



**GOVERNMENT OF MIZORAM
PUBLIC HEALTH ENGINEERING
DEPARTMENT**



NEIHLOH CITY

**TENDER NO. _____
OF 2025 - 2026**

**TENDER DOCUMENT
FOR**

**NEIHLOH WATER SUPPLY
SCHEME (AUGMENTATION)
TUITAM LUI
SOLAR PUMPING**

**TENDER AMOUNT
₹ 95,60,060.00**

Bid Submitted By :-

Name of Bidder : _____

& Address : _____

CONTENTS

Sl.No.	Details	Page
1	Press Tender Notice	2 – 3
2	Notice Inviting Tender	4 – 8
3	General Rules & Direction	9 – 11
4	Conditions of Contract	12 – 14
5	Proforma of schedules	15 – 24
	(i) Schedule-A: Schedule of Quantities	15 – 16
	(ii) Schedule-B: Schedule of materials to be issued to Contractors	17
	(iii) Schedule-C: Tools & Plants to be hired to the Contractor	17
	(iv) Schedule-D: Extra Schedule	17
	(v) Schedule-E: Reference to General Conditions of Contract	17
	(vi) Schedule-F: General Rules & Direction	17 – 24
6	Sample Forms	25 – 36
	(i) Undertaking and form of Tender Submission	25
	(ii) Form of Earnest Money Deposit Bank Guarantee Bond	26
	(iii) Form of Financial Bid	28
	(iv) Sample letter of acceptance of tender	29
	(v) Form of Performance Security (Guarantee) Bank Guarantee Bond	30
	(vi) Affidavit	31
	(vii) Sample Contract Agreement Form	32 – 33
	(viii) Sample letter for commencement of work	34
	(ix) Sample letter for Integrity Declaration	35
	(x) Sample letter for Power of Attorney for Signing of Bid	36
7	Annexure:	37 – 49
	Annexure-1: General Specifications	37 – 43
	Annexure-2: Special Conditions	44
	Annexure-3: Scope of Work	45 – 46
	Annexure-4: Bill of Quantity	47 – 48
8	Drawings	49 – 50

PRESS TENDER NOTICE

PUBLIC HEALTH ENGINEERING DEPARTMENT

The Sr. Executive Engineer, PHED, Serchhip WATSAN Division, Serchhip on behalf of the Governor of Mizoram invites two bits envelope system with sealed item rate tender in prescribed form affixing Court Fee Stamp worth not less than Rs. 7.5/- (non- refundable) for non-tribal and upto-date House Tax Payee Certificate for tribal from reputed Contractors experienced in similar type of works. **The tender will be received in the office of the undersigned up to 12:00 hours on 30-03-2026. The tender so received will be opened on 30-03-2026 at 13:00 hours** in presence of the intending tenderer or his authorized representatives. If for any unforeseen reason, the tenders could not be received & opened on the stipulated date & time, the same will be received and opened in the next working day at the same time for which no separate communication will be made.

NIT No.	Name of Work	Estimated Cost (Rs.)	Earnest money (Rs.)		Time of Completion	Cost of Tender (in Rs)	Eligible Class of Contract or
			Tribal	Non-Tribal			
2 of 2025 - 2026	Survey, design, supply, installation, testing & commissioning of solar pumping system all complete with 5 years free service maintenance for Neihloh W.S.S (under NABARDRIDF-XXX)	95,60,060/-	4,78,003/-	9,56,006/-	18 Months.	1,000/-	PHED Contract or Class IV & Above

Detailed Tender Document may be obtained from the office of the undersigned on any working day on payment of tender cost as mentioned above (non-refundable) without which, the tender shall summarily be rejected. The undersigned reserves the right to reject any or all of the tenders without assigning any reason thereof. **The same may also be downloaded from PHED's website at www.phed.mizoram.gov.in. If the documents are downloaded from the website, the cost of tender document shall be included in a separate envelope in the Technical Bid.**

Sd/-ISAAC LALCHHUANMAWIA

Sr. Executive Engineer, PHED
Serchhip WATSAN Sub-Division
Serchhip

Copy to:

1. *PS to Hon'ble Minister, PHED, Mizoram for favour of your kind information.*
2. *The Secretary (PHED), Govt of Mizoram for favour of kind information.*
3. *The Engineer-in-Chief (PHED), for favour of kind information.*
4. *The Chief Engineers Zone-I PHED, for favour of kind information.*
5. *The District Information and Public Relation Officer, Serchhip District for information and necessary action with a request to publish the Tender notice in two consecutive issues of two **Local Newspapers.***
6. *The Superintending Engineer, PHED Rural WATSAN Circle for favour of kind information.*
7. *The System Analyst, PHED for information and upload of tender notice and documents to PHED's website.*
8. *Concerned file.*
9. *Office Notice board.*


Sr. Executive Engineer, PHED
Serchhip WATSAN Division
Serchhip

**GOVERNMENT OF MIZORAM
OFFICE OF THE EXECUTIVE ENGINEER
SERCHHIHP WATSAN DIVISION: SERCHHIP
PUBLIC HEALTH ENGINEERING DEPARTMENT**

**NOTICE INVITING TENDER
(TENDER NO _2_ OF 2025-2026)**

1. The Sr. Executive Engineer, PHED, Serchhip WATSAN Division, Serchhip, on behalf of the Governor of Mizoram invites bids with sealed item rate tender from reputed/eligible contractors experienced in similar type of works and registered in appropriate class with State Govt. PHE Departments for the work of **Survey, design, supply, installation, testing & commissioning of solar pumping system all complete with 5 years free service maintenance for Neihloh W.S.S (under NABARD)**. The tender will be received in the office of the undersigned upto **12:00 hours** on **30/03/2026**. Late submission of tender will not be accepted. The tender so received will be opened on the **same date** at **13:00 hours** in presence of the intending tenderer or his authorized representative. If for any unforeseen reason, the quotations could not be received & opened on the stipulated date & time, the same will be received and opened in the next working day at the same time for which no separate communication will be made.

The enlistment of the contractors should be valid on the last date of sale of tenders.

In case the last date of sale of tender is extended, the enlistment of contractor should be valid on the original date of sale of tenders. In case both the last date of receipt of application for issue of tenders and sale of tenders are extended, the enlistment of contractor should be valid on either of the two dates i.e. original date of sale of tender or on the extended date of sale of tenders.

- 1.1 The work is estimated to cost **Rs. 95,60,060/-**.
- 1.2 Tenders will only be issued to eligible Mizoram PHED contractors provided they produce definite proof from the appropriate authority, which shall be to the satisfaction of the PHE Department.
- 1.2.1 The Contractor must have executed during the last 7 years, ending on last day of the month previous to the one in which the tenders are invited;
- One similar work of value not less than 100% of estimated cost put to tender.
(Figure to be rounded off to a convenient full figure)
- Or
- Two similar work of value not less than 50% of estimated cost put to tender.
(Figure to be rounded off to a convenient full figure)
- Or
- Three similar work of value not less than 30% of estimated cost put to tender.
(Figure to be rounded off to a convenient full figure)

For the purpose of this Contract, 'Similar Work' means **Solar Water Pumping System** (Item details at Schedule "A" & Schedule "D").

- 1.2.2 Average annual financial turnover on construction works should be at least 50% of estimated cost put to tender during the immediate last three consecutive financial years. Documents showing the same duly signed by the Chartered Accountant shall be provided by the bidder.

2. Agreement shall be drawn with the successful tenderer on prescribed format given in sample forms. Tenderer shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **18 Months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender documents.
4. The site for the work is available.

5. **Important Dates:**

Tender Date: 20.03.2026

Pre-Bid Conference: As decided by the Engineer-in-Charge

Last Date for Issue of Tender Document: 27.03.2026

Last Date for Submission of Tender: 30.03.2026 12:00 Hours

Technical Bid Opening Date: 30.03.2026 13:00 Hours

Financial Bid Opening Date: As decided by the Engineer-in-Charge

Tender document and other necessary documents can be seen in the office of **the Executive Engineer, Serchhip WATSAN Division, Serchhip** between hours of 11.00 AM & 4.00 PM from **23.03.2026 to 27.03.2026** every day except on Saturday and Sundays and Public Holidays.

6. Tender documents, excluding customized CPWD form-8 (Clauses of Contract) will be issued from his office, during the hours specified above, on payment of **Rs. 1,000/-** (Rupees one thousand five hundred only) in cash. However, soft copy of customized CPWD form-8 (Clauses of Contract) may be issued on request.

7. **PREPARATION OF BIDS**

7.1 Language of the Bid

All Documents relating to the bid shall be in the English Language.

- 7.2 Documents Comprising the Bid: Tender must be accompanied with **Earnest money of Rs 4,78,003/- (for Tribal) Rs. 9,56,006/- (for Non-Tribal) in the form of bank guarantee/ fixed deposit receipt or demand draft of a scheduled bank** in Mizoram issued in favour of the **Executive Engineer, PHED, Serchhip WATSAN Division**. The Tender document along with supporting documents shall be placed in one sealed envelope marked '**Technical Bid**'. Another sealed envelope marked '**Financial Bid**' shall contain form of bid and Proforma of schedules (Schedule A) alongwith Annexure. Both the envelopes shall be submitted together in another sealed envelope with the name of work and due date of opening written on it. Any tender not accompanied by specified earnest money shall be rejected.

'Technical Bid' shall comprise

- i) Tender document purchase receipt
- ii) Undertaking and form of tender submission as specified in Sample form alongwith Tender Document, addendum or Corrigendum issued duly signed on each pages as token of acceptance by the tenderer with date.
- iii) Earnest Money Deposit specified in Clause 7 in prescribed format provided in Sample Forms
- iv) House Tax Payee Certificate for Tribal/Court Stamp fee worth Rs. 7.50p for Non-Tribal
- v) Attested Photocopy of GST Registration
- vi) Attested Photocopy of Valid Contractor Registration Certificate
- vii) Completion Certificate for similar works as per Clause 1.2.1 of this NIT.
- viii) Average Annual Financial Turnover as per Clause 1.2.2 of this NIT
- ix) Site Visit/Survey Certificate as per Clause ____ of this NIT

- x) Affidavit in prescribed format as provided in Sample Forms
- xi) List of works which are in hand (progress) as per format given General Rules & Direction No.19.
- xii) Bar Chart as per Proforma of Schedule –F Clause 5
- xiii) List of testing equipment to be provided by the contractor at site lab as per Proforma of Schedule –F Clause 10A
- xiv) List of mandatory machinery, tools & plants to be deployed by the contractor at site as per Proforma of Schedule –F Clause 18
- xv) List of Employment of Technical Staff and employees as per Proforma of Schedule –F Clause 36 with attested copy of Qualification Certificate for each Technical Representative.
- xvi) Integrity Declaration duly signed as per prescribed format provided in Sample Forms. This is in reference to Finance Department O.M. No. A.47011/1/2024-F.Est Dated 10.06.2025
- xvii) Design of Solar Water Pumping System complete as per the given Scope of Works.
- xviii) Certificate of Understanding as per format given in sample forms

‘Financial Bid’ shall comprise

- i) Form of Financial Bid as specified in Sample Forms
- ii) Schedule of Quantities for Items specified in Schedule ‘A’ alongwith Bill of Quantities given in Annexure – 4 filled up in all aspects.

8. The description of the work is as follows:

Name of work: **Survey, design, supply, installation, testing & commissioning of solar pumping system all complete with 5 years free service maintenance for Neihloh W.S.S (under NABARD)**

Copies of other drawing and documents pertaining to the works will be open for inspection by the tenderers at the office of above-mentioned officer.

Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his/her own cost, all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents.

Tenderer must visit the proposed project site to conduct thorough site survey and techno-economic feasibility studies of the project on his own expenses. The tenderer shall also obtain a site visit certificate from the concerned JE which will be verified by SDO, Serchhip WATSAN Sub Division, Serchhip, and shall be submitted in original along with the tender. The site visit certificate shall be accompanied by self-photographs of the visitor at each proposed solar power plant along with Lat-Long of proposed site printed on the photographs. Tenders submitted without the site visit/survey certificate shall be summarily rejected. The department shall scrutinize thoroughly each design of all tenderers and shall only consider the tenderer(s) whose design is/are found to be technically and economically feasible under the condition of Mizoram.

Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of work.

9. The Department does not bind itself to accept the lowest or any other tender and reserves the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.

10. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
11. The competent authority on behalf of Governor of Mizoram reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.
12. The contractor shall not be permitted to tender for works in the Circle/ Division responsible for award and execution of contracts, in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any Gazetted Officer in the Department. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
13. No Engineer of gazette rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of Mizoram is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous permission of the Government of Mizoram in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of Mizoram as aforesaid before submission of the tender or engagement in the contractor's service.
14. The tender for the works shall remain open for acceptance for a period of **90 days** from the date of opening of tenders. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.
15. The contractor shall be required to deposit an amount equal to **5% (five percent)** of the tendered value of work as **Performance Guarantee** in the form of an irrevocable bank Guarantee Bonds of any Scheduled Bank or State Bank of India in accordance with the form prescribed or in the form of Government Securities or fixed deposit receipts etc. within period specified in schedule 'F' from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-charge upto a maximum period as specified in Schedule 'F' on written request of the contractor stating the reason for delays in procuring the said Guarantee, to the satisfaction of the Engineer-in-charge. In case of failure by the contractor to supply the performance guarantee within the specified, full earnest money shall be forfeited.
16. This notice inviting Tender, along with customized **CPWD form-8** shall form a part of the contract document. However, applicability of clauses of CPWD Form 8 listed at General Rules and Directions of this NIT may be referred, if any contradiction arises between any clause of this NIT and clauses in CPWD Form 8, clauses in NIT supersede clauses in CPWD Form 8. If any clause of this NIT is not mentioned clearly, then CPWD Works Manual will be referred and applied. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority shall within **15 days** from the stipulated date of start of the work, sign the contract as per format given in the sample form of contract agreement
17. The Government shall deduct CESS & GST, etc as admissible on the value of work done from each bill of the contractor as per prevailing government instruction/orders. In lieu, the department shall issue a certificate of deduction of the tax at source to the contractor
18. **Quoted rate above or below the permissible limit as provided in the Govt. Notification No. H.11021/1/2024-FEC Dt. 05.07.2024 shall be rejected summarily.**
19. No tender will be considered for acceptance unless the detailed tender papers are duly purchased by the intending tenderer. A copy of the receipt for the money deposited against purchase of the tender document shall have to be submitted along with the tender as a proof of purchasing the same. If the

document is downloaded from the website, the cost of tender documents may be included in a separate envelope in the technical bid.

20. Tenderer has to read all terms and conditions of this tender documents carefully. Tenderer has to accept and comply with all terms and conditions of this tender. Overwriting in the proforma of schedules is not acceptable and corrections, if any should be initialled and dated by the tenderer.
21. Defect liability period of the contract for Civil Works shall be 12 (twelve) months from the date of commissioning/completion of the Project. Any defect noticed in the system/construction during this period whether Manufacturing Defect or Non-Manufacturing Defect shall have to be rectified by the contractor at his/ their own cost and risk. For the solar pumping system and SPV Power plant, a **5-year warranty is mandatory** for the entire system, including the pump set.
22. The Public Health Engineer Department, Govt of Mizoram, reserves the right to add, modify, amend or to delete any of the items of work or part thereof by issuing addendum/Corrigendum before the deadline for submission of the bid which shall form part of the Contract Agreement and may extend the deadline for submission of the bid.
23. The Public Health Engineer Department, Govt of Mizoram takes no responsibility for delay, loss or non-receipt of tenders sent by post. Unsealed tenders or Telex/Telegraphic/Fax offers shall not be considered for acceptance.
24. The tender documents shall remain the property of the Public Health Engineering Department, and if obtained by one intending tenderer, shall not be used by any other tenderer.
25. The tender shall be completely filled in all respects and shall be tendered together with requisite information. Any tender incomplete in all particulars shall be liable to be rejected.
26. Sub-letting of the works through sub-contract without the prior approval of the department will not be allowed. Prior permission in writing should be taken from the engineer-in-charge.
27. The successful tenderer should submit detailed 'As-built' Drawings within 1 (one) month after commissioning/completion of the project. Failure to submit the same will result in forfeiture of the security deposit proportionately or as decided by the Engineer-in-Charge.

(ISAAC LALCHHUANMAWIA)
Sr. Executive Engineer, PHED
Serchhip WATSAN Division
Serchhip, Mizoram

GOVERNMENT OF MIZORAM
PUBLIC HEALTH ENGINEERING DEPARTMENT

GENERAL RULES AND DIRECTIONS

General rules and Directions	1	All works proposed for execution by contractor will be notified in a form of invitation to tender posted in public places and signed by the officer inviting tender or by publication in News papers as the case may be. This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work; also the amount of earnest money to be deposited with the tender, and the amount of the security deposit to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills. Copies of the specifications, designs and drawings and any other documents required in connection with the work signed for the purpose of identification by the officer inviting tender shall also be open for inspection by the contractor at the office of officer inviting tender during office hours.
	2	In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power-of attorney authorising him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.
	3	Receipts of payment made on account of a work, when executed by a firm, must also be signed by all the partners, except where contractors are described in their tender as a firm, in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having due authority to give effectual receipts for the firm.
Applicable for item rate tender only	4	Any person who submits a tender shall fill up the usual printed form stating at what rate he is willing to undertake each item of the work. Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, including conditional rebates, will be summarily rejected. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit a separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelope. The rate(s) must be quoted in decimal coinage. Amounts must be quoted in full rupees ignoring fifty paise and considering more than fifty paise as rupee one.
	5	The officer inviting tenders or his duly authorised assistant, will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of a tender being accepted, a receipt for the earnest money forwarded therewith shall thereupon be given to the contractor who shall thereupon for the purpose of identification sign copies of the specifications and other documents mentioned in Rule-I. In the event of a tender being rejected, the earnest money forwarded with such unaccepted tender shall thereupon be returned to the contractor remitting the same, without any interest.
	6	The officer inviting tenders shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.
	7	The receipt of an accountant or clerk for any money paid by the contractor will not be

		considered as any acknowledgment or payment to the officer inviting tender and the contractor shall be responsible for seeing that he procures a receipt signed by the officer inviting tender or a duly authorized Cashier.
	8	The memorandum of work tendered for and the schedule of materials to be supplied by the department and their issue-rates, shall be filled and completed in the office of the officer inviting tender before the tender form is issued. If a form is issued to an intending tenderer without having been so filled in and incomplete, he shall request the officer to have this done before he completes and delivers his tender.
	9	The tenderers shall sign a declaration under the officials' secret act 1923 for maintaining secrecy of the tender documents drawings other records connected with the work given to them. The unsuccessful tenderers shall return all the drawings given to them.
Applicable for Item Rate Tender only (CPWD - 8)	10	In the case of Item Rate Tenders, only rates quoted shall be considered. Any tender containing percentage below/above the rates quoted is liable to be rejected. Rates quoted by the contractor in item rate tender in figures and words shall be accurately filled in so that there is no discrepancy in the rates written in figures and words. However, if a discrepancy is found, the rates which correspond with the amount worked out by the contractor shall unless otherwise proved be taken as correct. If the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words, then the rates quoted by the contractor in words shall be taken as correct. Where the rates quoted by the contractor in figures and in words tally, but the amount is not worked out correctly, the rates quoted by the contractor will unless otherwise proved be taken as correct and not the amount. In event no rate has been quoted for any item(s), leaving space both in figure(s), word(s), and amount blank, it will be presumed that the contractor has included the cost of this/these item(s) in other items and rate for such item(s) will be considered as zero and work will be required to be executed accordingly.
	11	In the case of any tender where unit rate of any item/items appear unrealistic, such tender will be considered as unbalanced and in case the tenderer is unable to provide satisfactory explanation, such a tender is liable to be disqualified and rejected.
Applicable for Item Rate Tender only (CPWD - 8)	12	All rates shall be quoted on the tender form. The amount for each item should be worked out and totals given. Special care should be taken to write the rates in figures as well as in words and the amount in figures only, in such a way that interpolation is not possible. The total amount should be written both in figures and in words. In case of figures, the word 'Rs.' should be written before the figure of rupees and word 'P' after the decimal figures, e.g. 'Rs. 2.15 P' and in case of words, the word, 'Rupees' should precede and the word 'Paise' should be written at the end. Unless the rate is in whole rupees and followed by the word 'only' it should invariably be upto two decimal places. While quoting the rate in schedule of quantities, the word 'only' should be written closely following the amount and it should not be written in the next line.
	13	i. The Contractor whose tender is accepted, will be required to furnish performance guarantee of 5% (Five Percent) of the tendered amount within specified period. This guarantee shall be in the form of Govt. Securities or fixed deposit receipt of any scheduled bank, guarantee bonds of any scheduled bank

		or State Bank of India in accordance with the prescribed form.															
		ii. The contractor whose tender is accepted will also be required to furnish by way of Security Deposit for the fulfillment of his contract, an amount equal to 2.5% of the tendered value of the work. The Security deposit will be collected by deductions from the running bills of the contractor at the rates mentioned above and the earnest money deposited at the time of tenders, will be treated as a part of the Security Deposit. The Security amount will also be accepted in cash or in the shape of Government Securities. Fixed Deposit Receipt of a Scheduled Bank or State Bank of Mizoram will also be accepted for this purpose provided confirmatory advice is enclosed.															
	14	On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer-in-Charge shall be communicated in writing to the Engineer-in-Charge.															
	15	All taxes, cess etc.in respect of this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same.															
	16	The contractor shall give a list of both Gazette and non-gazetted PHE Department employees related to him.															
	17	The tender for the work shall not be witnessed by a contractor or contractors who himself/ themselves has/have tendered or who may and has/have tendered for the same work. Failure to observe this condition would render, tenders of the contractors tendering, as well as witnessing the tender, liable to summary rejection.															
	18	The tender for composite work includes, in addition to building work, all other works such as installation of sanitary, water supply, drainage, electrical work, roads, etc. The tenderer, apart from being a registered contractor (B&R) of appropriate class, must associate himself with agencies of appropriate class which are eligible to tender for sanitary and water supply drainage, electrical and horticulture works in the composite tender.															
	19	The contractor shall submit list of works which are in hand (progress) in the following form:-															
		<table><tr><td>Name of work</td><td>Name and particulars of Division where work is being executed</td><td>Value of work</td><td>Position of work in progress</td><td>Remarks</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	Name of work	Name and particulars of Division where work is being executed	Value of work	Position of work in progress	Remarks	1	2	3	4	5					
Name of work	Name and particulars of Division where work is being executed	Value of work	Position of work in progress	Remarks													
1	2	3	4	5													
	20	The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of the contract and the Superintending Engineer/Executive Engineer may in his discretion, without prejudice to any other right or remedy available in law, cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.															

CONDITIONS OF CONTRACT

Definitions	1	The Contract means the documents forming the tender and acceptance thereof and the formal the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in- Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.
	2	In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:-
		i) The expression works or work shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional. ii) The Site shall mean the land/or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract. iii) The Contractor shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company. iv) The Governor means the Governor of Mizoram and his successors. v) The Engineer-in-charge means the Engineering Officer/Executive Engineer who shall supervise and be in-charge of the work and who shall sign the contract on behalf of the Governor of Mizoram as mentioned in Schedule 'F' hereunder. vi) Government means the Government of Mizoram. vii) The Chief Engineer means Chief Engineer i/c of the Work. viii) Accepting Authority shall mean the authority mentioned in Schedule 'F'. ix) Excepted Risk are risks due to riots (other than those on account of contractor's employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to Government's faulty design of works. x) Market Rate shall be the rate as decided by the Engineer-in-Charge on the basis of the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned in Schedule 'F' to cover, all overheads and profits. xi) Schedule(s) referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of

		Rates of the government mentioned in Schedule 'F' hereunder, with the amendments thereto issued upto the date of receipt of the tender. xii) Department means PHE DEPARTMENT or any department of Government of Mizoram which invites tenders on behalf of Governor of Mizoram as specified in schedule 'F'. xiii) Specifications mean the specifications followed by the State Government in the area where the work is to be executed. xiv) Tendered value means the value of the entire work as stipulated in the letter of award.
Scope and performance	3	Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.
	4	Headings and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.
	5	The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, Schedule of Rates and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.
Works to be carried out	6	The work to be carried out under the Contract shall, except as otherwise provided in these carried out conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities (Schedule-A) shall, unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.
Sufficiency of Tender	7	The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.
Discrepancies And Adjustment of Errors	8	The several documents forming the Contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General Conditions.
	8.1	In the case of discrepancy between the schedule of Quantities, the Specifications and/ or the Drawings, the following order of preference shall be observed:- - Description of Schedule of Quantities. - Particular Specification and Special Condition, if any. - Drawings. - CPWD Specifications. - Indian Standard Specifications of B.I.S.

	8.2	If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.
	8.3	Any error in description, quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.
Signing of Contract	9	The successful tenderer/contractor, on acceptance of his tender by the accepting Authority, shall, within the days mentioned in LOI/LOA, sign the contract consisting of:-
		i) the notice inviting tender, all the documents including drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto. ii) Customised C.P.W.D. Form as mentioned in Schedule 'F' consisting of: (a) Various standard clauses with corrections up to the date stipulated in Schedule 'F' along with annexure thereto. (b) C.P.W.D. Safety Code. (c) Model Rules for the protection of health, sanitary arrangements for workers employed by CPWD or its contractors. (d) CPWD Contractor's Labour Regulations. (e) List of Acts and omissions for which fines can be imposed. iii) No payment for the work done will be made unless contract is signed by the contractor.

PROFORMA OF SCHEDULES

(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE - 'A'

Schedule of Quantities (as per PWD – 3). **Quoted rate should be both in figure and words. Details of items at Schedule 'D':**

Sl.No.	Items of work	Item details	Unit	Quoted rate in figure (Rs. In Lakhs)	Quoted Rate In words (Rs. In Lakhs)	Quoted Amount (Rs. In Lakhs)
1	Site Development &PCC Flooring	a). Site Development &PCC Flooring;	1 Job			
2	Electro-Mechanical Components	a). Design, Supply, Installation Testing & Commissioning of Clear Water Solar Submersible Pumpset, suitable for horizontal installation, Single Stage Solar Water Pumping System (1 working + 1 standby) Suitable for the following data :(1) Static head= 245m, (2) Length of Pipeline : 2800 Rs, (3) Water demand:0.035 MId, (4) pumping hour : 5 hrs. (5) Pumping main size and type: 65mmØ GI(M) (6) Minimum rated head of pump: 290m, (7) Minimum Rated Discharge: 2 Lps, (8) Minimum rated power of pump : 11Kw. along with solar pump controller & accessories etc. complete as per IEC/EN of 61702 :1995 & 62253 standards ; b). Supply, installation testing & Commissioning of Solar Job. Photovoltaic Power Plant including all accessories etc.	1 Job			

		complete with required area, sun tracking - fixed/manual Minimum Rated Solar Power Plant =22 KWp ; c). Pumpset Control System like Float Switch, Pressure Switch, Dry run protection, pressure gauge etc ; d). Supply, installation testing & Commissioning of Solar Security Lightning System for the Solar Power Plants Auxilliary Power Supply System for Station Power load, Lighting etc ; e). Required Power cables from SPV Power Plant to Sump including laying complete in all respects ;				
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SCHEDULE - 'B'

Schedule of materials to be issued to the contractor:-**Note: No materials will be issued to the contractor.**

SCHEDULE - 'C'

Tools and plants to be hired to the contractor:-**Note: Tools and Plants should be arranged by the contractor.**

SCHEDULE - 'D'

Extra schedule for specific requirements/ document for the work, if any :-**As per Annexure-1 to Annexue-4.**

SCHEDULE - 'E'

Reference to General Conditions of contract.

Name of Work: **Neihloh Water Supply Scheme (Augmentation) Tuitam Lui Solar Pumping**

Estimated cost of work	: Rs.95,60,060.00
(i) Earnest Money	: Rs. 9,56,006.00/ 4,78,003.00
(ii) Performance Guarantee	: Rs. 4,78,003.00 (5% of the Contract Price)
(iii) Security Deposit	: Rs. 2,39,002.00 (2.5% of the Contract Price)

SCHEDULE - 'F' (Clause 1 to 45 of Customised CPWD form 8 – Clauses of Contract)**General Rules and Directions:**

Officer inviting Tender:	Superintending Engineer, PHED Rural WATSAN Circle, Aizawl, Mizoram.
Maximum percentage of quantity of items of work to be executed beyond which rates are to be determined in accordance with clause 12.2 and 12.3	See below

Definitions:

2(v)	Engineer-in-Charge	Executive Engineer, Serchhip WATSAN Div.
2(viii)	Accepting Authority	Chief Engineer, Zone-I, PHED.
2(x)	Percentage on cost of materials and Labour to cover all overheads and profits:	15%
2(xi)	Standard Schedule of rate	MPWD/PHE Schedule Rate
2(xii)	Department	PHE Department
9(ii)	Standard CPW Contract Form GCC, 2010, CPW Form 8 modified & Corrected upto	Customised

Clause 1:

1	Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance:	7 Days
2	Maximum allowable extension beyond the period provided in (1) above	15 Days

Clause 2:

I	Authority for fixing compensation under clause 2:	SE
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Clause 2A (Incentive for early completion):

i	Whether Clause 2A shall be applicable	No
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Clause 5 (Time and extension for delay):

Clause 5 (Time and Extension for delay).

i	Number of days from the date of issue of letter of acceptance for reckoning date of start:	15 Days	
ii	Milestone(s) as per table given below:-		
Sl. No	Description of Milestone (Physical)	Time allowed in days for execution of work (from date of start)	Amount to be withheld in case of non-achievement of milestones
1	Bar Chart to be provided by the Contractor for each item of works	540	Penalty Clause applicable as per clause-2 of CPWD Form-8.
iii	Time allowed for execution of work::		18 Months
iv	Authority to decide:		
	(i) Extension of time:		As per CPWD Works Manual
	(ii) Rescheduling of mile stones:		SE i/c

Clause 6, 6A (MB) : Clause applicable - (6)**Clause 7 :(Subject to Availability of Fund)**

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment:	Rs. 20,000
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Clause 10A (Materials to be provided by contractor):

List of testing equipment to be provided by the contractor at site lab (**Contractor may list down all the equipments**).

1		2		3	
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If No testing equipment are provided at Site, Testing of Materials shall be carried out by the Contractor at his/her own Cost from any recognized Testing Laboratory and submit the testing report of various materials as well as Compressive Strength Test at a regular interval or as deemed necessary by the Engineer-in-Charge.

Clause 10B(ii), (Mob Adv): Whether Clause 10 B (i,ii,iii) shall be applicable - No

Clause 10C: Component of labor expressed as percent of value of work = ... % (**Clause 10C not applicable**)

Clause 10CA:- (Clause 10CA not applicable)

S. No	Material covered under this clause	Nearest Materials (other than cement, reinforcement bars and the structural steel) for which All India Wholesale Price Index to be followed	Base Price of all Materials covered under clause 10 CA

Note: Base price of all the materials covered under clause 10 CA is to be mentioned at the time of approval of NIT.

Clause 10CC:- (Clause 10CC not applicable)

Clause 10 CC to be applicable in contracts with stipulated period of completion exceeding the period shown in next column	 months
Schedule of component of other Materials, Labour, POL etc. for price escalation.	
Component of civil (except materials covered under clause 10CA) /Electrical construction Materials expressed as percent of total value of work. - Xm	 %
Component of Labour - expressed as percent of total value of work - Y	 %
Component of P.O.L. - expressed as percent of total value of work. Z	 %

Clause 11: Specifications to be followed for execution of work:-

1. CPWD Specifications, Volume I,
2. CPWD Specifications, Volume II;
3. CPWD General Specifications for Electrical Works
4. Relevant Codes etc. to be followed

Following codes are to be followed in connection with design and execution of the work :

Sl No.	IS No.	Description
1.	General IS – 1200 (Part 1 to 28)	Measurement of building works, method, materials & details of construction.
2.	Cement IS – 269:1989	Ordinary, Rapid hardening & low heat portland cement – 33 grade
3.	IS – 8112:1989	Ordinary, Rapid hardening & low heat portland cement – 43 grade
4.	IS – 12269:1987	Ordinary, Rapid hardening & low heat portland cement – 53 grade
5.	IS – 1489 (Part 1 & 2): 1991	Portland Pozzloan Cement
6.	Sand IS – 1542	Sand for plaster
7.	IS:2116 – 1980	Sand for masonry mortars.
8.	Aggregates IS: 383 – 1970	Aggregates coarse and fine from natural sources for concrete.
9.	Aggregates IS:515 – 1959	Aggregates for use in Mass Concrete Neutral and manufactured.
10.	Bricks IS: 1077 – 1992	Common Burnt clay building bricks
11.	IS: 2211 – 1991	Code of practice for brick work
12.	Soil IS : 1489 – 1970	Classification & identification of soil for General Engineering purpose
13.	Concrete IS:456:2000	Code of practice for plain & reinforced concrete (third version) with amendment no 2
14.	IS : 455 – 1989	Portland slag cement
15.	IS: 2250-1981	Preparation and use of masonry mortar
16.	IS: 6452 – 1989	High Alumina cement for structural use
17.	IS: 8041 – 1990	Rapid hardening Portland cement
18.	IS – 3370	Part I/1965 – Code of Practice for concrete structures for the storage of Liquids-General requirements.

19.	IS : 3370	Part II/1965 – do- do- reinforced concrete structures
20.	IS – 3370	Part IV/1965 – do- do- Design tables
21.	Test IS – 1199:1959	Sampling & Analyzing of concrete
22.	IS – 8142: 1976	Tests for setting time of concrete.
23.	IS – 516:1959	Tests for strength of concrete
24.	IS – 9013: 1978	Tests for compressive strength
25.	IS – 4031	Tests for cement
26.a	Steel: Iron Work IS – 1786:1985	High yield strength deformed bar (Grade Fe 415)
26.b	IS – 1786 :1985	For Steel reinforcement
26.c	IS –2751: 1966	Welding of reinforcement
27.	IS – 2502:1963	Bending and fixing of bars for concrete
28.	IS – 9077:1979	Corrosion protection of steel reinforcement in R.C.C. structure
29.	IS – 2062 : 1992	Structural steel
30.	IS – 2062 : (Grade A)	Low Carbon structural test
31.	IS – 800: 2007	Use of structural steel in general building construction
32.	IS – 808: 1989	Rolled steel beams, Channels and angles.
33.	Is – 1038 : 1983	Steel doors, windows and ventilators.
34.	IS – 7452: 1990	Hot rolled steel section for doors, windows and ventilators
35.	IS – 4021:1995	Timber door window and ventilator frames.
36.	IS – 1003:1991	Timber paneled and glazed door shutters.
37.	IS – 2202:1991	Wooden flush door shutters (solid core type)
38.	IS – 2571:1970	Laying inside cement concrete flooring
39.	IS – 4457:1982	Ceramic unglazed vitrious acid resisting tiles
40.	IS – 777: 1988	Glazed EW wall tiles
41.	IS – 7198:1974	Damp proofing using bitumen mastic
42.	IS – 1230:1979	CI rain water pipes & fittings
43.	IS – 780:1984	Sluice valves for water works purposes. (small dia 50 mm to 300 mm size)
44.	IS – 2906:1984	do – (higher dia 350 mm to 1200 mm size)
45.	IS – 3950 : 1979	Surface boxes for sluice valves.
46.	IS – 13095:1991	Butterfly valves for general purposes
47.	Is – 12969:1990	Method of test for quality characteristics of valves.
48.	IS – 12992:1993	Spring loaded safety relief valves.
49.	Is – 5312:1984	Swing check type reflux valves
50.	Is – 5330:1984	Design of anchor block for pen shocks with expansion joints
51.	IS – 3042:1965	Single faced sluice gate (200 mm – 1200 mm)
52.	Is – 1661: 1972	Cement and cement lime plaster finishes
53.	IS – 1237:1980	Flooring tiles of cement concrete.
54.	IS – 2114: 1984	Laying in situ terrazzo floor finish.
55.	IS – 1443:1972	Cement concrete flooring tiles, laying and finishing of.
56.	IS – 1609:1991	Laying damp proof treatment using bituminous felt.
57.	IS – 1322:1993	Bitumen felt for water proofing and damp proofing.
58.	IS – 7193:1994	Glass fibre base coaltar pitch and bitumen felt.
59.	IS – 6494:1988	Water proofing of underground water reservoir and

		swimming pools
60.	IS – 3067 :1988	General design details and preparatory work for damp proofing and water proofing of building
61.	IS – 4082:1996	Stacking of storage of constructional materials at site recommendation
62.	IS – 3114:1994	Laying of CI pipes.
63.	IS – 1536:1989	Centrifugally cast (spun) iron pressure pipe.
64.	IS – 1537: 1976	Vertically cast iron pressure pipe.
65.	IS – 1538: 1993	CI fittings for pressure pipe.
66.	IS – 7181:1986	DF horizontally cast iron pressure pipe.
67.	IS – 13382:1992	CI special for mechanical end push on flexible joints for pressure pipe.
68.	IS – 5382:1985	Rubber sealing rings for water mains.
69.	IS – 12820:1989	Dimensional requirements for rubber gasket for mechanical joints & push on joints.
70.	IS – 1879: 1987	Malleable CI pipe fittings
71.	IS – 782:1978	Caulking lead
72.	IS – 11606:1986	Methods for sampling of CI pipes and fittings
73.	IS – 458:1988	Precast concrete pipe
74.	IS – 783:1985	Laying of concrete pipes
75.	IS – 3597:1985	Method of testing of concrete pipes.
76.	IS – 10221:1982	Coating and wrapping of under ground mild steel pipe lines.
77.	IS – 2974(Part 4):1979	Foundation for Rotary type machine of low frequency
78.	Is – 2911:1979 (Part 1 section 2)	Design and construction of bored cast in situ concrete piles
79.	IS – 2911:1985 (Part 4)	Load test on piles
80.	IS – 816:1991	Use of metal arc welding for general construction in mild steel
81.	IS – 1024:1979	Welding in bridge and structures subject to dynamic loading.
82.	IS – 822:1970	Procedure for inspection of welds
83.	IS – 814:1991	Electrodes for manual metal arc welding
84.	IS – 1052:1983	Specification for collapsible gate
85.	IS – 6248:1979	Specification for metal rolling shutter and rolling grill.
86.	IS – 7322:1985	Specials for steel cylinder reinforced concrete pipes.
87.	IS – 3950:1979	Surface boxes for sluice valves.
88.	IS – 5312 (Pt I):1984	Swing check type reflux (non-return, single door) valves
89.	IS – 5312(Pt II):1986	- do – (Multi door pattern)
90.	IS – 5822:1994	Laying of Electrically welded steel pipes for water supply.
91.	IS – 823	Procedure for manual arc welding of mild steel
92.	IS – 4353	Submerged arc welding of mild steel and low alloy steels
93.	IS – 73 – 07(Pt I)	Approved tests for welding procedures (fusion welding of steel)
94.	IS – 7310(Pt I)	Approved tests for welders working to approved welding procedure (Part I: fusion welding of steel)
95.	IS – 2595:1978	Code of practice for radiographic testing
96.	IS – 4853:1968	Recommended practice for radiographic examination of fusion welded circumferential joints steel pipes

97.	IS – 1182:1967	Recommended practice for radiographic examination of fusion welded butt joints.
98.	IS – 2598:1966	Safety code for industrial radiographic practice.
99.	IS – 5878 (Pt IV)	Code of practice for construction of tunnels conveying water (Part 4 – Tunnel supports)
100.	IS – 1363	Technical supply conditions for threaded fastners
101.	IS – 1367 (Pt 3)	Technical supply conditions mechanical properties and test methods for bolts, screws and studs with full loadability.
102.	IS – 10028 (Part II):1981,latest version	Transformer
103.	Is – 325:1978 upto latest revision	Three phase induction motors
104.	IS – 2254:1985 upto latest version	Vertical motor
105.	IS – 8544:1977 upto latest version	Starter
106.	IS 3043	Earthing
107.	IS 457: 1957 upto latest version	General Construction of Plain and Reinforced Concrete for Dams and other Massive Structures
108.	IE Rules – 1956 (upto latest version)	All electrical installation will have to be done as per Indian Electrical rules.
109.	CPHEEO Manual on Water Supply and Treatment Revised and Updated Edition Central Public Health and Environmental Engineering Organisation , Ministry of Urban Development, New Delhi	All provisions in the manual are binding in both Design and Execution of the work.
110.	Any other requirement in specification/slight modification and materials	The Engineer-in-Charge shall have final power with intimation to the S.E PHED,Govt of Mizoram
111.	Mizoram Schedule of Rates for Civil Works ,Pipes,Valvesetc	MPHED Rate,MPWD 2019 and DPR
112.	IS 6512	Criteria for Design of Solid Gravity Dam

Note: The above codes may not be of latest revision. If updated/latest revision occurred or available at the time of design, it shall be used by the Designer. Also, for Solar Pumping System, MNRE Standards and IS 14286/IEC 61215 etc. standards must be followed.

Clause 12:

12.2. & 12.3: Deviation Limit beyond which clauses
12.2 & 12.3 shall apply for building work.....20 %

12.5: Deviation Limit beyond which clauses
12.2 & 12.3 shall apply for foundation work.....25 %

Clause 16: Competent Authority for deciding reduced rates:- **As per CPWD manual**

Clause 18:

List of mandatory machinery, tools & plants to be deployed by the contractor at site (**Contractor has to list down the items with quantity, Owned/Leased and related documents must be furnished. Extra items or quantity, if available, may also be mentioned**):-

Sl. No.	Item Description	Quantity	Unit	Owned/Leased/To be procured
1	Concrete mixers of full bag capacity	2	Nos	
2	Generator 5KVA or more capacity	1	Nos.	
3	Complete Centering & Shuttering materials	500	sqm	
4	Needle vibrator	2 (1 Oil + 1 Electric)	Nos	
5	Concrete Cube Mould	5	Nos	
6	Compression Testing Machine (DT or NDT)	1	Nos	
7	Bar Bending & Cutting machine	1	Nos	
8	Vibro compactor	1	Nos	
9	Trucks/Tippers/Pikup	3	Nos	
10	Excavator /Backhoe Loader/Bulldozer	2	Nos	
11	Diesel Generating set Welding Machine with minimum output of 350Amps	2	Nos	

Clause 25

Constitution of Dispute Redressal Committee (DRC)	Competent Authority to appoint
As per provisions of CPWD Works Manual.	Secretary to the Govt. of Mizoram, PHE Department.

Clause 36 (i): (These are minimum requirement. If available, in addition to this may also be mentioned).

S No	Minimum qualification of Technical representative	Discipline	Designation (Principal Technical Representative)	Minimum experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
						Figures	Words
1	Graduate Engineer	Civil		3 Years	1		
2	Graduate Engineer	Electrical		2 Years	1		
3	Diploma Engineer	Civil		3 Years	1		
4	Diploma Engineer	Mechanical		2 Years	1		

Note:

Attested Photocopy of Degree/Diploma certificate for each Technical Representative shall be enclosed
A retired Assistant Engineer from Government service holding Diploma will be treated at par with Graduate Engineers.

Clause 42 (This clause is not applicable as no materials will be issued from the department):

(i)	Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of PHED/PWD Schedule of Rates	Printed by _____
(ii)	Various permissible on theoretical quantities	
a)	Cement	
	For works with estimated cost put to tender up to Rs. 5 lakh	+/- 3%
	For works with estimated cost put to tender more than Rs.5 lakh.	+/- 2%
b)	Bitumen	+2.5% and Nil on minus side
c)	Steel Reinforcement and structural steel sections for each diameter, section and category	+/- 2%
d)	All other materials.	Nil

Recovery rates for quantities beyond permissible variation

S. No	Description of items	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond permissible variation	Less use beyond permissible variation
1	Cement		
2	Steel		
3	Structural Sections		

SAMPLE FORMS

UNDERTAKING AND FORM OF TENDER SUBMISSION

I/We have read and examined the notice inviting tender, schedules A, B, C, D, E & F, Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, Clauses of contract, Special conditions, Additional conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the Governor of Mizoram within the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

We agree to keep the tender open for **ninety (90) days** from the due date of its opening and not to make any modification in its terms and conditions.

A sum of Rs. _____ is hereby forwarded as Earnest Money in the form of treasury challan/fixed deposit receipt of scheduled bank/demand draft of a scheduled bank/ Irrevocable Bank Guarantee issued by a scheduled bank. If I/We fail to furnish the prescribed Performance Guarantee within prescribed period, I/We agree that the Governor of Mizoram shall be, without prejudice to any other right or remedy, at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that Governor of Mizoram shall, without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form. Further, I/We agree that in case of forfeiture of Earnest Money & Performance Guarantee as aforesaid. I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been executed by us/through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/We shall be debarred for tendering in PHE DEPARTMENT in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety & integrity of the State.

Dated:

Witness	Signature of Contactor :
Signature :	Name of Contractor :
Name :	Postal Address :
Address :	Contact No. :
Occupation :	

**Form of Earnest Money Deposit
Bank Guarantee Bond**

WHEREAS, ... (Name of contractor) (hereinafter called "the contractor") has submitted his tender dated for the construction of ... (name of work) (hereinafter called "the Tender")

KNOW ALL PEOPLE by these presents that we (name of bank) having our registered office at (hereinafter called "the Bank") are bound unto (Name and division of Executive Engineer) (hereinafter called "the Engineer-in-Charge") in the sum of Rs. (Rs. in words) for which payment well and truly to be made to the said Engineer-in-Charge the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this day of 20...
THE CONDITIONS of this obligation are:

- (1) If after tender opening the Contractor withdraws, his tender during the period of validity of tender (including extended validity of tender) specified in the Form of Tender;
- (2) If the contractor having been notified of the acceptance of his tender by the Engineer in-Charge:
 - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to contractor, if required;
OR
 - (b) fails or refuses to furnish the Performance Guarantee, in accordance with the provisions of tender document and Instructions to contractor,
OR
 - (c) fails or refuses to start the work, in accordance with the provisions of the contract and Instructions to contractor,
OR
 - (d) fails or refuses to submit fresh Bank Guarantee of an equal amount of this Bank Guarantee, against Security Deposit after award of contract.

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

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

DATE ...

WITNESS ...

SIGNATURE OF THE BANK

SEAL

(SIGNATURE, NAME AND ADDRESS)

*Date to be worked out on the basis of validity period of 6 months from last date of receipt of tender.

(To be written in the Company's Letterhead)

CERTIFICATE OF UNDERSTANDING

Bid No. : -----

Name of work : ----- WSS

To:

.....(Employer)

..... (Address)

Dear Sir,

We,<Name of Manufacturer>, are official manufacturer/dealer of <Name of Product>having factories at The machinery tendered by <Name of Bidder>is manufactured by us and is within our range of production.

We further affirm that we are willing to sell our product to <Name of Bidder>and shall extend support in installation, testing and commissioning at site including supports in after sales services as deemed necessary.

Signed

Name.....

Designation.....

Seal.....

FORM OF FINANCIAL BID

Description of the works:-

.....
.....

BID : bid no. Dt.
To : The Sr Executive Engineer, PHED, Serchhip WATSAN Division, Serchhip
Address :

1. We offer to execute the Works described above and remedy any defects therein in conformity with the conditions of Contract, specification, drawing, Bill of Quantities and Addenda for the sum(s) of
.....(
.....)
2. We undertake, if our Bid is accepted, to commence the Work as soon as in reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the works comprised in the contract within the time stated in the document.
3. We agree to abide by this Bid for the period of 90 days from the date fixed for receiving the same, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
4. Unless and until a formal Agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
5. We understand that you are not bound to accept the lowest or any tender you any received.
6. No claim shall be made by us whatsoever on account of price escalation and delay in payment of fund from the Department/Government.

Signature

(in block capitals or typed)

Address

.....
.....

Witness

.....
.....

Address

.....
.....

Occupation

.....
.....

Sample letter of acceptance of tender

GOVERNMENT OF MIZORAM
OFFICE OF THE
PHE DEPARTMENT, ...

No.

Dated, the

To

(Name and address of the contractor)

Subject :

.....
(Name of the work as appearing in the tender for the work)

Dear Sir (s),

Your tender for the work mentioned above has been accepted on behalf of the Governor of Mizoram at your tendered/negotiated tender amount of Rs. (Rupees.....only), which is% below/above the estimated cost of Rs. (Rupees.....only).

2. You are requested to submit the performance security/guarantee of Rs. (Rupees.....only) within days* of issue of this letter. The performance guarantee shall be in the prescribed form as provided in clause 1 of the General Conditions of Contract for CPWD Works, and shall be valid up to

3. On receipt of the prescribed performance guarantee, necessary letter to commence the work shall be issued, and the site of work handed over to you thereafter.

4. Please note that the time allowed for carrying out the work as entered in the tender (..... days/weeks/months) shall be reckoned from the day* after the date of issue of this letter.

Yours faithfully,

.....
.....
For and on behalf of Governor of Mizoram
.....Division, PHED, ...

Form of Performance Security (Guarantee)
Bank Guarantee Bond

In consideration of the President of India (hereinafter called “The Government”) having offered to accept the terms and conditions of the proposed agreement between.....and (hereinafter called “the said Contractor(s)”) for the work (hereinafter called “the said agreement”) having agreed to production of an irrevocable Bank Guarantee for Rs. (Rupees only) as a security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We, ... (hereinafter referred to as “the Bank”) hereby undertake to pay to the Government an amount not exceeding Rs. (Rupees..... Only) on demand by the Government.
2. We, ...(indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the Government stating that the amount claimed as required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. (Rupees only)
3. We, the said bank further undertake to pay the Government any money so demanded not withstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.
4. We, ... (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineerin-Charge on behalf of the Government certified that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.
5. We, ... (indicate the name of the Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).
7. We, ... (indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the Government in writing.
8. This guarantee shall be valid up to unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs..... (Rupees) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Dated the day of for.....(indicate the name of the Bank)

AFFIDAVIT

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certify that neither our firm M/S _____ has abandoned any works in India nor any contract awarded to us have been rescinded during the last five years prior to the date of this Bid.
3. The undersigned hereby authorize and request any Bank, person, firm or corporation to furnish pertinent information deemed necessary and required by the Department to verify this statement or regarding my (our) competence and general reputation.
4. The undersigned understand and agree that further information may be requested and agrees to furnish any such information at the request of the Department.

(Signature of Authorised Signatory of the Firm) _____

Name of the signatory _____

Title of the signatory _____

Date _____

CONTRACT AGREEMENT

Agreement No.: _____

THIS AGREEMENT is made on the _____ day of _____, 2026

BETWEEN

1. The Executive Engineer, Serchhip WATSAN Division, Serchhip, Public Health Engineering Department, Government of Mizoram, on behalf of the Governor of Mizoram (hereinafter called the Employer),

AND

2. (Name of Contractor) having its principal place of business at Contractor Address (hereinafter called the Contractor).

WHEREAS the Employer desires to engage the Contractor for execution of the Work, viz. **Name of Work** and the Contractor has agreed to such engagement upon and subject to the terms and conditions hereinafter appearing.

NOW IT IS HEREBY AGREED as follows:

Article 1. Contract Documents

The following documents shall constitute the Contract between the Employer and the Contractor, and each shall be read and construed as an integral part of the Contract:

- i. This Contract Agreement and the Appendices hereto as follows:-

<i>Appendix – 1</i>	Tender containing Notice Inviting Tender
<i>Appendix – 2</i>	Schedules of Quantities/ Bill of Quantities
<i>Appendix – 3</i>	Letter of the contractor submitting the tender
<i>Appendix – 4</i>	Letter of Intent issued by the Tender Accepting Authority
<i>Appendix – 5</i>	Letter of The Executive Engineer regarding commencement of the work
<i>Appendix – 6</i>	Customised CPWD Form 8 (Applicability of the Clauses of Contract are listed under Proforma of Schedule-F) alongwith CPWD Safety Code, Model Rules for protection of health and sanitary arrangements for workers employed by the CPWD or its contractors, Central PWD Contractor's Labour Regulations, List of Acts and Omissions for which fines can be imposed.

- ii. If there are varying or conflicting provisions made in any one document forming part of the contract, the Tender Accepting Authority shall be the deciding authority with regard to the intention of the document, order of precedence and his decision shall be final and binding on the contractor.

Article 2. Contract Price and Terms of Payment

2.1 Contract Price

The Employer hereby agrees to pay to the Contractor the Contract Price in consideration of the performance by the Contractor of its obligations hereunder. The Contract Price shall be **Rs.** _____ only which is inclusive of all taxes, cess etc.,

2.2 Terms of Payment

The terms and procedures of payment according to which the Employer will reimburse the Contractor are given in the Contract Clauses No. 7 & 9 subject to the availability of fund. No interest shall be claimed by the Contractor due to delay in payment and price escalation.

Article 3. Effective Date

3.1 Effective Date

The Effective Date from which the Time for Completion of the whole Works shall be counted is the date _____ days after signing the contract agreement subject to fulfillment of the following conditions:

- (a) This Contract Agreement has been duly executed for and on behalf of the Employer and the Contractor;
- (b) The Contractor has submitted to the Employer the performance security/guarantee of Rs _____ only in prescribed form with a validity of 60 days beyond the date of completion.

Article 4. Scope of Works & Maintenance

- 4.1 As per Item description in Appendix-2 of Article-1 and clauses given under Appendix-1 of Article-1 and Scope of Work given in the tender document.
- 4.2 Defect Liability periods of 12 months against all defects from the Date of issuance of Completion Certificate.
- 4.3 Operation & Maintenance period of 5 years from the Date of issuance of Completion Certificate. During the period of Operation & Maintenance, Quarterly Operation & Maintenance Report shall be submitted by the Contractor. Failure to submit the same will result in forfeiture of the security deposit proportionately or as decided by the Engineer-in-Charge.

Article 5. Communications

- 5.1 The Postal & E-mail address of the Employer for notice purposes is:

*The Office of the Executive Engineer, PHED
Serchhip WATSAN Division, Serchhip – 796181
E-mail: phedserchhip@gmail.com*

- 5.2 The Postal & E-mail address of the Contractor for notice purposes is:

IN WITNESS WHEREOF the Employer and the Contractor have caused this Agreement to be duly executed by their duly authorized representatives the day and year first above written.

Signature: _____
Name of Department's Signatory: _____
Designation: _____
Official Seal: _____

Signature of Authorized
Signatory of Contractor: _____
Name: _____
Official Seal: _____

WITNESS:

- 1. Name : _____
Profession : _____
Address : _____

- 2. Name : _____
Profession : _____
Address : _____

Sample letter for commencement of work

**GOVERNMENT OF MIZORAM
OFFICE OF THE
PHE DEPARTMENT**

No.

Dated, the

To

(Name and address of the contractor)

Subject:

(Name of the work as appearing in the tender for the work)

Ref: 1. Performance security/guarantee submitted by you vide your letter no.....
dated.....for the above work.
2. This office letter of intent/acceptance of your tender no.....date

Dear Sir (s),

1. You are requested to contact the Assistant Engineer/SDO (complete address) for taking possession of site and starting the work at once.

2. In continuation to the letters referred to above, you are requested to attend this office to complete the formal agreement within fifteen days from the date of this letter.

Yours faithfully,

Executive Engineer
For and on behalf of Governor of Mizoram
.....Division,

Sample letter for Integrity Declaration

INTEGRITY DECLARATION

(Declaration to be made by the Bidder/Contractor)

I, _____ (Bidder's Name) hereby declared that:

1. I, _____ (name of firm/contractor) has not been blacklisted or debarred in the past by the Central/State Government or Organization from taking part in Government tenders in India OR has been debarred on _____ w.e.f. _____ by Govt. of India/Mizoram but the debarment has been withdrawn w.e.f. _____
2. No employees of the firm have direct relationship(s)/relative(s) with officials dealing with the file connected with the tender being invited
3. No employees of the Firm were involved in any illegal activities.
4. I have read, understood and comply with the procurement rules, regulations and procedures.
5. I will provide accurate, complete and truthful information in my Bid.
6. I will not engage in any collusive or anti-competitive behavior.
7. I will not offer or give any bribes, gifts or other improper benefits to influence the bidding/procurement process.
8. I will maintain the confidentiality of all procurement information.
9. I will not contact or influence any procurement officials or decision-makers improperly.
10. If tender is awarded to me, I will follow the instructions given by the Department's Officials/Engineer-in-Charge or his/her representatives.

I understood that any breach of this declaration may result in disqualification from the bidding/procurement process and I may be subject to further action.

Name & Signature of Bidder
With Seal

POWER OF ATTORNEY FOR SIGNING OF BID

Know all men by these presents, We..... (name of the Bidder/Firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms (name), ... son/daughter/wife of..... and presently residing at....., who is presently employed with us as our true and lawful attorney (hereinafter referred to as the “Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our BID(s) for the _____ [name of Work] proposed by the _____(name of Department) including but not limited to signing and submission of all BIDs, and other documents and writings, participate in conferences/ meetings and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts and undertakings consequent to acceptance of our bid[s], and generally dealing with the Authority in all matters in connection with or relating to or arising out of our bid for the said Work[s] and/ or upon award thereof to us and/or till the entering into of the contract with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

In witness whereof we, ..., the above named principal have executed this power of attorney on this day of.... 2

For

(Signature)

(Name, Title and Address)

Witnesses:

1.

2.

.....

(Signature)

(Name, Title and Address of the Attorney)

(Notarised)

Person identified by me/ personally appeared before me/

signed before me/ Attested/ Authenticated*

(*Notary to specify as applicable)

(Signature, Name and Address of the Notary)

Seal of the Notary

Registration Number of the Notary

Date:_____

Notes:

1. *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
2. *Also, wherever required, the BIDDER should submit for verification the extract of the charter documents and documents such as a resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the BIDDER.*

ANNEXURE-1: GENERAL SPECIFICATIONS

- 1.1 Materials and methods of construction for all civil works shall be as per relevant Indian standard specification; part of which are incorporated in the standard specification of PHED and MPWD and all will be followed during the execution of the work. The work shall be executed as per the guidelines and provisions of B.I.S. All materials shall conform to Indian standard code of practice National Building Code and CPHEEO manual to maintain quality of work.
- 1.2 All materials to be used shall conform to the relevant specifications as per the latest version of the Indian Standards, unless otherwise stated in the detailed specifications of items of work. A set of specimen samples of all approved materials shall be kept in bottle or otherwise at site, cost of which is to be borne by the contractor.
- 1.3 Water required for the execution of the work and for the water tightness test of the reservoir shall be supplied by the contractor at his own cost in satisfactory manner to the Engineer-in-Charge of work.
- 1.4 The hydraulic test of water retaining structure shall have to be given by the contractor without any extra cost. The filling of the reservoir shall be carried out gradually at the rate not exceeding 30 cm rise in water level per hour and shall not exceed 2.0 meter in 24 hours and total period of 72 hours. Records of leakage starting at different levels of water in the reservoir if any shall be kept. The reservoir once filled shall be allowed to remain filled for seven days before any readings of drop in water level are recorded. The level of the water shall be recorded again at subsequent intervals of 24 hours over a period of seven days. The total drop in surface level over a period of seven days shall be taken as an indication of the water tightness of the reservoir, which for all practical purposes shall not exceed 40 mm.

If the structure does not satisfy the condition of test and the daily drop in water level is increasing the period of test may be extended for a period of seven days and if the specified limit is then reached the structure may be considered as satisfactory.

- 1.5 If even after extending the period of test, the drop is more than permissible, the contractor should empty the reservoir, rectify the defects in tank, by the re-plastering whenever necessary, applying water proofing paint etc. and give the water tightness test till the drop in level is within the permissible limit. This shall be repeated at the cost of the contractor without claiming extra cost. Any delay in giving water tightness will invite penalty action under relevant topics/standards of the tender agreement.

1.6 Bricks

Only 1st class kiln burnt bricks shall be used unless otherwise specified. They shall be of a uniform deep cherry color; thoroughly burnt, regular in shape with sharp and square areas and they must emit a clear ringing sound on being struck.

They must be free from cracks, chips, flaws, stones or lumps of any kind and they shall not absorb water more than one seventh of their own weight after soaking them in water for 15 minutes. The bricks shall show no sign of efflorescence either dry or subsequent to soaking in water.

1.7 Sand

The source from which sand is to be obtained shall be subject to the approval of Engineer-in-charge. The sand shall be clean, sharp and gritty to touch and be freed from earth and other impurities by washing. The sand shall be washed to such a degree that when a handful is mixed with clean water in a glass and allowed to stand for an hour the precipitate of mud over the sand shall not exceed 5%.

- 1.7.1 **Course Sand:** It is to be screened through a sieve of 64 meshes to the square inch so as to exclude large particles from the work. The fineness modulus shall not be less than 1.0

1.7.2 Fine sand: It is to be screened through a sieve of 64 meshes to the square inch so as to exclude large particles from the work. The fineness modulus shall not be less than 2.5. The sand should conform to IS 382-1982 for fine and course aggregates from natural sources.

1.7.3 Stone chips: It shall be obtained from crushing trap quartzite or hand stones and from quarries approved by Engineer-in-charge. It shall be of approved quality and proper grade. It shall pass through $\frac{3}{4}$ " mesh and retained on $\frac{1}{4}$ " mesh. It shall be free from dirt, leaves, clay and any organic matter. The material conforming generally to IS 383-1983 for course and fine aggregate from natural sources or IS 515-1959 for natural and manufactured aggregates for use in mass concrete with latest revisions.

1.8 Cement

Ordinary or lowest heat Portland cement conforming I.S. 269 –1989 or PPC conforming to IS: 1489 (Part 1 & 2) of Star cement /Top Cem shall be used prior to approval the Engineer-in-charge. All cement shall be fresh when delivered. Cements of different types are not to be mixed with one another. Consignments shall be used in the order of delivery. Admixture, if any, shall be used only after approvals.

1.9 Reinforcement

Steel reinforcement shall be of mild steel of tested quality conforming to I.S.- 432 -1966/ H.Y.S.D. bars conforming to IS -1786/1779- with latest amendments of reputed make.

All the reinforcement shall be clean and free from rust, mild scales, dust, paint, oil, grease, adhering earth or any other material or coating that may impair the bond between the concrete and the reinforcement, or cause corrosion of the reinforcement or disintegration of concrete.

Neither the size nor length of bar or wire shall be less than the size or length described in the bar schedule or elsewhere and the length shall not be more than 50 mm in excess of the length as described.

Welded joints in reinforcement may be used but in cases of important connection, tests shall be made to prove that the joints are of the full strength of bars connected, welding of reinforcement shall be done in accordance with the recommendations of the relevant Indian standards for welding mild steel bars used in the reinforcement concrete construction.

Bending and overlapping, placing in position, fabrication, binding, reinforcement with wire of approved gauge shall be done as per I.S. 432 – 1960 (revised) and I.S. 1786 – 1966 and I.S. 2502 (revised). Handling and storage of materials for concrete or RCC should be followed as per I.S. 4082 –1977.

1.10 Water

The water to be used in making and curing of concrete, mortar etc. shall be free from objectionable quantities of silts, organic matter, injurious amount of oils, acids, salts and other impurities etc. as per IS-456-1978. The Engineer-in-charge or his authorized representatives will determine whether or not such quantities of impurities are objectionable.

Such comparison will usually be made by comparison of compressive strength, water requirement, time of setting and other properties of concrete made with distilled or every clean water and concrete made with the water proposed for use, Permissible limit for solids when tested in accordance with I.S. 3025-1964. Shall be as tabulated below

1) Organic	Permissible limit for solids
Maximum permissible limit.	200 mg/litre.
2) In-organic	3000 mg/litre.
3) Sulphate (As So 4)	500 mg/litre.
4) Chloride (As Cl.)	2000 mg/litre for P.C.C and 1000 mg/litre for R.C.C. work
5) Suspended matter	2000 mg/litre.

If any water to be used in concrete, suspected by the engineer-in-charge/or his authorized representative of exceeding the permissible limits of solids, samples of water will be obtained and get it tested by Engineer-in-charge in accordance with IS:3025-1964.

1.11 Cement Mortar

The mortar shall consist of cement and sand mixed in proportion defined in relevant schedule item for various item of work. Only measured quantity shall be used. The sand shall be shovelled in a wooden measure of a clean masonry platform, after removing the measure box and spreading out sand if necessary, the cement (in required proportion) shall be emptied on the top of sand.

The sand and cement shall be then turned over with shovels once dry and made into the form of a hollow cone; into this water can be poured and the whole shall then be turned over completely twice. The color and consistency shall at this stage be quite uniform, if not, further turning shall be done.

Water shall be added by measured quantities if the engineer so direct. Only such quantities of mortar shall be mixed at one time as can be used at once before it can set. No mortar, which has once caked or begun to set, shall be used, nor shall such mortar be remixed; but it shall be removed from the site of the work immediately.

1.12 Cement concrete

The concrete shall consist of an aggregate of the proportion by volume defined in relevant schedule item or work. Only measured quantity shall be used.

1.12.1 Laying: The cement, sand and stone chips shall be mixed properly in mechanical mixer in such a manner as to avoid loss of water. The concrete shall be mixed for minimum period of 2 minutes or until it is of even colour and uniform consistency throughout. As soon as the concrete is mixed it should be removed to the work in iron vessels as rapidly as practicable. The concrete laid will be vibrated for compaction by the vibrators. Slump test will be carried at site during execution of work.

1.12.2 Curing: The concrete laid shall not be disturbed and shall be kept thoroughly damped by means of wet matting and sand until it shall have become thoroughly set and hard enough to prevent its drying and cracking.

The aggregate shall consist of stone ballast of quality approved by Engineer-in-charge and shall consist of graded size 20 mm and down wards as per specification or the size mentioned in the item description. Curing period for PCC shall be 14 days minimum. Use of curing compound shall be opted as per manufacturer's specification.

1.12.3 Formworks: The contractor shall furnish on the site of work sufficient number of centering, moulds or templates for its expeditious execution. The forms shall be made in such a way and of such materials as will ensure a smooth surface on the finished concrete. Forms and centering shall be left in place until the concrete has set sufficiently to permit the removal without danger to the structure.

1.13 Brick masonry work

1.13.1 Materials: The brick works shall consist of bricks and mortar in accordance with general specification and plans.

1.13.2 Soaking bricks: All bricks shall be soaked in clean water in tank for a period of at least twelve hour immediately before use. The contractor shall provide at his expense tanks of sufficient capacity to admit of the simultaneous immersion to two days supply of bricks for the work its normal rate of progress.

1.13.3 Laying: All the best shaped uniformly coloured bricks shall be picked out and used for face work without any extra payment to the contractor.

All courses unless otherwise specified or ordered by the Engineer-in-charge, shall be truly horizontal and the walls shall be taken up truly plumb. Mortar joints shall never exceed 10 mm in thickness and this thickness shall be uniform throughout.

Vertical joints in alternate courses shall come directly over one another. The joints shall be raked out not less than 12 mm deep when the mortar is green so as to provide proper key for the plaster or pointing to be done.

Each face brick shall be set with both bed and vertical joints quite full of mortar. No damaged or broken brick shall be used in any part of the work except such as may be cut to size for closing the course.

The masonry shall be carried up regularly and no step shall be allowed more than 60 cm. Where the masonry of one part has to be delayed, the work must be raked back at an angle not exceeding 45 ° Angles and Junctions. At all angles forming the junction of walls, the brick shall at each alternate course be carried into their respective walls so as to thoroughly unite the work with English bond. Care shall be taken that when a brick is left out to allow support for the scaffold pole on the wall face, such brick shall always be a header and that not more than one header for each pole shall be left out.

1.13.4 Scaffolding: Proper scaffolding shall be provided whenever necessary having two sets of vertical supports and shall be subjected to the approval of the Engineer-in-charge; who may order the contractor to alter or strengthen the scaffolding if he considers it necessary, without thus becoming responsible either for the safety of the work or workmen or for any additional payment.

Holes shall be made good by bricks to match the face work when scaffolding is removed.

1.13.5 Curing: All bricks work shall be kept well watered for 10 days after laying.

1.14 Reinforced Cement Concrete

All R.C.C. work shall be of the grade M-20, M-25 as given in specifications and as provided in latest IS: 456-2000 (Amendment). The materials will be measured when dry. The stone chips should be thoroughly washed in clean water and stacked.

For water retaining structure minimum grade of concrete shall be M-30 (IS: 3370 latest)

1.14.1 Laying: Cement, sand and stone chips shall be mixed properly in a mechanical mixer in such a manner as to avoid loss of water. The concrete shall be mixed for minimum period of 2 minutes or until it is of even color and uniform consistency throughout. As soon as the concrete is mixed it should be removed to the work in iron vessels as rapidly as practicable. The concrete laid will be vibrated for compaction by vibrators. Slump test will be carried at site during execution of work.

1.14.2 Curing: The concrete laid should not be disturbed and shall be kept damp by means of wet matting and sand until it shall have become thoroughly set and hard enough to prevent its curing and cracking.

The aggregate shall consist of stone ballast of quality approved by Engineer-in-charge and shall consist of graded size 20 mm and downwards as per IS and CPHEEO specification or the size mentioned in the item description.

1.14.3 Formwork: Contractor shall furnish on the site of work sufficient number of centering, forms, moulds or templates for its expeditious prosecution, the forms shall be made in such a way and such material as will ensure a very smooth surface on the finished concrete. Forms and centering shall be left in place until the concrete has set sufficiently to permit the removal without danger to the structure.

1.14.4 Reinforcement: Steel bars for reinforcing concrete shall be of such shape to afford an approved mechanical bond with concrete to ensure intimate control between steel and concrete.

Steel reinforcement shall be either mild steel of tested quality confirming to IS-432-1996 or cold worked steel high strength deformed bars as per IS-1786-1979 in strength grade Fe-415 or hot rolled high yield strength steel deformed bars with minimum yield strength of 425 N/mm as per IS – 1939 –1966 (Amended 1968) Reinforcement bars will be rejected if the actual weight varies more than 5% from the standard weight.

All bars must conform to the requirement of Indian standard specification. They shall be protected at all time before placed in the concrete from mechanical injury and the weather and when placed in the work, they shall be free from dirt, scales, loose or scaly rust, paint and oil.

Bars which are to be embodied in concrete but remain exposed for sometime after being placed in the work shall, if directed be immediately coated with a thin grout of equal part of cement and sand. Bars shall be bent to the shape shown on the drawings and in conforming to approved templates. When bars are cut and bent on the work the contractor shall employ competent men and provide the necessary appliances for the purpose.

All steel shall be rigidly held in place with 18 gauge annealed steel wire, cement mortar (1:2) cubes. M.S. chairs and spacer shall be used in order to ensure accurate positioning of reinforcement. All joints in steel reinforcement shall be overlapped. The length of overlap for tension and compression shall be as per the requirement of Indian standard specification.

In water retaining structures a clear cover of 40 mm from the face of the steel should be provided.

1.15 Construction Joints

Construction joints shall be provided, where directed approved by the Engineer-in-charge. Such joints shall be kept minimum and shall be right angles to the direction of main reinforcement. In case of column and walls the joint shall be horizontal and 8 to 15 cm below the bottom of the beam or slab running into the column or wall head or below the anchor reinforcement of beam and slab coming into the column and wall and the portion of the column or wall between the stopping level and the top of slab shall be concerted with the beam or slab.

1.15.1 Vertical Joints: At the end of any days work or run of concrete, the concrete should be finished off against temporary shutter stop, which should be vertical and securely fixed. This stop should be removed as early as weather permits.

1.15.2 Horizontal Joints: Horizontal joints should be washed down two hours after a casting in the manner described above for vertical joints.

If the concrete has been allowed to harden excessively, the surface shall be chipped over its whole surface to depth of at least 10 mm and there after thoroughly washed. Before fresh concrete is added on the other side of a construction joint, the surface of the old concrete will be thoroughly wetted then covered with a thin layer of cement mortar (1:2).

All the construction joints in all concrete structure in contact with water or earth shall be provided with approved PVC water stops on both side with hot asphalt or approved metallic strips. The longitudinal joints in water stops shall be preferably hot welded.

1.15.3 Expansion joints: Expansion joints shall be provided wherever directed by the engineer in charge, on where necessary as per standard specification and practice. The filler to be used shall be of approved material.

1.16 Cement Plaster

12 mm thick cement plaster in (1:4) proportion shall be applied on outside surface of all concrete works from 30cm below ground level up to top. The surface in contact with water will have 12 mm thick cement plaster of not less than (1:3) proportion with 3% water proofing compound. The concrete surface shall be properly hacked, washed, cleaned and applied with thick cement slurry before applying. All brick work unless otherwise specified will be plastered externally and internally with 12mm cement plaster (1:6) proportion.

The plaster shall be protected from sun, rain and frost at the contractors expense by such means as the engineer may approve.

To protect the plaster from the sun, ordinarily the whole surface shall be covered with wet sacks. The contractor shall keep the plaster continuously waited for a period of seven days after application.

1.17 Flooring

Except where in otherwise specified flooring will have minimum 15cm thick sand filling, one brick flat soling and 100mm thick P.C.C (1:2:4) in ground floor and 25 mm thick patent stone flooring shall be provided over this base. In case flooring in raw water pump house 25mm patent stone flooring shall be provided directly over R.C.C. slab in strip placed in suitable manner to avoid construction cracks.

1.18 Door and Window

All the doors and windows shall be of good quality well seasoned and well-dressed Sal wood with oxidized iron fittings. All windows shall be provided with M.S. grill of approved design.

Rolling shutter of approved make and size 1.5m wide x 2.1m height with pusher and pull operated properly fabricated with 80 x 1.22mm M.S. lathers including all accessories and necessary fitting of approved quality as per PWD specification will be provided in the pump house.

All the doors and windows shall be painted with two coats of enamel paints over a coat of primer. The materials, the size, the shape and the fitting of doors and windows shall be approved by Engineer in Charge before put in position.

1.19 Roof

R.C.C. grade as per provision made in IS:456 will have to be provided in roof slab of adequate thickness.

1.20 Snowcem Wash

All the building shall have tow coat of snowcem wash of approved shade over a coat of cement primer including preparing the plastered surface smooth with sand paper, scaffolding, centering etc. all complete as per building specification.

1.21 Painting

All steel or wood shall have two coasts of synthetic enamel paint over a coat of priming as specified by the manufacture of the paint.

The make, shade and color of the paints shall have to be approved by the Engineer-in-charge before use.

1.22 Pipe Laying Works

The successful tenderer will have to get all the pipes inspected by PHED before dispatch to site at their own cost and will submit inspection report to the Deptt accordingly. The materials will be accepted by the Deptt after proper verification before laying. Sluice valves and air valves etc. shall have ISI marking. All inlet, outlet pipe and scour pipes, which requires to be fixed in walls of water retaining structure shall have puddle collars and shall be properly fixed during the casting of concrete itself. The laying works should conform to international standard I.S.O. 2531 (latest amendment).

1.22.1 Excavation of Trenches: No excavation of any trenches must be commenced until the pipes intended to be laid there in with all the necessary appliances for laying and jointing them have been arranged along its side. In the execution of all work of pipe laying no greater length of trenches that can be laid in 48 hours must be opened and should the pipe laying be delayed or stopped from any cause, the excavation of trenches must be stopped until the laying is resumed.

In trenches where pipes are to be laid ground shall be excavated to the required depths and gradients and holes shall be taken out where the joints occur, so that the barrels of the pipes shall be on a solid bed throughout. The trenches shall be excavated to depths sufficient to secure a covering over the pipe of not less than one meter and the trench must be during the progress of the work.

1.22.2 Laying: Pipes shall be laid in straight lines, free from all sharp bends and should be in proper alignment. Each pipe before it is laid shall be examined and tested with a hammer to prove its soundness and then shall be brushed through and washed to remove all solid or dirt.

Pipes shall be placed in trenches by means of chain pulley blocks taking care to see that earth does not get into the pipe.

1.22.3 Jointing: Welding Joint as per Specification of BIS etc

1.22.4 Cleanliness: The interior of the pipes must be carefully freed from all dust as the work proceeds, for which purpose a disc plate or brush sufficiently long to pass two or more joints from the end of pipe last laid shall be continuously drawn forward as the pipes are laid. The ends of the pipes must be securely protected during the progress of the work. The pipes laid shall not be made receptacle either for tools, hookahs, clothes or of any other matter during the progress of works.

1.22.5 Testing: The pipe line after laying and jointing shall be tested to a pressure at least doubles that of working pressure. The pipes and joints shall be absolutely watertight. The contractor shall provide the water, appliances and labour for testing the pipes at his own expense. Relevant IS code for field hydrostatic test pressure is IS: 12288. A leakage test shall be done concurrently with the pressure test as per IS: 3144, no pipe installation shall be accepted until the leakage is less than the formula :

$$qL = (ND \sqrt{P}) 3.3$$

qL = allowable leakage in cm³/hr

N = no of joints in the length of pipe line under test.

D = diameter of pipe line in mm

P = average test pressure during the leakage test in kg/cm

In case the leakage is greater than the allowable value determined through the above formula the contractor shall identify all defective leakage joints, repair them until the leakage is within allowable limit and for these rectification works no extra payment shall be admissible.

1.22.6 Painting: All exposed surface of pipes, specials valves, Steel doors and windows, etc., shall have two coats of synthetic enamel paint of approved shade over a coat of red oxide primer etc. all complete as per approval and direction of the Engineer-in-chief.

1.23 Inspection

The contractor should get the pipe, specials, Sluice valve etc. inspected before dispatch to site as decided by the Superintending Engineer, Rural WATSAN Circle, Aizawl at their own cost. Materials will not be considered acceptable without inspection-cum-acceptance certificate of approved PHED inspection personnel.

ANNEXURE – 2: SPECIAL CONDITIONS

1. The Engineer-in-Charge shall have power to make any alterations in Design, Drawings and Specifications that may appear to him to be necessary on the ground of safety, economy or convenience. However, this must be done with intimation along with reasons for altering to Contractor.
2. The Contractor shall be responsible for the safety of all activities on the site.
3. The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the works in India, the risks of War, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil work, riot commotion or disorder (unless restricted to the contractor's employees) and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive or (b) a cause due solely to the design of the works, other than the contractor's design.
4. All risks of loss of or damage to physical property and of personnel injury and death which arise during and in consequence of the performance of the contract other than the expected risks are the responsibility of the contractor.
5. The Contractor shall provide in the joint names of the Employer and the Contractor, insurance covered from the Start Date to the end of the Defects Liability Period in the amounts and deductibles stated in contract data for the following events which are due to the contractor's risks: (a) Loss of or damage to the Works, Plant and Materials; (b) Loss of or damage to Equipment; (c) Loss of or damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and (d) Personal injury or death.
6. Arbitration proceedings shall be held in Aizawl, Mizoram, India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.
7. Before dispatch of the equipment, the successful contractor shall arrange for a pre-dispatch inspection (PDI) of the pumpset, solar photovoltaic modules, controllers, and associated accessories at the manufacturer's works. This inspection shall be conducted by at least two (02) authorized officials from the Department [or Purchasing Agency]. The contractor must provide a minimum of [Insert Days, e.g., 15 days] notice to the Department regarding the readiness of the goods and the location of the inspection. The inspectors shall have the right to inspect, test, and witness the quality assurance tests, including raw material verification, performance tests of pumps, and efficiency tests of controllers, in accordance with the tender specifications [e.g., MNRE standards]. The contractor shall provide all reasonable facilities, assistance, and necessary testing equipment at the manufacturer's facility free of charge. No material shall be dispatched without a formal Inspection Clearance Certificate issued by the Department's officials. All expenditures related to the inspection, including but not limited to to-and-fro travel (airfare/train fare), accommodation, local transport, and daily allowances (DA) for the two (02) Department officials, shall be borne entirely by the successful contractor. The contractor shall make necessary arrangements for the same in advance, as per government rules/norms, and no additional cost shall be reimbursed by the Department for this purpose. In the event of a failure of the equipment to meet specifications during the PDI, or in the case of non-availability of the material for inspection on the scheduled date, the inspection trip shall be treated as cancelled. All expenses incurred by the Department's officials for such failed/non-productive visits shall be charged to the contractor and deducted from their bills or performance security. The dispatch of the equipment/material shall be permitted only after the successful inspection and the issuance of a 'Dispatch Clearance' by the authorized representatives of the Department. The purchaser's right of inspection, as per this clause, shall not be limited or waived by any prior in-house testing by the contractor.

ANNEXURE-3: SCOPE OF WORK

The Scope of work shall comprise of the following items as per Schedule of Quantities. During execution, scope of works may be read in conjunction with the estimate and drawings:

1) Survey:

Tenderer must visit the proposed project site to conduct thorough site survey and techno-economic feasibility studies of the project on his own expenses. The tenderer shall also obtain a site visit certificate from the concerned JE which will be verified by SDO, Serchhip WATSAN Sub Division, Serchhip, and shall be submitted in original along with the tender. The site visit certificate shall be accompanied by self-photographs of the visitor at each proposed solar power plant along with Lat-Long of proposed site printed on the photographs. This is a pre-requisite for Tender & execution of works and no-payment shall be made against this work item.

2) Design:

- i. The system must be designed and planned using computer based tools that can closely model the irradiation, rainfall pattern, power generation from solar array, typical pump performance by considering Lat-Long of proposed solar power plant. Planning and design should be done showing monthly water output in line with water requirement. Due to the complex nature and multiple variables involved in calculating solar plant performance for every hour of the year, it is deemed unrealistic to be able to do this without the use of proven computer-based modelling tools. The discharge/day must be of the following requirements: a. Average daily water delivery within a year in m³/day b. Average daily discharge of leanest month shall meet ultimate daily requirement c. Water delivery pattern of a whole year in m³
- ii. The tenderer must submit the design in binding clearly showing all the design parameters for each stage. The check list will be: i. Motor & pump efficiency (%) ii. Rated power of pump set (KW) iii. SPV efficiency (%) considered iv. Size of solar power plant (KWp) v. Flow rate (m³/ hour) at duty head (Required discharge shall be achieved at duty head) vi. Dynamic head (m) vii. Total head (m) viii. Head loss (m) ix. Speed of motor (rpm) Note: Hazen-Williams or Darcy-Weisbach formula may be used in calculation. 7 The following must also be included: i. Irradiation data considered for the proposed solar power plant ii. Table showing average daily discharge for each month for the whole year iii. Energy output with respect to rainfall throughout the year iv. Data sheets/ customized pump characteristics.
- iii. Design of Clear Water Solar Submersible Pumpset, suitable for horizontal/vertical installation, Single Stage Solar Water Pumping System (1 working + 1 standby) Suitable for the following data : (1) Static head= 245m, (2) Length of Pipeline : 2800 Rs, (3) Water demand: 0.035 Mld, (4) pumping hour : 5 hrs. (5) Pumping main size and type: 65mmØ GI(M) (6) Minimum rated head of pump: 290m, (7) Minimum Rated Discharge: 2 Lps, (8) Minimum rated power of pump : 11Kw. along with solar pump controller & accessories etc. complete as per IEC/EN of 61702 :1995 & 62253 standards. The department shall scrutinize thoroughly each design of all tenderers and shall only consider the tenderer(s) whose design is/are found to be technically and economically feasible under the condition abovementioned. The successful tender shall execute the works as per his/her design submitted in the tender. No modifications shall be entertained unless prior approval from the Tender accepting authority is obtained on technical ground.
- iv. Also, this is a pre-requisite for Tender & execution of works and no-payment shall be made against this work item.

3) Supply, Installation, Testing & Commissioning:

- i. Supply, Installation Testing & Commissioning of Clear Water Solar Submersible Pumpset, suitable for horizontal installation, Single Stage Solar Water Pumping System (1 working + 1 standby) as per the accepted Design submitted in the Tender Suitable for the following data : (1) Static head= 245m, (2) Length of Pipeline : 2800 Rs, (3) Water demand: 0.035 Mld, (4) pumping hour : 5 hrs. (5) Pumping main size and type: 65mmØ GI(M) (6) Minimum rated head of pump: 290m, (7) Minimum Rated Discharge: 2 Lps, (8) Minimum rated power of pump : 11Kw. along with solar pump controller & accessories etc. complete as per IEC/EN of 61702 :1995 & 62253 standards.
- ii. Supply, installation testing & Commissioning of Solar Job. Photovoltaic Power Plant including all accessories etc. complete with required area, sun tracking - fixed/manual. Rated Solar Power Plant shall be as per the accepted Design submitted in the Tender and the Minimum Rated Solar Power Plant = 22 KWp.
- iii. Pumpset Control System like Float Switch, Pressure Switch, Dry run protection, pressure gauge etc.
- iv. Supply, installation testing & Commissioning of Solar Security Lightning System for the Solar Power Plants Auxiliary Power Supply System for Station Power load, Lighting etc
- v. Required Power cables from SPV Power Plant to Sump including laying complete in all respects. All cables should be insulated using PVC pipes.
- vi. The system must have remote monitoring system for enhancing accountability of technical parameters. Size of power cable proposed shall be furnished.
- vii. Design & Manufacturing Company submitted shall not be changed unless approved by the Engineer-in-Charge on ground of technical parameters.

4) Site Development & PCC Flooring:

- i. Site Development including excavation of site, levelling and disposal of excavated earth spoil to the designated site and providing PCC flooring for SPV Power Plant shall be carried out by the Contractor with the instruction of the Engineer-in-Charge.

5) Security Fencing :

- i. Security Fencing for SPV Power Plant shall be carried out by the Contractor with the instruction of the Engineer-in-Charge.

6) Operation & Maintenance:

- i. Operation & Maintenance period shall be commenced from the Date of Completion of the Project for duration of 5(five) years which shall include corrective maintenance as well as routine service visits during guarantee period.
- ii. Quarterly O&M activities report shall be submitted by the contractor to the Department.
- iii. Warranty:
 - a. PV modules must be warranted for output wattage, which should not be less than 90% at the end of 10 years and 80% at the end of 25 years.
 - b. Whole system including pump set shall be warranted for 5 years. Solar pumping systems must be warranted against any manufacturing/design/installation defects for a minimum period of 5 years.
 - c. Sufficient spares for trouble free operation during warranty period shall be made available as and when required.
 - d. A warranty card for modules and motor pump set should also be provided to beneficiary at the time of handing over of the system.
- iv. During the period of Operation and Maintenance, the Contractor shall give training on operation and maintenance to VWSC/Department who will be responsible for operation and maintenance of the system after expiry of maintenance period. After completion of 5 years operation and maintenance period, tripartite agreement shall be signed at the time of handing over.

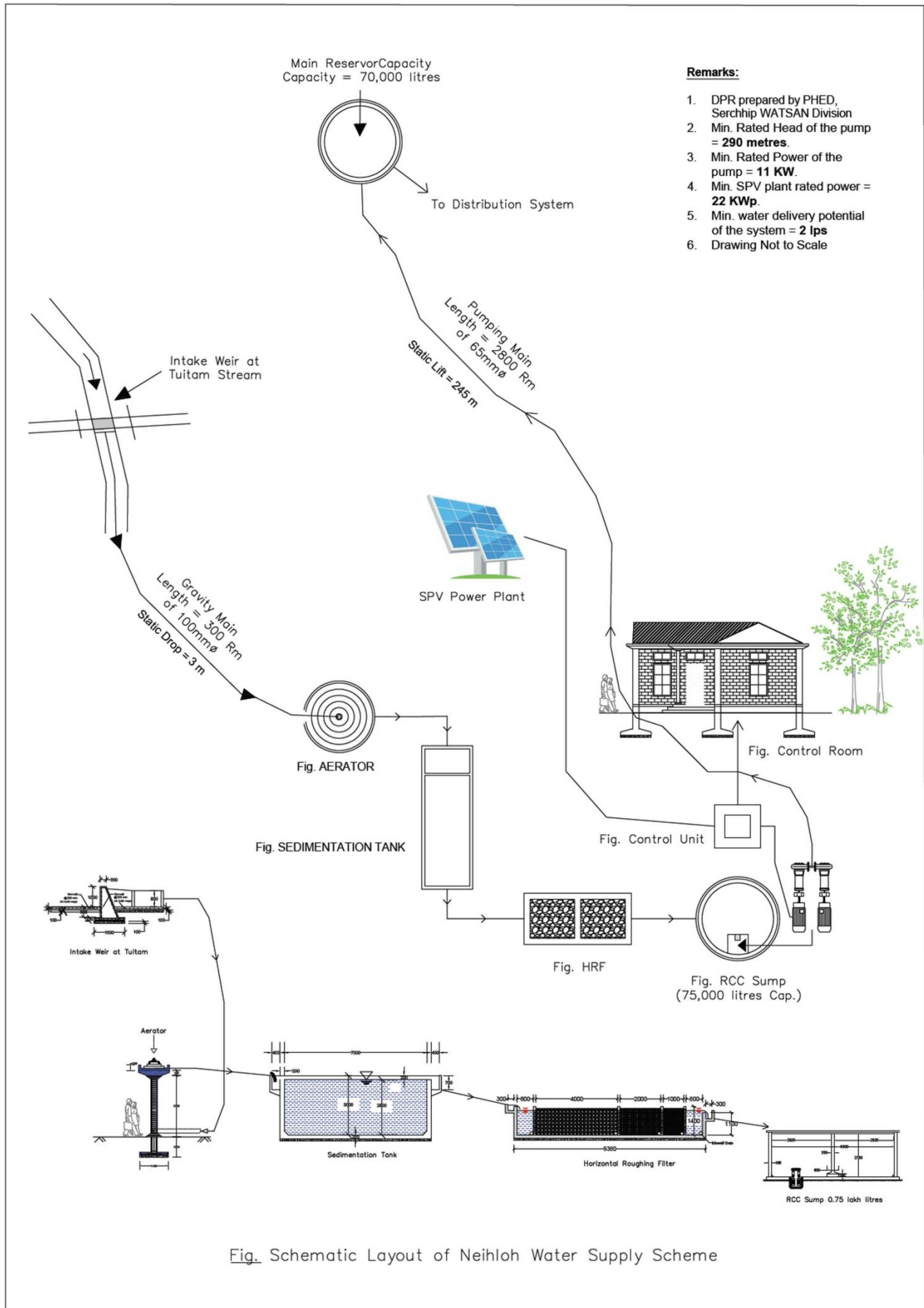
ANNEXURE 4: BILL OF QUANTITY (BOQ)**SITE DEVELOPMENT & PCC FLOORING**

Sl. No.	SoR No.	Items of Work	Unit	Qnty.	Quoted rate in figure (Rs. In Lakhs)	Quoted Rate In words (Rs. In Lakhs)	Quoted Amount (Rs. In Lakhs)
1	2.18	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge. a) All kinds of soil (excluding ordinary & hard rock)	m ³	600.00			
2	4.02	Providing and laying in position cement concrete of specified grade excluding cost of centering and shuttering - All work upto plinth level: a) All kinds of soil (excluding ordinary & hard rock)	m ³	80.00			
3	LS	Carriage	Job	1.00			

ELECTRO-MECHANICAL COMPONENTS

Sl. No.	SOR No.	Items of Work	Unit	Qty.	Quoted rate in figure (Rs. In Lakhs)	Quoted Rate In words (Rs. In Lakhs)	Quoted Amount (Rs. In Lakhs)
1		a) Design, Supply, Installation Testing & Commissioning of Clear Water Solar Submersible Pumpset, suitable for horizontal installation, Single Stage Solar Water Pumping System (1 working + 1 standby) Suitable for the following data : (1) Static head= 245m, (2) Length of Pipeline : 2800 Rs, (3) Water demand:0.035 Mld, (4) pumping hour : 5 hrs. (5) Pumping main size and type: 65mmØ GI(M) (6) Minimum rated head of pump: 290m, (7) Minimum Rated Discharge: 2 Lps, (8) Minimum rated power of pump : 11Kw. along with solar pump controller & accessories etc. complete as per IEC/EN of 61702 :1995 & 62253 standards. b) Supply, installation testing & Commissioning of Solar Job. Photovoltaic Power Plant including all accessories etc. complete with required area, sun tracking - fixed/manual. Minimum Rated Solar Power Plant =22 KWp c) Pumpset Control System like Float Switch, Pressure Switch, Dry run protection, pressure gauge etc. d) Supply, installation testing & Commissioning of Solar Security Lightning System for the Solar Power Plants Auxiliary Power Supply System for Station Power load, Lighting etc. e) Required Power cables from SPV Power Plant to Sump including laying complete in all respects.	Job	1			

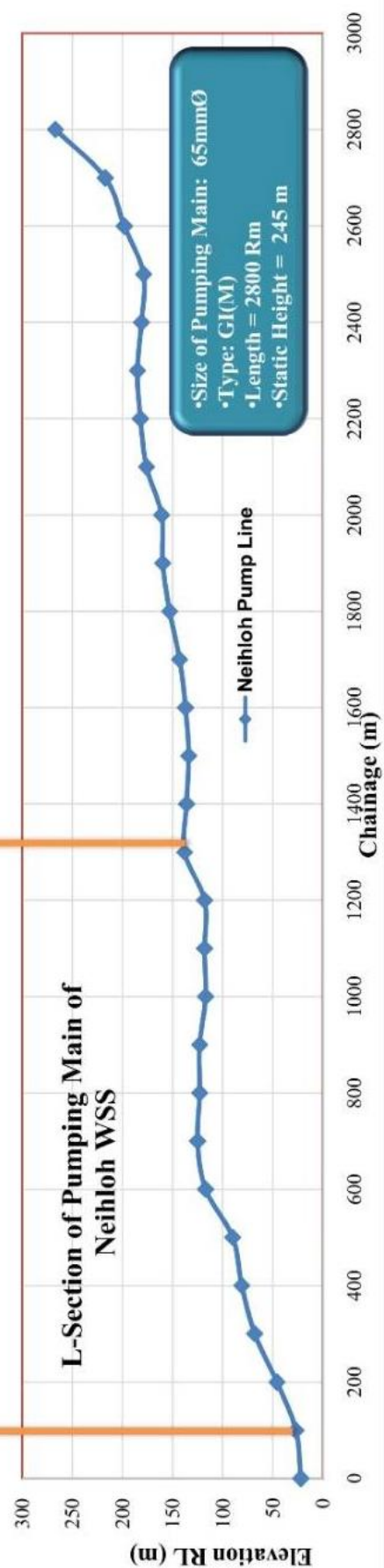
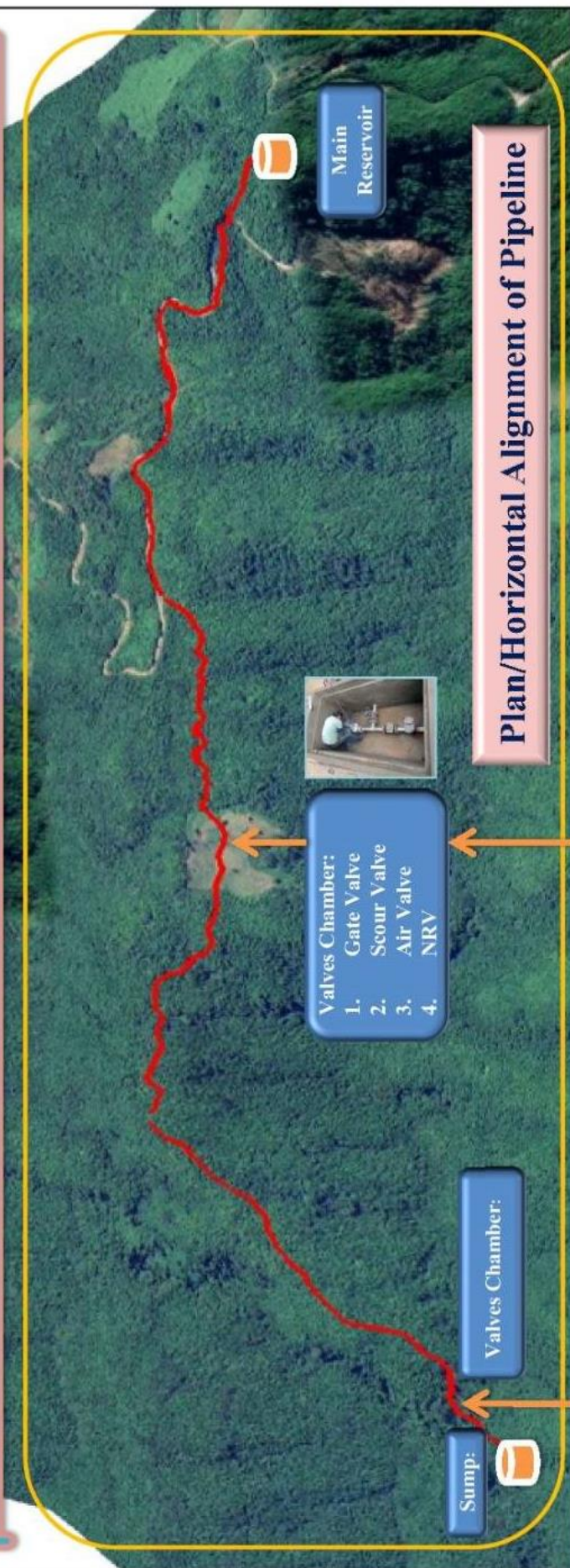
DRAWINGS



Remarks:

1. DPR prepared by PHED, Serchhip WATSAN Division
2. Min. Rated Head of the pump = **290 metres.**
3. Min. Rated Power of the pump = **11 KW.**
4. Min. SPV plant rated power = **22 KWp.**
5. Min. water delivery potential of the system = **2 lps**
6. Drawing Not to Scale

Plan & Profile Map of Neihloh Pump line



L-Section/Vertical Alignment of Pipeline