The methods to assess these stability factors are explained under the section on Accuracy Tests.

1.3.6 **Reproducibility:** The sensor reading in air is annotated, subsequently the sensor is immersed to the rated measuring depth, and a stable reading is collected. Then the sensor is recovered to the surface and again a stable reading is taken. This process is repeated 5 times and results are duly annotated. It is important that during the complete test the instrument is kept in the same, vertical position.

1.3.7 **Main power failure:**

- i) Some instruments operate on replaceable batteries or even external power and have a built-in back-up facility, usually based on a Lithium battery. It is quite possible that on some instruments the external power supply or the replaceable batteries fail because of total depletion, disconnection, defect on the cable or connector etc. In such an event, the instrument must retain its clock, its program setting and most importantly all the collected data.
- ii) The Functional Tests are executed in conjunction with the stability test. Upon finalising these tests and after successful retrieval of all test data the power is disconnected by removing the main power batteries and/or disconnecting the power cable. The instrument is to be left in that state for at least 24 hours. Then the power shall be connected again and clock, program settings and recorded data are checked for availability and correctness.
- iii) Instruments with entirely built-in factory replaceable batteries cannot be tested in this way. In such case, the Manufacturer shall provide a technical description of the method applied to avoid loss of clock, program and collected data.

4. Test Execution: Two test programmes are to be executed:

- All Units Test Programme
- Single Unit Test Programme

Prior to execution of the tests, a detailed test script has to be drafted and agreed upon. The test script shall define:

- test sequence.
- the test conditions and requirements for each test.
- place of the test.
- person(s) responsible for conducting the tests.
- reporting requirements.
- handling failures and problems.

4.1 All Units Test Programme: The All Units Test Programme aims to identify the malfunctioning instruments and those not compliant with the bid specifications. The Functional Tests, the Clock

Accuracy Test and the Zero Stability Test must be executed on each instrument. The design of the tests shall be selective and practical and enable execution with simple means, preferably at the Client's premises.

4.2 Single Unit Test Programme

- i) A full system shall be tested, that is: pressure sensor, electronics, cable, power supply, DRS, software and manuals. The Single Unit Test Programme is a combination of the Functional Tests, the Accuracy Tests and the Overall Test. The Client shall randomly select an instrument for testing from the instruments delivered. The Single Unit Test Programme can only be started after verification that all documents related to the order/delivery, including manuals, calibration data, QA data etc., are delivered to the Client. Any other unit, for which doubts arise on its compliance with the bid specifications, shall also be tested on the client's request.
 - ii) Failing to pass the Single Unit Test Programme results in rejection of the entire delivery until the defective units have been repaired to meet the technical specifications, and such to the satisfaction of the Client.
5. Evaluation of test results: The test results have to be evaluated and results and conclusion shall be reported. Instruments that do not meet the bid specifications, shall be replaced by properly functioning and satisfactorily tested instruments.
6. Post acceptance performance monitoring
- i) After installation and field deployment the instrument performance shall be continuously monitored by taking manual observations, initially at a relatively high rate, e.g. every 3 hours, gradually migrating towards the normal monitoring interval. The level comparisons are required for reference and validation purposes. Manual observations and automatic readings shall be taken at short intervals after each other, in practice the time difference shall be kept to less than 15 minutes. The primary criterion though, is that the manual reading shall be taken before the water level changes more than 1 mm.
 - ii) Other checks are on functioning of the internal clock, data recording and retrieval, battery discharge, siltation of the sensor, moisture ingress and any development of corrosion.
 - iii) The tape used for taking the reference readings shall be of high accuracy, considerably better than the accuracy of the DWLR, only then the performance of the high accuracy instruments can be monitored. However, an accuracy of 1 mm over the full measuring range is enough. Only best quality tapes, e.g. the electric types, come close to this requirement. The tapes shall be checked for accuracy against a precise reference, e.g. over 10 or 20 m on a single stretch. Verification by a standard ruler will not reveal to overall accuracy of a tape. The 'tape verification reference' could be prepared using high accuracy geodetic equipment. A long, straight corridor, or a quiet stretch of road, could accommodate the length reference marks, the accuracy should be 1 mm relative to the reference point (0.000 m).
7. Instrument History File: For each instrument, an individual History File shall be opened and maintained (The Instrument history file shall be suppliers' scope.). In the History File the full instrument history and all documents generated shall be stored. This also includes any changes, adaptations, repairs etc. made to the instruments. The products and results of the execution of the Acceptance Protocol shall be included in the Instrument History File. Some document types and entries are listed below:

7.1 **Instrument identification:** The instrument identification uniquely defines the instrument particulars.

- Make, vendor, service provider, date of manufacturing, date of delivery
- Instrument make, model and serial number
- Instrument configuration
- Measuring range
- Cable type, length
- Manual version
- Instrument status: e.g. working, under calibration, under repair

7.2 **Functional, Accuracy and Over-all tests:** For each of the three test categories, a separate and unambiguous record shall be maintained. The test conditions and results shall be duly recorded. Obviously any failures or irregularities shall be annotated accurately and comprehensively, as well as the actions taken and their results. At least the following data shall be recorded:

- Administrative data: what, when, where, who, which instrument and configuration
- List of tests
- Specifications for each test
- Results of each test
- Failures, actions, conclusions

8.0 **Acceptance Certificates:**

- On successful completion of acceptability test, receipt of deliverables etc., and after the purchaser is satisfied with the working of the DWLR system, the acceptance certificate signed by the supplier and the representative of the purchaser will be issued. The date on which such certificate is signed shall be deemed to be the date of successful commissioning of the systems

6. PROFORMA OF CERTIFICATE FOR ISSUE BY THE PURCHASER AFTER SUCCESSFUL INSTALLATION AND STARTUP OF THE SUPPLIED GOODS

[This is to be attached for supply, erection, supervision of erection and startup contracts only]

No.

Date:

M/s.

Sub: Certificate of startup of the supplied Goods

1. This is to certify that the plant/s as detailed below has/have been received in good condition along with all the standard and special accessories (subject to remarks in Para No. 2) and a set of spares in accordance with the Contract/Specifications. The same has been installed and commissioned.

(a) Contract No. _____ dated _____

(b) Description of the plant _____

(c) Plant Nos. _____

(d) Quantity _____

(e) Rail/Roadways Receipt No. _____ dated _____

(f) Name of the consignee _____

(g) Date of start up and proving test _____

2. Details of accessories/spares not yet supplied and recoveries to be made on that account.

| <u>S. No.</u> | <u>Description</u> | <u>Amount to be recovered</u> |
|---------------|--------------------|-------------------------------|
|---------------|--------------------|-------------------------------|

3. The proving test has been done to our entire satisfaction and operators have been trained to operate the plant.

4. The supplier has fulfilled his contractual obligations satisfactorily. *

Or

The supplier has failed to fulfill his contractual obligations with regard to the following:

- (a)
- (b)
- (c)
- (d)

- 5. The amount of recovery on account of non-supply of accessories and spares is given under Para No. 2.
- 6. The amount of recovery on account of failure of the supplier to meet his contractual obligations is as indicated in endorsement of the letter.

Signature _____

Name _____

Designation with Stamp _____

* Explanatory notes for filling up the certificates:

- (a) He has adhered to the time schedule specified in the contract in dispatching the documents/drawings pursuant to Technical Specifications.
- (b) He has supervised the startup of the plan in time i.e., within the period specified in the contract from the date of intimation by the Purchaser in respect of the installation of the plant.
- (c) Training of personnel has been done by the supplier as specified in the contract
- (d) In the event of documents/drawings having not been supplied or installation and startup of the plant have been delayed on account of the supplier, the extent of delay should always be mentioned.

PART 3 – CONTRACT

SECTION VIII – GENERAL CONDITIONS OF CONTRACT

Section VIII. General Conditions of Contract

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Section VIII. General Conditions of Contract

1. Definitions

The following words and expressions shall have the meanings hereby assigned to them:

- (a) "Bank" means the World Bank and refers to the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).
- (b) "Contract" means the Contract Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
- (c) "Contract Documents" means the documents listed in the Contract Agreement, including any amendments thereto.
- (d) "Contract Price" means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.
- (e) "Day" means calendar day.
- (f) "Completion" means the fulfillment of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
- (g) "GCC" mean the General Conditions of Contract.
- (h) "Goods" means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.
- (i) "Purchaser's Country" is India.
- (j) "Purchaser" means the entity purchasing the Goods and Related Services, as specified in the **SCC**.
- (k) "Related Services" means the services incidental to the supply of the goods, such as insurance, installation, start-up, training and initial maintenance and other such obligations of the Supplier under the Contract.
- (l) "SCC" means the Special Conditions of Contract.

- (m) “Subcontractor” means any natural person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier.
- (n) “Supplier” means the natural person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Contract Agreement.
- (o) “The Project Site,” where applicable, means the place named in the **SCC**.

2. Contract Documents

2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.

3. Corrupt & Fraudulent Practices

3.1 The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Appendix to the GCC.

3.2 The Purchaser requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

4. Interpretation

4.1 If the context so requires it, singular means plural and vice versa.

4.2 Incoterms

(a) Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties there under shall be as prescribed by Incoterms.

(b) The terms EXW and other similar terms, when used, shall be governed by the rules prescribed in the current edition of Incoterms specified in the **SCC** and published by the International Chamber of Commerce in Paris, France.

4.3 Entire Agreement

The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications, negotiations and

agreements (whether written or oral) of the parties with respect thereto made prior to the date of Contract.

4.4 Amendment

No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.

4.5 Nonwaiver

(a) Subject to GCC Sub-Clause 4.5(b) below, no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

(b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

4.6 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

5. Language

5.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Supplier and the Purchaser, shall be English. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in English language, in which case, for purposes of interpretation of the Contract, this translation shall govern.

5.2 The Supplier shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.

6. Deleted

7. Eligibility

7.1 The Supplier and its Subcontractors shall have the nationality of an eligible country. A Supplier or Subcontractor shall be deemed to have the nationality of a country if it is a citizen or constituted, incorporated,

or registered, and operates in conformity with the provisions of the laws of that country.

7.2 All Goods and Related Services to be supplied under the Contract and financed by the Bank shall have their origin in Eligible Countries. For the purpose of this Clause, origin means the country where the goods have been grown, mined, cultivated, produced, manufactured, or processed; or through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.

8. Notices

8.1 Any notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the **SCC**. The term “in writing” means communicated in written form with proof of receipt.

8.2 A notice shall be effective when delivered or on the notice’s effective date, whichever is later.

9. Governing Law

9.1 The Contract shall be governed by and interpreted in accordance with the laws of the Union of India.

10. Settlement of Disputes

10.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

10.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract. Arbitration proceedings shall be conducted in accordance with the rules of procedure **specified in the SCC**.

10.3 Notwithstanding any reference to arbitration herein,

(a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and

(b) the Purchaser shall pay the Supplier any monies due the Supplier.

11. Inspections and Audit by the Bank

11.1 The Supplier shall keep, and shall make all reasonable efforts to cause its Subcontractors to keep, accurate and systematic accounts and records in respect of the Goods in such form and details as will clearly identify relevant time changes and costs

- 11.2 The Supplier shall permit, and shall cause its Subcontractors to permit, the Bank and/or persons appointed by the Bank to inspect the Supplier's offices and all accounts and records relating to the performance of the Contract and the submission of the bid, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Supplier's and its Subcontractors and consultants' attention is drawn to Clause 3 [Fraud and Corruption], which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under this Sub-Clause 11.1 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures)
- 12. Scope of Supply** 12.1 The Goods and Related Services to be supplied shall be as specified in the **Special Condition of Contract**.
- 13. Delivery and Documents** 13.1 Subject to GCC Sub-Clause 33.1, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Schedule of Requirements. The details of shipping and other documents to be furnished by the Supplier are specified in the **SCC**.
- 14. Supplier's Responsibilities** 14.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Supply in accordance with GCC Clause 12, and the Delivery and Completion Schedule, as per GCC Clause 13.
- 15. Contract Price** 15.1 Prices charged by the Supplier for the Goods supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid, with the exception of any price adjustments authorized in the **SCC**.
- 16. Terms of Payment** 16.1 The Contract Price, including any Advance Payments, if applicable, shall be paid as specified in the **SCC**.
- 16.2 The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, and by the documents submitted pursuant to GCC Clause 13 and upon fulfillment of all other obligations stipulated in the Contract.
- 16.3 Payments shall be made promptly by the Purchaser, but in no case later than sixty (60) days after submission of an invoice or request for payment by the Supplier, and after the Purchaser has accepted it.
- 16.4 The payments shall be made in Indian Rupees to the Supplier under this Contract.
- 16.5 In the event that the Purchaser fails to pay the Supplier any payment by its due date or within the period set forth in the **SCC**, the Purchaser

shall pay to the Supplier interest on the amount of such delayed payment at the rate shown in the **SCC**, for the period of delay until payment has been made in full, whether before or after judgment or arbitration award.

17. Taxes and Duties 17.1 The Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

18. Performance Security 18.1 If required as specified in the SCC, the Supplier shall, within twenty-eight (28) days of the notification of contract award, provide a performance security for the performance of the Contract in the amount specified in the **SCC**.

18.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

18.3 As specified in the SCC, the Performance Security shall be denominated in the Indian Rupees, and shall be in the format stipulated by the Purchaser in the **SCC**, or in another format acceptable to the Purchaser.

18.4 The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless specified otherwise in the **SCC**.

19. Copyright 19.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party

20. Confidential Information 20.1 The Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such

Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under GCC Clause 20.

20.2 The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the performance of the Contract.

20.3 The obligation of a party under GCC Sub-Clauses 20.1 and 20.2 above, however, shall not apply to information that:

- (a) the Purchaser or Supplier need to share with the Bank or other institutions participating in the financing of the Contract;
- (b) now or hereafter enters the public domain through no fault of that party;
- (c) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or
- (d) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

20.4 The above provisions of GCC Clause 20 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.

20.5 The provisions of GCC Clause 20 shall survive completion or termination, for whatever reason, of the Contract.

21. Subcontracting

21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in the bid. Such notification, in the original bid or later shall not relieve the Supplier from any of its obligations, duties, responsibilities, or liability under the Contract.

21.2 Subcontracts shall comply with the provisions of GCC Clauses 3 and 7.

22. Specifications and Standards

22.1 Technical Specifications and Drawings

- (a) The Goods and Related Services supplied under this Contract shall conform to the technical specifications and standards mentioned in Section VII, Schedule of Requirements and, when no applicable standard is mentioned, the standard shall be equivalent or superior to

the official standards whose application is appropriate to the Goods' country of origin.

- (b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.
- (c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Schedule of Requirements. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with GCC Clause 33.

23. Packing and Documents

- 23.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 23.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in the **SCC**, and in any other instructions ordered by the Purchaser.

24. Insurance

- 24.1 Unless otherwise specified in the **SCC**, the Goods supplied under the Contract shall be fully insured—against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in accordance with the applicable Incoterms or in the manner specified in the **SCC**.

25. Transportation & Incidental Services

- 25.1 Unless otherwise specified in the **SCC**, responsibility for arranging transportation of the Goods shall be in accordance with the specified Incoterms.
- 25.2 The Supplier may be required to provide any or all of the following services, including additional services, if any, **specified in Schedule of Requirements and SCC**:
 - (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;

- (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (e) training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods

25.3 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services

26. Inspections and Tests

26.1 The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified in the **SCC**.

26.2 The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor, at point of delivery, and/or at the Goods' final destination, or in another place in the Purchaser's Country as specified in the **SCC**. Subject to GCC Sub-Clause 26.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.

26.3 The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in GCC Sub-Clause 26.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.

26.4 Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.

26.5 The Purchaser may require the Supplier to carry out any test and/or inspection not required by the Contract but deemed necessary to verify that the characteristics and performance of the Goods comply with the technical specifications codes and standards under the Contract, provided that the Supplier's reasonable costs and expenses incurred

in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of manufacturing and/or the Supplier's performance of its other obligations under the Contract, due allowance will be made in respect of the Delivery Dates and Completion Dates and the other obligations so affected.

- 26.6 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.
- 26.7 The Purchaser may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to GCC Sub-Clause 26.4.
- 26.8 The Supplier agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to GCC Sub-Clause 26.6, shall release the Supplier from any warranties or other obligations under the Contract.

27. Liquidated Damages

- 27.1 Except as provided under GCC Clause 32, if the Supplier fails to deliver any or all of the Goods by the Date(s) of delivery or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in the **SCC** of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in those **SCC**. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to GCC Clause 35.

28. Warranty

- 28.1 The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.
- 28.2 Subject to GCC Sub-Clause 22.1(b), the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.
- 28.3 Unless otherwise specified in the **SCC**, the warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the

case may be, have been delivered to and accepted at the final destination indicated in the **SCC**, or for eighteen (18) months after the date of shipment from the port or place of loading in the country of origin, whichever period concludes earlier.

- 28.4 The Purchaser shall give notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.
- 28.5 Upon receipt of such notice, the Supplier shall, within the period specified in the **SCC**, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.
- 28.6 If having been notified, the Supplier fails to remedy the defect within the period specified in the **SCC**, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

29. Patent Indemnity

- 29.1 The Supplier shall, subject to the Purchaser's compliance with GCC Sub-Clause 29.2, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of:
 - (a) the installation of the Goods by the Supplier or the use of the Goods in the country where the Site is located; and
 - (b) the sale in any country of the products produced by the Goods.

Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Supplier, pursuant to the Contract.

- 29.2 If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in GCC Sub-Clause 29.1, the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser's name

conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

29.3 If the Supplier fails to notify the Purchaser within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.

29.4 The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.

29.5 The Purchaser shall indemnify and hold harmless the Supplier and its employees, officers, and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Supplier may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.

30. Limitation of Liability

30.1 Except in cases of criminal negligence or willful misconduct,

(a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and

(b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the supplier to indemnify the purchaser with respect to patent infringement

31. Change in Laws and Regulations

31.1 Unless otherwise specified in the Contract, if after the date of 28 days prior to date of Bid submission, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in India, where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/or the Contract Price, then such Delivery Date and/or Contract Price shall be

correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with GCC Clause 15.

32. Force Majeure

- 32.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 32.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- 32.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

33. Change Orders and Contract Amendments

- 33.1 The Purchaser may at any time order the Supplier through notice in accordance GCC Clause 8, to make changes within the general scope of the Contract in any one or more of the following:
- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
 - (b) the method of shipment or packing;
 - (c) the place of delivery; and
 - (d) the Related Services to be provided by the Supplier.
- 33.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28)

days from the date of the Supplier's receipt of the Purchaser's change order.

33.3 Prices to be charged by the Supplier for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

33.4 Subject to the above, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

34. Extensions of Time

34.1 If at any time during performance of the Contract, the Supplier or its subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to GCC Clause 13, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

34.2 Except in case of Force Majeure, as provided under GCC Clause 32, a delay by the Supplier in the performance of its Delivery and Completion obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 26, unless an extension of time is agreed upon, pursuant to GCC Sub-Clause 34.1.

35. Termination

35.1 Termination for Default

(a) The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate the Contract in whole or in part:

(i) if the Supplier fails to deliver any or all of the Goods within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 34;

(ii) if the Supplier fails to perform any other obligation under the Contract; or

(iii) if the Supplier, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in GCC Clause 3, in competing for or in executing the Contract.

(b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 35.1(a), the Purchaser may procure, upon

such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

35.2 Termination for Insolvency.

(a) The Purchaser may at any time terminate the Contract by giving notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser

35.3 Termination for Convenience.

(a) The Purchaser, by notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

(b) The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

(i) to have any portion completed and delivered at the Contract terms and prices; and/or

(ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.

36. Assignment

36.1 Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior written consent of the other party.

APPENDIX TO GENERAL CONDITIONS

Bank's Policy- Corrupt and Fraudulent Practices

(text in this Appendix shall not be modified)

Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011:

"Fraud and Corruption:

1.16 It is the Bank's policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.⁹ In pursuance of this policy, the Bank:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;¹⁰
 - (ii) "fraudulent practice" is 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;¹¹
 - (iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;¹²
 - (iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;¹³
 - (v) "obstructive practice" is:

⁹ In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

¹⁰ For the purpose of this sub-paragraph, "*another party*" refers to a public official acting in relation to the procurement process or contract execution. In this context, "*public official*" includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

¹¹ For the purpose of this sub-paragraph, "party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

¹² For the purpose of this sub-paragraph, "parties" refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other's bid prices or other conditions.

¹³ For the purpose of this sub-paragraph, "party" refers to a participant in the procurement process or contract execution.

- (aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or
 - (bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 1.16(e) below.
- (b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
 - (c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
 - (d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,¹⁴ including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated¹⁵;
 - (e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank."

¹⁴ A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

¹⁵ A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

SECTION IX. SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

[The Purchaser shall select insert the appropriate wording using the samples below or other acceptable wording, and delete the text in italics]

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| GCC 1.1(j) | The Purchaser is: The Chairman , Central Ground Water Board, Bhujal Bhawan, N.H. IV, Faridabad – 121001 Phone No : :0129-2477186, FAX: 0129-2477200 E mail id: seop-cgwb@nic.in |
| GCC 1.1 (o) | The Project Site(s)/Final Destination(s) is/are: as mentioned in Schedule of Requirements Section IV. |
| GCC 4.2 (a) | The meaning of the trade terms shall be as prescribed by Incoterms . |
| GCC 4.2 (b) | The version edition of Incoterms shall be 2010 |
| GCC 8.1 | For notices , the Purchaser's address shall be: The Chairman, Central Ground Water Board, Bhujal Bhawan, N.H. IV, Faridabad – 121001 Phone No : :0129-2477186, FAX: 0129-2477200 E mail id: seop-cgwb@nic.in Country: INDIA |
| GCC 10.2 | Settlement of Disputes The dispute settlement mechanism to be applied shall be as follows: (a) The initial Dispute Resolution Board shall comprise i) The Member (CGWB) ii) The Finance And Account Officer, CGWB iii) The Officer In-Charge, Data Centre, Central Ground Water Board (b) In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 arbitrators |

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| | <p>one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the *Indian Council of Arbitration/president of the institution of Engineers (India)</p> <p>(c) In the case of a dispute with a Foreign Supplier, the dispute shall be settled in accordance with provisions of UNCITRAL (United nations Commission on International Trade Law) Arbitration Rules. The Arbitral Tribunal shall consist of three Arbitrators one each to be appointed by the Purchaser and the Supplier. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the parties, and shall act as presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the *Indian Council of Arbitration/President of the Institution of Engineers (India)</p> <p>(d) If one of the parties fails to appoint its arbitrator in pursuance of sub-clause (a) and (b) above, within 30 days after receipt of the notice of the appointment of its arbitrator by the other party, then the *Indian Council of Arbitration/president of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India), both in cases of the Foreign supplier as well as Indian supplier, shall appoint the arbitrator. A certified copy of the order of the *Indian Council of Arbitration/President of the Institution of Engineers (India)/, making such an appointment shall be furnished to each of the parties.</p> <p>(e) Arbitration proceedings shall be held at Delhi, India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.</p> <p>(f) The decision of the majority of arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation etc. of its proceedings as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.</p> <p>(g) Where the value of the contract is Rs. 10 million and below, the disputes or differences arising shall be referred to the Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority namely the *Indian Council of Arbitration/President of the Institution of Engineers (India)/</p> <p>(h) Except otherwise agreed to by the Parties, Arbitrators should give a decision in writing within 120 days of receipt of notification of dispute</p> |
| GCC 10.4 | <p>Add as Clause 10.4 to the GCC the following: 10.4 All court cases shall be settled within jurisdiction of New Delhi</p> |

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| <p>GCC 12.1, 25.2 and 25.3</p> | <p>The scope of supply for the Goods and Related Services to be supplied shall be as specified in the schedule of requirement.</p> |
| <p>GCC 13.1</p> | <p>Details of Shipping and other Documents to be furnished by the Supplier are given below:</p> <p>GCC 13.1 Upon delivery of the goods to the transporter/ consignee, the supplier shall notify the purchaser and mail the following documents to the Purchaser:</p> <ul style="list-style-type: none"> (i) Four Copies of the Supplier invoice showing contract number, goods description, quantity, unit price, total amount; (ii) Delivery note, Railway receipt, or Road consignment note or equivalent transport document or acknowledgement of receipt of goods from the Consignee; (iii) Four Copies of packing list identifying contents of each package; (iv) Insurance certificate; (v) Manufacturer's/ Supplier's warranty certificate; (vi) Inspection certificate issued by the nominated inspection agency, and the Supplier's factory inspection report; and (vii) Certificate of origin. <p>The above documents shall be received by the Purchaser before arrival of the Goods (except where it is handed over to the Consignee with all documents) and if not received, the supplier will be responsible for any consequent expenses.</p> |
| <p>GCC 14.1</p> | <p>The supplier is responsible for and obliged to conduct all contracted activities in accordance with the contract using state- of- the- art methods and economic principles and exercising all means available to achieve the performance specified in the Contract. The Supplier is obliged to work closely with the Purchaser's staff, act within its own authority and abide by directives issued by the Purchaser and implementation activities. The Supplier will abide by the job safety measures prevalent in India and will free the Purchaser from all demands or responsibilities arising from accidents or loss of life the cause of which is the supplier's negligence. The Supplier will pay all indemnities arising from such incidents and will not holding the activities of its personnel or sub- contracted personnel and will hold itself responsible for any misbehavior/ misconduct. The Supplier will treat as confidential all data and information about the purchaser, obtained in the execution of his</p> |

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| | <p>responsibilities, in strict confidence and will not reveal such information to any other party without the prior written approval of the Purchaser.</p> <p>The bidder is responsible for following all Labour Laws, any other expenses applicable on the Service Engineer.</p> |
| GCC 15.1 | The prices charged for the Goods supplied and the related Services performed <i>shall not</i> be adjustable. |
| GCC 16.1 | <p>Payment shall be made in Indian Rupees in the following manner:</p> <p>The Bidder shall be paid 40% (<i>as per clause i</i>) of the Contract Price excluding AMC cost and the balance 60% (<i>as per clause ii</i>) of the Contract Price excluding AMC cost for O&M and data communication over the next five years @ 12% per year which include 5 year period of onsite warranty and two years of AMC as mentioned below: (<i>Note: Contract Price does not include any taxes or levies, as may be applicable and treated separately</i>)</p> <p>i) Disbursement of Payment shall be as under:</p> <ul style="list-style-type: none"> • 10% of Contract Price excluding AMC cost as advance payment against Bank Guarantee • 20% of Contract Price excluding AMC cost, plus total GST amount charged in Invoice against Supply of Goods shall be released after 30 days of the successful Delivery and installation of all the instruments/ Equipment on pro-rata basis as per Schedule of Requirements and its final acceptance. • 20% of Contract Price excluding AMC cost will be paid on pro-rata basis after 30 days of testing, commissioning and final acceptance. • Advance payment of 10% paid against Bank Guarantee will be adjusted in 20% payment paid on testing, commissioning and final acceptance as stated above <p>ii) 60% of the Contract Price excluding AMC cost but including replacement of parts if any and seamless data communication, here onwards referred as maintenance charges over the balance 05(five) years (5 years of warranty period) shall be paid as follows;</p> <ul style="list-style-type: none"> • 12% per Year to be paid on Half Yearly basis (6% at every six month) inclusive of GST payable on Supply of related services excluding AMC. The Conditions (applicable for this payment) shall be governed by <u>Annexure I: Service Level Conditions</u> <p>iii) AMC cost inclusive of GST payable on it, shall be paid on half yearly basis after 5 years of onsite manufacturer warranty period.</p> <p>iv) Payment of GST will be against valid Invoice as per GST Act & Rules and submission of GST Registration Certificate along with declaration</p> |

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| | <p><i>that GST Registration is valid and all liabilities towards GST have been discharged by the vendor. GST amount will be reimbursed after 30 days of submission of valid Invoice and all required documents and declaration by vendor.</i></p> <p>v) <i>For all the payments to be made, against Bank guarantees, the bank guarantee shall be issued by a Scheduled Indian Bank or a foreign bank located in India. The guarantees issued by other banks should be confirmed by a Scheduled Indian Bank or a foreign bank operating in India.</i></p> <p>vi) <i>Bank guarantee for advance payment shall be released not later than 30 days after the adjustment of advance amount against payment due after testing, commissioning and final acceptance. The bank guarantee should be valid for a period of 180 days or till the date of final testing, commissioning and final acceptance whichever is later, from the date of issue of bank guarantee including claim period.</i></p> <p>The bidder shall indicate in the Price Schedules specifying all items prices shown therein including the unit prices and total prices of the goods and related services along with GST or any other duties and taxes applicable against the schedule of requirements. GST if leveable shall be paid as applicable. Any statutory variation shall be paid on submission of documentary evidence. Bidders shall be required to quote HSN code and applicable tax rates.</p> <p>“GST” means all four Acts CGST, SGST, UTGST, IGST and any other regulations by Government in relation to GST and rules thereto.</p> <p>Note: The award of CAMC (Comprehensive Annual Maintenance Cost) for 2 Years after expiring of warranty will be at the discretion of purchaser, subjected to NHP tenure</p> |
| <p>GCC 16.5</p> | <p>The payment-delay period after which the Purchaser shall pay interest to the supplier shall be 60 days.</p> <p>The interest rate that shall be applied is 4 % per annum.</p> |
| <p>GCC 17</p> | <p>In the case of tax/ duty waiver, the purchaser will issue only the certificates in terms of the Government of India’s notification as per information given by supplier in form stipulated in Section IV. Supplier is solely responsible for obtaining such benefits and in case of failure to receive such benefits, the purchaser will not compensate the supplier separately.</p> <p>If pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the Tendering authority and does not any time become payable by the contractor to the State Government or Local authorities in respect</p> |

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| | <p>of any material used by the contractor in the works/ services then in such a case, it shall be lawful to the Tendering authority and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from the dues of the contractor.</p> <p>Conditions for Reimbursement of Levy/ Taxes, if Levied after Receipt of Tenders</p> <p>All tendered rates shall be inclusive of all taxes and levies payable under respective statutes. However, pursuant to the Constitution (46th Amendment) Act, 1982, if any further tax or levy is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the contractor thereupon necessarily and properly pays such taxes/levies, the contractor shall be reimbursed the amount so paid, provided such payment, if any, is not, in the opinion of the Tendering authority (whose decision shall be final and binding on the contractor) attributable to delay in execution of work/services within the control of the contractor.</p> <p>The supplier shall keep books of accounts and other documents for the purpose of this condition as may be necessary to clearly arrive at such amounts and shall allow inspection of the same by a duly authorized representative of the Tendering authority and further shall furnish such other information/ document as the Tendering authority may require from time to time.</p> |
| GCC 18.1 | <p>Performance Security to the Purchaser shall be for an amount of 10% of the contract value, valid up to 60 days after the date of completion of performance obligations including warranty obligations i.e. 05 years+60 days</p> <p>In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/ replaced material shall be extended to a further period of 12 months and the Performance Bank guarantee for proportionate value shall be extended 60 days over and above the extended warranty period.</p> |
| GCC 18.3 | <p>The Performance Security shall be in the form of a “Bank Guarantee” drawn in favour of the Purchaser.</p> |
| GCC 18.4 | <p>Discharge of the performance Security shall take place not later than 60 days following the date of completion of the Supplier’s performance obligations, including the warranty obligation, under the contract.</p> |
| GCC 18.5 | <p>Add as Clause 18.5 to the GCC the following:</p> <p>In the event of any contractual amendment, the Supplier shall, within 28 days of receipt of such amendment, furnish the amendment to the Performance Security, rendering the same valid for the duration of the Contract, as amended for 60 days after the completion of performance obligations including warranty obligations.</p> |

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| <p>GCC 23.2</p> | <p>Packing Instructions: The Supplier will be required to make separate packages for each Consignee. Each package will be marked on three sides with proper paint/ indelible ink with the following:</p> <p>(i) Project; (ii) Contract No.; (iii) Country of Origin of Goods; (iv) Supplier's Name; (v) Packing List Reference Number.</p> <p>Suppliers should use recycled materials as much as possible for packing</p> <p>=Deleted</p> |
| <p>GCC 24.1</p> | <p>Supplier to arrange for safety & security of goods and their accessories to be used for supply of data till completion of performance obligations at his own risk, No additional cost shall be paid.</p> |
| <p>GCC 25.1</p> | <p>The Supplier is required under the Contract to transport the Goods duly insured to the specified final destination, and until the commissioning and final acceptance of each equipment and all related costs shall be included in the Contract Price.</p> |
| <p>GCC 25.2</p> | <p>Incidental services to be provided are: All services under GCC clause 25.2</p> |
| <p>GCC 26.1</p> | <p>The inspections and tests shall be as detailed in Para 5 of Section VI-Schedule of Requirement:</p> <p>(a) The supplier shall get each item indicated in the Schedule of requirement inspected in manufacturer's works or at the premises of supplier and submit a test certificate and also manufacturer's guarantee /warranty certificate that the items confirms to the laid down specification.</p> <p>The Purchaser or its representative may inspect and /or test any or all the items to confirm their conformity to the contract specification, prior to dispatch from the manufacturer's premises/ supplier's premises. Such inspection and clearance will not prejudice the right of the consignee to inspect and test the items on receipt at destination to verify conformity to technical specification.</p> <p>If the items are fails to meet the laid down specifications the supplier shall take immediate steps to remedy the deficiency or replace the defective parts of the each to the satisfaction of the purchaser/ consignee.</p> <ol style="list-style-type: none"> 1. For validation of data, physical measurement shall be cross checked with the data generation from DWLR in presence of CGWB during installation, testing and commissioning of DWLR at destination. 2. Random inspection shall be carried out by CGWB for validating the data with physical measurement during the contract period at regular interval for which arrangement for measurement shall be made by the contractor. |

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| GCC 26.2 | The Inspections and tests shall be conducted at remote site and Regional Office data centre, CGWB, Chandigarh India as specified in technical specification. |
| GCC 27.1 | <p>The liquidated damages shall be 0.5% of contract price per week or part thereof. This is applicable up to successful installation testing and commissioning.</p> <p>Further, for the performance towards the related services, following shall govern-</p> <p>Penalty for faulty stations/ data centers;</p> <ol style="list-style-type: none"> 1. For remote site Rs 500 per day. 2. For Data centre Rs 1000 per day. <p>The conditions when the penalty as above would be applicable, provision of clause 28.5 to be referred</p> |
| GCC 27.2 | The maximum amount of liquidated damages shall be 10% of the contract price. |
| GCC 28.3 | <p>The period of validity of the Warranty shall be Sixty (60) months after successful installation, testing, commissioning and acceptance. Warranty period shall be followed by 2 years comprehensive AMC. This includes seamless communication of data through telemetry system to RODC, CGWB, Chandigarh, e SWIS platform and National data center. The AMC period can be suitable extended as per mutually acceptable terms and conditions.</p> <p>After completion of contract, the equipments with accessories used for this contract shall be handed over to the purchaser in running condition i.e. flawless data supply.</p> |
| GCC 28.5 | <p>Bidder shall provide at least one dedicated Service Engineer cum operator at the Regional office Data Center for Operation of DWLR system and ensure seamless data transfer from remote DWLR stations to National data Center through GSM/GPRS network & then to E-SWIS software through internet. The processed data from e-SWIS in the form of reports/ bulletins will be transmitted to Regional & National Data Centre as per technical specifications. The period for repair or replacement shall be 7days. It is the responsibility of the bidder to rectify/ replace the equipment without any notice from purchaser and it is the duty of its personnel i.e. dedicated service engineer cum data entry operator to notice that site become non-operational or become faulty.</p> <p>A remote site shall be treated as faulty if it fails to respond or transmits erroneous data equal to or more than 8 data measurement i.e. equal to or more than 2 transmission cycles /2 days. The decision of CGWB about errors in data shall be final and binding. If a remote site continues to remain "fail" for more than 2 days in excess of the maintenance time schedule of 7 days. The contractor is liable to pay penalty @ Rs. 500/- per Day/ remote site. The Day for the purpose of penalty shall be taken as failure period of 24 hours or part thereof for a particular remote site. The amount of penalty will be recovered from performance bank guarantee or payment due to bidder during warranty period or AMC period.</p> <p>The penalty for faulty data centers beyond MRTR (Maximum Response Time for Repair) would be Rs 1000/- per day.</p> |

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| GCC 31.1 | This clause will apply only to variations in GST and other taxes payable in India on the final product which is being supplied and not for variations in tax on the individual components / raw materials which go into the product. |
| GCC 33.5 (additional clause) | The Supplier shall replace/ re-install/re-commission Goods in case of damage/theft or vandalism not attributable to the Supplier, of the line item/items listed in Table 3A- Price Schedule for Supply of Goods as per Schedule of Requirement and Table 3B- Price and Completion Schedule-Related Services of this contract and payment shall be accordingly made at the quoted rates in this contract by the Supplier for the line item. The procedure adopted shall be in accordance with GCC 33- Change Orders and Contract Amendments. |
| GCC 37 | Add the following additional sub clauses. 37.1 Supplier integrity: The supplier is responsible for and obliged to conduct all contracted activities in accordance with the contract using state- of- the- art methods and economic principles and exercising all means available to achieve the performance specified in the Contract. |
| | 37.2 Supplier's obligations: The Supplier is obliged to work closely with the Purchaser's staff, act within its own authority and abide by directives issued by the Purchaser and implementation activities. The Supplier will abide by the job safety measures prevalent in India and will free the Purchaser from all demands or responsibilities arising from accidents or loss of life the cause of which is the supplier's negligence. The Supplier will pay all indemnities arising from such incidents and will not hold the purchaser responsible or obligated. The Supplier is responsible for managing the activities of its personnel or sub-contracted personnel and will hold itself responsible for any misdemeanors. The Supplier will treat as confidential all data and information about the purchaser, obtained in the execution of his responsibilities, in strict confidence and will not reveal such information to any other party without the prior written approval of the Purchaser. |
| | 37.3 Site preparation and installation |

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| | <p>The supplier is responsible for associated civil work required for installation and commissioning of the supplies in the Schedule of Requirement under the heading of Relative services</p> |
| | <p>37.4</p> <p>Hardware installation:</p> <p>The Supplier is responsible for all unpacking, assemblies, wiring, installations, cabling between hardware units and connecting to power supplies. The Supplier will test all hardware operations and accomplish all adjustments necessary for successful and continuous operation of the hardware at all installation sites.</p> |

SERVICE LEVEL CONDITIONS

1. The bidder is fully responsible to keep the system functional during installation, warranty and AMC period. The bidder should take suomotu action to repair any faulty instrument and should not wait for a complaint from purchaser to initiate action

2. DEFINITIONS

i) REMOTE SITE

Remote site is the site at remote location where Digital water level recorder (DWLR) systems are installed. The Remote site DWLR generally installed within the Piezometers' headwork, dug wells (open wells), Ground water level monitoring site or any combination of these sites

ii) DATA CENTRE

Data centre is the respective server where data is expected to be received. In case of GSM & GPRS based telemetry, the data centre is the server installed in National data centre for receiving GSM & GPRS transmission.

iii) INVALID DATA

A data would be considered **invalid** if

- a) The value recorded / transmitted is beyond permissible limit for that variable. The valid permissible upper limits and lower limits for each monitoring variable for each site would be provided to bidder by the purchaser.
- b) If the sensor value recorded / transmitted is absurd values or sudden variation in the value (may be within the specified limits) which is not in-line with the actual physical parameter. (e.g. If the Water level sensor recorded / transmitted value is showing absurd sudden variation of 2mts (beyond the limits of rate of change of sensor value) with respective to the previous measurement interval, then this data is the invalid data).
- c) If the sensor value recorded / transmitted is having frequent / periodic gapes then the data will be considered as invalid data.
- d) If the sensor value recorded / transmitted is remain constant, even if there is variation in the physical parameters. (e.g. If the Water level recorded / transmitted value is showing constant / fix value even there is variation in the water level, then this data is the invalid data)
- e) If the sensor value recorded / transmitted is not in line with the value of co-located automatic / manual observation of the same sensor parameter.

iv) FAILED DATA TRANSMISSION

For each remote station, each scheduled transmission (for all variables including battery voltage) would consist of one data transmission. A data transmission would be considered **failed** if any of the following conditions are true

- There is no transmission of data from **remote site**
- Data is transmitted from **remote site** but not received at **data centre / e-SWIS**.
- Data is recorded in data logger but not transmitted
- Data is not recorded by data logger
- Battery voltage not transmitted

- Only battery voltage is transmitted without any actual data from sensors
- Data is transmitted but data values are **invalid**.

v) FAULTY STATION

A station would be considered faulty if:

In case of DWLR data received at National Data Center, if there is ≥ 8 data measurement (≥ 2 transmission cycles / 2days) are failed / invalid data receptions.

vi) FAULTY DATA CENTRE

A Data Centre shall be treated as Faulty if

- Vital Hardware Equipment's installed by bidder at Data Centre Viz. Server, GSM modem, online 3 KVA UPS, FTP Server services, Firewall system etc. are not functioning properly.
- Bidder has failed to pay the communication charges (SIM, internet, GSM/GPRS etc.) & system is not in function due to unpaid communication charges.
- Unauthorized absence of Bidders Operator/ Service engineer at Data Centre.

vii) MAXIMUM RESPONSE TIME FOR REPAIR (MRTR)

- The MRTR for Remote station would be 7 days
- The MRTR for Data Centre would be 2 days

viii) MINIMUM TIME BETWEEN REPAIRS PER STATION

- The minimum time between repairs is six months. If a station went faulty for reasons attributed to bidder and availed of MRTR once, it would not be eligible to avail the free repair period within payment period (six months)

2. PAYMENT FOR DATA RECEPTION

- The payment would be released proportion to data received at the Data centre. A table below presents the percentage of data reception and corresponding payment

| <u>Percentage of data received</u> | <u>Payment to be made to vendor</u> |
|------------------------------------|---|
| 90-100% | 100% of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |
| 80-89.99 % | 90% of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |
| 70-79.99 % | 80 % of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |
| 60-69.99 % | 70 % of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |
| 50- 59.99% | 60% of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |
| 40- 49.99% | 40%of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |

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| 30-39.99% | 25% of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |
| Below 30% | NIL of (6% of contract price to be paid six monthly as per SCC clause no. 16.1 (ii)) |

The calculations for data reception percentage are as below

Data reception percentage for each station =

$$[1 - (\text{No of Failed transmissions} / \text{No of transmissions expected})] * 100$$

Data reception percentage for each station is calculated for payment period (six months)

Number of transmissions expected is calculated based on transmission cycle. For 6-hourly transmission cycle, if there are 182 days in six months period,

The no. of expected transmissions = 182 (days) * 4 (transmissions per day) for a given station.

If a station went faulty during payment period of six months and availed of free time of MRTR (7 days), the 7 days period would be subtracted from no. of expected transmissions. For example, if a station went faulty and payment period is for 182 days, the number of transmissions expected would be calculated as:

Number of transmissions expected = (182-7) * 4; here 7 days time to repair. However, this deduction would be allowed only once in six months period for any given station.

$$\text{Total data Reception percentage} = \frac{\sum_{i=1}^n \text{Data reception percentage of } i^{\text{th}} \text{ station}}{n}$$

Where n is number of remote stations

- In case the percentage of data reception is below 50% continuously for 3 months, the Purchaser may initiate termination process as per GCC clause no. 35.

**Attachment: Price Adjustment Formula
Deleted**

SECTION X – CONTRACT FORMS

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1. LETTER OF ACCEPTANCE

[letterhead paper of the Purchaser]

[date]

To: *[name and address of the Supplier]*

Subject: **Notification of Award Contract No.**

This is to notify you that your Bid dated *[insert date]* for execution of the *[insert name of the contract and identification number, as given in the SCC]* for the Accepted Contract Amount of *[insert amount in numbers and words in Rupees]*, 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 of the Performance Security Form included in Section X, Contract Forms, of the Bidding Document.

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

Attachment: Contract Agreement

2. CONTRACT AGREEMENT

[The successful Bidder shall fill in this form in accordance with the instructions indicated]

THIS CONTRACT AGREEMENT is made

the *[insert: **number**]* day of *[insert: **month**]*, *[insert: **year**]*.

BETWEEN

- (1) *[insert complete name of Purchaser]*, a *[insert description of type of legal entity, for example, an agency of the Ministry of of the Government of {insert name of Country of Purchaser}, or corporation incorporated under the laws of {insert name of Country of Purchaser}]* and having its principal place of business at *[insert address of Purchaser]* (hereinafter called "the Purchaser"), and
- (2) *[Insert name of Supplier]*, a corporation incorporated under the laws of *[insert: country of Supplier]* and having its principal place of business at *[insert: address of Supplier]* (hereinafter called "the Supplier").

WHEREAS the Purchaser invited bids for certain Goods and ancillary services, viz., *[insert brief description of Goods and Services]* and has accepted a Bid by the Supplier for the supply of those Goods and Services in the sum of *[insert Contract Price in words and figures, expressed in the Contract currency(ies)]* (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall constitute the Contract between the Purchaser and the Supplier, and each shall be read and construed as an integral part of the Contract Agreement. This Agreement shall prevail over all other contract documents: In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed below.
 - (a) The letter of Acceptance
 - (b) this Contract Agreement
 - (c) The Supplier's letter of Bid and original completed Schedules including Price Schedules
 - (d) Special Conditions of Contract
 - (e) General Conditions of Contract
 - (f) Technical Requirements (including Schedule of Requirements and Technical Specifications)
 - (g) *[Add here any other document(s) listed in GCC/SCC as part of contract]*
3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services 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 *[insert the name of the Contract governing law country]* on the day, month and year indicated above.

For and on behalf of the Purchaser

Signed: *[insert signature]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

For and on behalf of the Supplier

Signed: *[insert signature of authorized representative(s) of the Supplier]*
in the capacity of *[insert title or other appropriate designation]*
in the presence of *[insert identification of official witness]*

3. Performance Security

[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Purchaser]*

Date: *_ [Insert date of issue]*

PERFORMANCE GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *_ [insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the supply of *_ [insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*) [insert amount in words]*,¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

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

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

¹ *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, and denominated either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Beneficiary.*

4. Bank Guarantee for Advance Payment

[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated.]

Date: *[insert date (as day, month, and year) of Bid Submission]*
NCB No. and title: *[insert number and title of bidding process]*

[bank's letterhead]

Beneficiary: *[insert legal name and address of Purchaser]*

ADVANCE PAYMENT GUARANTEE No.: *[insert Advance Payment Guarantee no.]*

We, *[insert legal name and address of bank]*, have been informed that *[insert complete name and address of Supplier]* (hereinafter called "the Supplier") has entered into Contract No. *[insert number]* dated *[insert date of Agreement]* with you, for the supply of *[insert types of Goods to be delivered]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance is to be made against an advance payment guarantee.

At the request of the Supplier, we hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount(s)]*¹⁶ *in figures and words* upon receipt by us of your first demand in writing declaring that the Supplier is in breach of its obligation under the Contract because the Supplier used the advance payment for purposes other than toward delivery of the Goods.

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 Supplier on its account *[insert number and domicile of the account]*

This Guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *[insert date]*¹⁷.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No.758, except that the supporting statement under Article 15(a) is hereby excluded.

¹⁶The bank shall insert the amount(s) specified in the SCC and denominated, as specified in the SCC, either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Purchaser.

¹⁷ Insert the Delivery date stipulated in the Contract Delivery Schedule. The Purchaser should note that in the event of an extension of the time to perform the Contract, the Purchaser would need to request an extension of this Guarantee from the bank. Such request must be in writing and must be made prior to the expiration date established in the Guarantee. In preparing this Guarantee, the Purchaser might consider adding the following text to the Form, at the end of the penultimate paragraph: "We agree to a one-time extension of this Guarantee for a period not to exceed *[six months]**[one year]*, in response to the Purchaser's written request for such extension, such request to be presented to us before the expiry of the Guarantee."

CHECKLIST

Checklist:

(it should be the first document of your bid numbered as page1.)

| S. No. | Documents | Page Number |
|---------------|---|--------------------|
| 1. | Proof of Nationality in accordance with ITB 4.4 | |
| 2. | Tender document duly signed | |
| 3. | No conflict of interest in accordance with ITB 4.3 Not having been declared ineligible by the bank as described in ITB, 4.5 | |
| 4. | ITB 11.2(a) Letter of bid (Technical Part) in accordance with ITB 12 | |
| 5. | Bid Security as per the tender document | |
| 6. | Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB Clause 20.2 (Power of Attorney) | |
| 7. | Documentary evidence in accordance with ITB Clauses 16, that the Goods and Related Services conform to the Bidding Documents and of eligible origin. | |
| 8. | Manufacturer's authorization form | |
| 9. | Copy of the Joint Venture Agreement entered into by all members. Lead partner of the joint venture may be defined | |
| 10. | Details in accordance with ITB 16.4 | |
| 11. | Model Offered Model No. Manufactured By Country of Origin | |
| 12. | Performance statement as per bid document. | |
| 13. | Document proof for Capacity to have a cash flow as per tender | |
| 14. | Documents for annual turnover period of 5 years shall be reckoned from 31st march of financial year preceding the year in which bid is published. (2014-15, 2015-16, 2016-17, 2017-18 and 2018-19) | |
| 15. | Documents for continuous business of supplying and after sale services of products similar to that specified in the 'Schedule of requirement' during the last 5 years prior to date of bid submission. | |
| 16. | Documents for the legal status, place of registration and principal place of business of the company or firm or partnership, etc.; | |
| 17. | Details of experience and past performance on equipment offered and on those of similar nature within the past seven years (Prior to the date of bid submission) and details of current contracts in hand and other commitments (suggested Proforma given in Section IV). | |
| 18. | The bidder should furnish a brief write-up, backed with adequate data as per tender | |
| 19. | Reports on Financial standing of the bidders such as profit and loss statements, balance sheets and auditor's report for the past three years, bankers certificate etc. | |
| 20. | Should possess GST Registration. In case of foreign bidder, if presently bidder is not having any office(s) in India, he has to provide the GST registration certificate within one month of award of contract. | |
| 21. | Documents to ascertain that the bidder must have supplied, tested, and commissioned the Digital/ Automatic Water Level Recorder stations with GSM | |

| | | |
|-----|--|--|
| | / GPRS based telemetry to the extent of (comprising of minimum 1 data logger and sensor at each station) in any two of the year during a period of last 7 years from the last date of submission of bid document and should be in use satisfactorily with no adverse report for at least one year preceding the date of bid opening. | |
| 22. | Bidder or JV partner should furnish the documentary evidence from the manufacturer of the equipment to establish that the manufacturer has manufactured and supplied the quantity of the DWLR station equipment as per tender in any two year during a period of last 7 years from the last date of submission of bid document. | |
| 23. | The bidder should have after sales support in the region (within a radius of 500 km from the State Capital). If bidder does not have any after sales support office within 500 km from state Capital at the time of bidding, he shall require to be establish the same within one month after successful award of contract | |
| 24. | Confirm in clear terms that all the facilities exist for inspection and testing and these will be made available to the purchaser or his representative for inspection. | |
| 25. | Technical responsive form | |
| 26. | Any other document required in the tender. | |

Signature of Bidder

NOTE: The bidders shall put serial number on all the pages as per checklist before uploading on the portal. Bidders will be responsible if their bids become non-responsive due to submission without page number and as per checklist.