

Memo. No.-642

Date: 31.05.2019

**NOTICE INVITING e- TENDER**

By

**The Superintending Engineer (A-M), Kolkata (A-M) Res. Circle, Kolkata.  
Tender Reference No: WBWRDD/SE (AM)/Res Circle /eNIT-1/2019-20**

**1. Invitation :** Separate **Percentage Rate** tenders are invited by the Superintending Engineer (A-M) , Kolkata(A-M) Resource Circle on behalf of the Governor of West Bengal through e- Tendering from Eligible, Bonafide and Resourceful Agencies having sound technical and financial capability as well as fulfilling the stipulated qualifying criteria for the works in RIDF-XXIII Programme under Water Resources Investigation and Development Department (WRIDD) in different Districts as mentioned below.

**DESCRIPTION FOR THE WORK:-** SUPPLY INSTALLATION OF SOLAR IRRIGATION PUMPING SYSTEM USING DUAL-AXIS MANUAL TRACKING WITH SEASONAL TILTING SYSTEM INCLUDING SUPPLY OF ALL MATERIALS FOR COMMISSIONING OF LDTW/STW/PDW/ SPSIS,SCHEME and COMPREHENSIVE MAINTENANCE FOR 5 YEARS. . THE SYSTEM MUST BE SUITABLE FOR BOTH ON GRID AND OFF GRID OPERATION. Details of works in different locations are shown below:

Gr- No	Sl No.	Description of items	Approx. Qty of sets of works	Estimated Cost per Set	Estimated Cost Rs in Lakhs put to Tender	Time of Completion of works in all respect in Days	Token Earnest money Rs in Lakhs	Minimum Eligibility Criteria(Credential, Turn over)			
								Credential in Rs.(any one) in form of completion certificate within last 5 years excluding this year			Average Annual Turnover of 3 years within last 5 years Rs in Lakhs
								Single Rs in Lakhs	Two(each) Rs in Lakhs	Running works Rs in Lakhs	
1		<b>Design, Supply , installation and commissioning of hybrid Solar PV system with dual axis Manual Tracking system for water pumping system of specified discharge as per tech. spec. including supply of surface pump sets of 3HP, transportation of miscellaneous materials form Resources sub divisional stores for STW structures for different locations in different district including providing training to water users association and Comprehensive maintenance for five (5) years as per BOQ</b>									
	2.11	Jalpaiguri (A-I) Divn, Jalpaiguri	23	4.27	98.21	60	2	39	29	39	146

LDTW- Light Duty Tube Well  
PDW- Pump Dug Well

STW- Shallow Tube Well  
SPSIS-Solar Powered Sprinkler Irrigation System.

2 In the event of e-Filing, intending bidder may download the Tender document from the website: <http://wbenders.gov.in> directly by the help of Digital Signature Certificate and **Earnest Money** to be submitted online.

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- 3 The intending bidder must read the terms and condition of the NIT carefully. He should particularly go through the eligibility criteria required , the statutory and non-statutory document list and satisfy himself of the requirements for eligibility. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
- 4 Technical Bid and Financial Bid both shall be submitted online concurrently duly digitally signed in the Website <https://wbenders.gov.in> as per time schedule stated herein under. The documents submitted by the bidders should be digitally signed .
- 5 The financial offer of the prospective bidders will be considered only if the Tenderer qualifies in the Technical Bid. The decision of the Superintending Engineer (A-M), Kolkata (A-M) Res. Circle, Kolkata will be final and binding on all concerned and no challenge against such decision will be entertained. The list of the qualified bidders will be displayed in the website on the scheduled date and time
- 6 All information posted on the website consisting of NIT and related documents, Form 2911(ii), BOQ, Corrigendum etc. and Drawings shall form part of the tender document

**7. Eligibility for participation :**Registered Company / Proprietorship Firm / Partnership firms / Unemployed Engineers Co-operative Societies, Consortium are eligible to participate subject to the fulfilment of eligibility criteria mentioned in clause 8.

A prospective bidder shall be allowed to participate in the bid as follows:

i) If the bid is made by a proprietary firm, it shall be signed/digitally signed by the proprietor.

ii) If the bid is made by a firm in partnership, it shall be signed/digitally signed by all the partners of the firm or by a partner holding the power of attorney for the firm for signing the bid in which case a certified copy of the power of attorney , partnership deed shall accompany the Bid.

iii) If the bid is made by a limited company or limited corporation, it shall be signed/digitally signed by a duly authorized person holding the registered power of attorney for signing the bid in which case a certified copy of power of attorney shall accompany the Bid. Such limited company or corporation may be required to furnish satisfactory evidence of its existence such as the Article of Association and Memorandum before the contract is awarded.

iv) Registered Unemployed Engineers Co-operative Societies are required to furnish valid Bye Law, Current Audit Report, Valid clearance Certificate from A.R.C.S for the current financial year along with other relevant supporting papers.

v) If the bid is made by a **Consortium** of two or three firms as partners, it shall comply with the following requirements :

[a] the bid shall include and meet all the criteria as laid down in the tender including the information listed in Clause 8.

[b] in case of a successful bid, the Agreement, shall be signed so as to be legally binding on all partners;

[c] one of the partners shall be nominated as being in charge, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;

[d] the partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the consortium and the entire execution of the contract, including payment, shall be done exclusively with the partner in charge;

[e] all partners of the Consortium shall be liable jointly and severally for the execution of the contract in accordance with the contract terms, and a statement to this effect shall be included in the authorization mentioned under [c] above, as well as in the bid and in the Agreement [in case of a successful bid];

[f] The Consortium agreement should indicate precisely the role of all members in respect of planning, design, construction equipment, key personnel, work execution, and financing of the project. All members of the consortium should have active participation in execution during the currency of the contract. This should not be varied/modified subsequently without prior approval of the employer;

[g] The Consortium agreement should be registered / notarised in anywhere in India so as to be legally valid and binding on partners; and

[h] a copy of the Consortium Agreement entered into by the partners shall be submitted with the bid. Alternatively, a Letter of Intent to execute a Consortium Agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed Agreement.

(I) For Consortium Agencies, the figures for each of the partners of the consortium shall be added together to determine the Bidder's compliance with the minimum qualifying criteria. However, for a consortium to qualify, all the partners must have similar type of credentials (refer to ci.no 8(a)) and the criteria for the partners should be as follow:

In case of two partner consortium, one partner must meet at least **50 percent** of the minimum criteria who will be the lead partner and all partners collectively must meet the qualifying norms in respect to the work experience & Turn over requirement. Failure to comply with this requirement will result in rejection of the Consortium's bid.

In case of three partner consortium, one partner must meet at least **35 percent** of the minimum criteria who will be the lead partner and all the partners collectively must meet the qualifying norms in respect to the work experience & Turn over requirement. Failure to comply with this requirement will result in rejection of the Consortium's bid

(j) Any member of the Consortium member(s) shall not be eligible either in an individual capacity or part of any other consortium to participate in the tender, where the said consortium participates.

(k) Work order(s) will be placed to the lead member of the consortium.

Furnish details of participation proposed in the Consortium as below:

**DETAILS OF PARTICIPATION IN THE CONSORTIUM**

PARTICIPATION DETAILS	FIRM 'A' (Lead Partner)	FIRM 'B'	FIRM 'C'
Financial Turnover			
Name of the Banker(s)			
Planning			
Construction Equipment			
Key Personnel			
Execution of Work as per Cl 8. (Give details on contribution of each in the space provided)			

vi) Cancellation of any document such as power of attorney, partnership deed etc. should be communicated forthwith by the Bidder in writing failing which this department shall have no responsibility or liability for any action on the strength of the said document.

**8. Eligibility criteria for participation in tender:**

An intending bidder has to fulfil all the conditions as detailed in Clause 8(a) and 8(b) below:

**(a) Credential of similar nature of work :** Intending tenderers shall have to produce credentials of a **similar nature** of completed work of the minimum value **as detailed in clause 1 of this NIT.**

**Similar nature of work covers :**

(i) Installation & commissioning of minimum 2 HP Solar Photovoltaic Water Pumping Systems as a Photo Voltaic system integrator within last 5 years under the authority of State/ Central Govt., Govt. undertaking/ Statutory Bodies constituted under the statute of the Central/ State Government.

**N.B. The credentials should be uploaded in the form of completion certificate from the competent authority clearly mentioning name, address, contract no. & email Id of the office , details of similar nature of works as mentioned , date of completion and executed amount against the work Order.**

**Payment Certificate will not be considered as credential as per notification no.03-A/PW/O/10C-02/14 dtd. 12.03.15.**

**(b)** An Intending bidder :

i) shall have to **mandatorily** submit test certificate of **Photo Voltaic Water Pumping System** from a **MNRE accredited testing laboratory** for the similar model upto 10HP **either** in the name of bidder **or** of any manufacturer tested from **MNRE accredited testing laboratory** accompanied with MFG-I/II/III at the time of bidding. Test certificates of PV water pumping system should have been issued on or after 1st January 2013.

**ii) Shall have to submit authorisation of ( in MFG-I/II/III ):**

- a) Indigenous Solar Modules manufacture or its Authorised Distributors/Dealers/Channel Partners having Test Certificate of the same from MNRE approved Test Centre . **Warranty certificate from manufacturer for PV modules covering clause 16 of Technical Specification to be uploaded.**
- b) CE / IEC certified solar control (PCU) unit manufacturer or its Authorised Distributors/Dealers/Channel Partners alongwith all test certificates.
- c) IP54 class on enclosure manufacturer or its Authorised Distributors/Dealers/Channel Partners having CPRI / ERDA / MNRE accredited test laboratory certification issued not earlier than 10(ten) years from the date of this NIT.
- d) motor pump sets of 2HP , 3HP and 5HP with copy of BIS licence for all ratings.
- e) manufacturer of HDPE pipe with all accessories .
- f) manufacturer of solar structure.

Authenticity of Dealership/ Distributorship/ Channel Partner with permission for issuing certificate should also be produced for all items.

Bidder has options to submit authorisation of maximum 3 manufacturers for any item if deemed necessary. It is to be noted that supply of materials of other manufacturers beyond authorisation so uploaded during online submission of bid will not be accepted.

**(c) Annual turn over :: As noted in clause no-1**

**(d) Joint Venture of any type not allowed in this tender.**

**9.** The intending Bidders must have valid PAN , should have paid Professional Tax for the last Financial year (2019-20),filed I.T. Returns of Last 3(three)Assessment years(2017-18, 2016-17, 2015-16) & have a Valid 15 digit Goods and Service Taxpayer Identification No.(GSTIN) and filed return for March 2018 or 2017-18.

**10.** Electrical Supervisor having valid license can supervise the installation of Pump Motor (compatible for Solar & Grid Power) and allied works, who is engaged by the Tenderer for this work. Agreement of appointment as per rule of supervision to be uploaded.

**11.** Work Layout for all types of schemes as mentioned in the description of work shall be given only after successful completion of well and pump house except for **SPSIS** schemes. The work should be completed within stipulated period.

**12.** The bidders shall quote rate considering that no escalation and/or price adjustment will be allowed by the Department under any circumstances.

**13.** Constructional Labour Welfare Cess @ 1 (one) % of cost of contract ,Income Tax, GST & all other Statutory levy/ will be deducted from every bill of the selected agency.

**14. Date & Time Schedule :**

Sl.No	Particulars	Date & Time
1.	Date of uploading of N.I.T. Documents (on line) (Publishing Date)	31.05.2019 (06.00( P .M)
2.	Documents download/ sell start date (on line)	31.05.2019 (06.00( P .M)
3.	Documents down load/ sell end date (on line)	26.06.2019 (5.00 P.M)

4.	Bid submission start date (On line)	31.05.2019 (06.00( P.M)
5.	Bid Submission closing (On line)	26.06.2019 (5.00 P.M)
6.	Pre-Bid meeting.- Participant should submit their queries in their official letter head prior to beginning of the meeting on the same day.	07.06.2019 (1.00 P.M)
7.	Bid opening date for Technical bid (On line)	28.06.2019 (5.15 P.M)
8.	Date of uploading list for Technically Qualified Bidder (On line)	TO BE NOTIFIED LATER
9.	Date for opening of Financial Proposal (On line)	TO BE NOTIFIED LATER
10.	Date of uploading of list of bidders along with their rates through on line.	TO BE NOTIFIED LATER
11.	Location of Bid opening	Office of the SE(A.M) Kolkata(Agri-Mech) Res. Circle, Mayukh Bhawan,1 <sup>st</sup> Floor Pin: 700091.
12.	Location of Pre-bid meeting	Office of the SE(A.M) Kolkata(Agri-Mech) Res. Circle, Mayukh Bhawan,1 <sup>st</sup> Floor Pin: 700091.

**15. Earnest Money** :Online receipt and refund of EMD of e-procurement through State Government e-Procurement portal. The following procedure to be adopted for deposit of EMD/ Bid Security/ Tender Fees related to e-Procurement of the State Government departments. This clause is also applicable for all categories of applicants.

**A. Login by bidder:-**

a) A bidder desirous of taking part in a tender invited by a State Government Office shall login to the e-Procurement portal of the Government of West Bengal <https://wbtenders.gov.in> using his login ID and password.

b) He will select the tender to bid and initiate payment of pre-defined EMD / Tender Fees for that tender by selecting from either of the following payments modes:

Net banking (any of the banks listed in the ICICI Bank Payment gateway) in case of payment through ICICI Bank Payment Gateway.

**RTGS/NEFT in case of offline payment through bank account in any Bank.**

**B. Payment procedure :**

**i) Payment by Net Banking (any listed bank) through ICICI Bank Payment Gateway**

a. On selection of net banking as the payment mode, the bidder will be directed to ICICI Bank Payment Gateway webpage (along with a string containing a Unique ID) where he will select the Bank through which he wants to do the transaction.

b. Bidder will make the payment after entering his Unique ID and password of the bank to process the transaction.

c. Bidder will receive a confirmation message regarding success/failure of the transaction.

d. If the transaction is successful, the amount paid by the bidder will get credited in the respective Pooling account of the State Government maintained with the Focal Point Branch of ICICI Bank at R. N. Mukherjee Road, Kolkata for collection of EMD/Tender Fees.

e. If the transaction is failure, the bidder will again try for payment by going back to the first step.

**ii) Payment through RTGS/NEFT:**

On selection of RTGS/NEFT as the payment mode, the e-Procurement portal will show a pre-filled challan having the details to process RTGS/NEFT transaction.

The bidder will print the challan and use the pre-filled information to make RTGS/NEFT payment using his Bank account. Once payment is made, the bidder will come back to the e-Procurement portal after expiry of a reasonable time to enable the NEFT/RTGS process to complete, in order to verify the payment made and continue the bidding process.

If verification is successful, the fund will get credited to the respective Pooling account of the State Government maintained with the Focal Point Branch of ICICI Bank at R.N.Mukherjee Road, Kolkata for collection of EMD/Tender Fees. Hereafter, the bidder will go to e-Procurement portal for submission of his bid.

But if the payment verification is unsuccessful, the amount will be returned to the bidder's account.

### **C. Refund/Settlement Process:**

i.) After opening of the bids and technical evaluation of the same by the tender inviting authority through electronic processing in the e-Procurement portal of the State Government, the tender inviting authority will declare the status of the bids as successful or unsuccessful which will be made available, along with the details of the unsuccessful bidders, to ICICI Bank by the e-Procurement portal through web services.

ii.) On receipt of the information from the e-Procurement portal, the Bank will refund, through an automated process, the EMD of the bidders disqualified at the technical evaluation to the respective bidders' bank accounts from which they made the payment transaction. Such refund will take place within T+2 Bank Working Days where T will mean the date on which information on rejection of bid is uploaded to the e-Procurement portal by the tender inviting authority.

iii.) Once the financial bid evaluation is electronically processed in the e-procurement portal, EMD of the technically qualified bidders other than that of the L1 and L2 bidders will be refunded, through an automated process, to the respective bidders' bank accounts from which they made the payment transaction. Such refund will take place within T+2 Bank Working Days where T will mean the date on which information on rejection of financial bid is uploaded to the e-Procurement portal by the tender inviting authority. However, the L2 bidder should not be rejected till the LOI process is successful.

iv.) If the L1 bidder accepts the LOI and the same is processed electronically in the e-Procurement portal, EMD of the L2 bidder will be refunded through an automated process, to his bank account from which he made the payment transaction. Such refund will take place within T+2 Bank Working Days where T will mean the date on which information on Award of Contract (AOC) to the L1 bidder is uploaded to the e-Procurement portal by the tender inviting authority. A prospective bidder shall be allowed to participate in a particular job either in the capacity of individual or as a partner of a firm. If found to have applied severally in a single job, all his applications will be rejected for that job, without assigning any reason thereof.

16. Prospective applicants are advised to note carefully the minimum qualification criteria as mentioned before bidding.

17. Contractor shall have to comply with the provisions of (a) the contract labour (Regulation abolition) Act. 1970 (b) .Apprentice Act. 1961 (c) minimum wage Act. 1948 and any notification thereof or any other laws relating there to and rules made and order issued to this effect from time to time.

18. All intending bidders are requested to be present in the chamber of the Superintending Engineer (AM), Kolkata(AM) Resources Circle during opening of the Tender to observe the tender opening procedure.

19. NO CONDITIONAL/ INCOMPLETE TENDER will be accepted under any circumstances.

20. The Tender Inviting Authority reserves the right to cancel the e-N.I.T. due to unavoidable circumstances and no claim in this respect will entertained.

21. During scrutiny, if it is come to the notice to the tender inviting authority that the credential or any other papers of any bidders is incorrect/Manufactured/fabricated that application will be out rightly rejected without any prejudice with forfeiture of earnest money forthwith.

22. The Tender document shall be filled up in English. All literatures and correspondence in connection with this Tender shall be in English.

23. Rates shall be inclusive of every demand(excluding GST and cess) in Indian Rupees **for any location within the district specified in CI-1**
24. The Tender shall be valid up to **180 days from the date of invitation.**
25. **No escalation and/ or price adjustment will be allowed by the Department under any circumstances.**
26. The intending Bidders shall clearly understand that whatever may be the outcome of the present invitation of Bids, no cost of Bidding shall be reimbursable by the Department. The Superintending Engineer (A-M), Kolkata (A-M) Res. Circle, Kolkata reserves the right to reject any or all the offer or even cancel the tender if need arises without assigning any reason whatsoever and is not liable for any cost that might have incurred by any Bidder at any stage of Bidding.
27. In case if there is any objection regarding qualifying of the Agency in the Bid that should be lodged to the Superintending Engineer (A-M), Kolkata (A-M) Res. Circle, Kolkata within 2 working days from the date of publication of list of qualified Agency and beyond that time schedule no objection will be entertained. . In this regard the decision of the authority will be final and binding upon the tenderer and no communication will not be entertained whatsoever.
28. The tender inviting Authority can invite open / sealed BID after opening the financial BID to obtain suitable rate ( if required). All the Bidder/ Authorised representatives may be present at the time of opening of the Open BID/Sealed BID
29. The Tender notice along with the special terms and conditions to be issued with the Tender documents along with the addendum and corrigendum shall form part and parcel of the Tender.
30. An Affidavit as per given format in Annexure-IV in non-judicial stamp paper of Rs. 100/- duly certified by a Notary should be submitted by the tenderer that he is not barred/delisted/black listed by Govt./ Undertaking(Govt.) during last 5(five) years .
31. A declaration against common interest to be submitted as per Annexure-V. If any tenderer is found to defy the declaration as per the Annexure-V, the offers of common interest shall be rejected and may not be allowed in future tenders.
32. A declaration against bid rigging to be submitted as per Annexure-VI. If any tenderer is found to defy the declaration as per the Annexure-VI, the offers of bid rigging shall be rejected and may not be allowed in future tenders.
33. **If a PV System integrator (in form of Mfg-I) participates in the group, he should not authorize any other agency to participate in the said group. If however, both participate in the same group, the offer of the PV System integrator will only be evaluated and offer(s) of his Authorized Dealer / Authorized Distributor, if any, would be summarily treated as Disqualified / Non Responsive.**
34. **Quantity mentioned is indicative only. The Authority reserves the right to increase or decrease the quantity to the extent of (+/-) 10% as may be required within the rate validity period.**
35. If the date of opening of financial bid happens to be a holiday / disturbed by bandh call or otherwise, then the date of opening of bid shall be the next available official day.
36. The Specification for the works made of execution and measurement will be governed by the specification laid down in the tender and relevant provision of IS code & as per base practice according to the direction of Engineer-in-charge
37. **All bidder(s) outside the State of West Bengal must have Office in West Bengal with all registration for payment of taxes & duties of the state.**
38. Superintending Engineer (A-M) Kolkata (A-M) Resources Circle (1<sup>st</sup> floor), Salt Lake City, Mayukh Bhawan, Kolkata – 700 091 is Tender Inviting Authority .

## GENERAL TERMS AND CONDITIONS

### 1.0 Earnest Money

WBWRDD/SE (AM)/Res Circle /eNIT-1/2019-20

### 1.1 Forfeiture of Earnest Money Deposit.

Earnest Money deposit is liable for forfeiture in the event of: -

- a) Withdrawal of offers while offers are under consideration during the validity period.
- b) Non acceptance of Work Orders
- c) Non execution of Agreement in WBF 2911 within the stipulated time, after receiving the work Order.
- d) Any unilateral revision made by the Tenderer during the validity period of the offer.

### 1.2 Refund of Earnest Money deposit: See Earnest Money clause no-18C of NIT.

### 2. RESPONSIVE TENDERER:

Tender fulfilling all conditions and criteria set forth and qualifying in Technical Bid as well as making submission of Financial Bid in stipulated manners shall be considered as responsive

### 3. Conditions & Criteria for Qualifying In Technical Bid:-

(a) Qualification in Technical Bid will be evaluated from Tender documents submitted by the Bidder as stipulated later in Sub-clause A1 & A2 of Clause 4.2 of the Instruction to Bidders of the Tender Document.

(b) For qualifying in Technical Bid, the Tenderer while participating in any group, shall have to submit a minimum credential as stipulated above in the Clause no.-1 of this NIT.

(c). **Payment Certificate will not be considered as credential** as per notification no.03-A/PW/O/10C-02/14 dtd. 12.03.15. Completion Certificate should be obtained from not below the Rank of the Executive Engineer from any Govt, Semi- Govt, or Undertaking Authorities. **Payment certificate and Supply /work Orders should not be uploaded in the tender. In this regard the tender inviting authority may cancel the tender.**

### (d). Financial Capability for evaluating eligibility of Qualification of Tenderer

Following Documents in support of financial capability shall have to enclosed with the tender in the form of –

(i) Audited Balance Sheet showing Profit & Loss Account for the latest year.

(i) Bankers Certificate not older than 01.01.2018 should exclusively indicate the financial Soundness of Tenderer such as year of opening of account, credit worthiness, if any, in the form of over draft facilities enjoyed by the Tenderer.

### 4. Quoting of Rates for any Groups in the BOQ

a) **Tenderers shall have to quote the rate in percentage in the cell provided in the BoQ. L1 bidder shall be selected on the basis of the total amount reflected in BoQ as generated by e-tender website.**

Tenderer may quote Rate in any /all Sl. No. of the group, provided his credential and other conditions are fulfilled.

b) All Tender prices shall have to be quoted in BOQ inclusive of every demand for execution of the job **excluding GST and labour cess. GST@12% and Labour cess @ 1% shall be added** with the offered amount as generated in **BoQ1**.

The total value of work shall be as follows:

Total of BoQ1	=Rs.
Add 12% GST	=Rs. _____
Total	=Rs.
Add 1% Cess	=Rs. _____
Grand Total	=Rs. _____

However, The Superintending Engineer (A-M), Kolkata (A-M) Res. Circle, Kolkata reserves the right to reject any or all the offer if the rate arrived is not within the permissible limit without assigning any reason whatsoever.

c) The price should be firm, final, and irrevocable and not subject to any change whatsoever even due to increase in cost of material component, labour cost etc. and any change of statutory levies till the completion of the contract.

The intending bidders are required to quote and submit the Rates on-line only. **No off-line Tender will be entertained** and rate offered in any other form will lead to cancellation of the offer.

5. **Rate validity:** The rate should be valid up to 31.12.2019. **The rate should be valid for any location within the district mentioned in the tender.**

## **6 . EVALUATION OF TENDERS FOR ANY GROUP QUALIFYING IN TECHNICAL BID**

All Tenders will be evaluated and compared on the basis of non-statutory & statutory documents and other criteria as indicated in the tender document. Tender, which do not fulfill the conditions specified in the tender documents or do not fulfill the requirement of the tender in any respect will be liable for rejection.

## **7. EVALUATION OF TENDERS FOR ANY GROUP QUALIFYING IN FINANCIAL BID**

The BoQ1 will generate the LI bidder based on rate quoted by the tenderers. The Superintending Engineer (A-M), Kolkata (A-M) Res. Circle, Kolkata can invite open / sealed BID after opening the financial BID ,if the rate arrived is not within the permissible limit.

**Same rate quoted by the different tenderers against same items/ Group , may not be accepted.**

**8. The tender inviting authority has the right to revoke the tender evaluation process if any technical problems arises at any stage of evaluation process mentioned in clause -6 and 7.**

## **9. AWARD OF CONTRACT**

Award is to be made to the Tenderer whose responsive Bid is determined to be the Lowest Evaluated Tender.

The Authority reserves the right to accept or reject any or all the **Tenders** without showing any reason whatsoever.

The Authority also reserves the right to waive any minor deviation or omission.

## **10. Execution of agreement.**

Successful Tenderer shall have to execute **agreement in triplicate** in West Bengal Form No-2911 with the Tender Inviting Authority or with any **Executive Engineer in the Department of Water Resources Investigation and Development as will be indicated in the AOC/ Work order** within 15(fifteen) days from the date of issue of contract award. For purchase of agreement paper, tenderer has to make payment through online **GRIPS** portal. If the contractor fails to perform the formalities within the specified period, the tender will liable to be cancelled and earnest money will be forfeited. **Earnest Money** constituting 2% (inclusive of online token Earnest Money deposited with the tender) of the work order value has to be deposited as per existing rule at the time of execution of agreement. Earnest money will be converted to initial security deposit and balance amount to complete 10% will be deducted from bill.

## **11 INSPECTION**

The Engineer-In-Charge shall check the Contractor's work and notify the Contractor of any Defects that are found during execution of work. All related test reports shall have to be produced to Engineer - in- charge and installation shall start after satisfaction of EIC. In case of any materials found defective/in appropriate/seems to be degraded which is not confirming the specification, make as per the Tender documents, will be liable for 100% ( hundred percentage) replacement of the materials as per the schedule described in tender documents or even cancellation of the order. The replacement or withdrawal of the materials shall have to done immediately after found defective/degraded and charges of the replacement/withdrawn to be borne by the agency. The agency/supplier who supplied such materials intentionally and which didn't match the specifications/tender documents/ as per schedule may be terminated and may be debarred/blacklisted.

In this regard the decision of the authority will be final and binding upon the contractor/supplier and no communication will not be entertained whatsoever.

**12. Liquidated damages :** According to clause 2 & 3 of W.B.Form no.2911.

## **13. Time extension against the Force Majure**

Time extension may be granted against force majeure and other cases on submission of a written prayer/application to the Tender inviting authority.

## **14. Defaults**

If the Tenderer fails to execute the work within the time specified or any granted extension period, Tender Inviting Authority may by written notice to the Tenderer, terminate the right of the Tenderer to proceed with any or all the remaining part of the contract.

Such breach on the part of the Tenderer will result in the forfeiture of Tenderer's earnest money and in addition, the Tender Inviting Authority reserves the right to procure from other agency for the unexecuted work and also to recover any excess cost so involved from the Tenderer.

## **15. Payment of Bill**

**A. Tax invoice to be raised under the contract should show separately the tax charged in accordance with the provision of GST Act 2017.**

B. Payment will be made by the concerned Executive Engineers on completion of the job as per specification and to the satisfaction of Engineer-In-Charge.

C. Constructional Labour Welfare Cess @ 1 (one) % of cost of contract, Income Tax, GST & all other Statutory levy/ supplier in accordance with the relevant section of the prevailing rules security deposit, Comprehensive maintenance amount will be deducted from the bill of the selected agency.

**16. Release of security money for Performance:-**

Security for performance shall be released on fulfilment of conditions as laid down in warranty clauses with the written consent of the Tender Inviting Authority.

**17. Penalty for suppression/distortion of facts:-**

If any contractor/bidder fails to produce the original hard copies of the documents on demand by the Tender Inviting Authority within the specified time frame or if any deviation is detected in the hard copies from the corresponding uploaded soft copies or if there is any suppression /distortion /falsification noticed/detected/pointed out at any stage of the tender process till execution of works and if found guilty, the Tender Inviting Authority will immediately bring the matter to the notice of the Tender Committee who may recommend suitable punitive actions against the bidder. The contractor/bidder may be suspended from participating in all future tenders on any tender platform of WRDD on approval of the Tender Committee for a maximum period of 3 (three) years. In addition his/her EMD will stand forfeited by the Government. Even if the falsification/distortion is found during execution of work, the payment shall be stopped immediately and all materials shall be taken back. Payments made if any shall have to be returned to the Government account. Besides the WRI&DD department may also take appropriate legal actions including blacklisting of the defaulting contractor/bidder and debaring him/her from participating in any State Govt. tender for a period up to three years.

## **SPECIAL TERMS & CONDITIONS**

**1. OPERATION, MAINTAINANCE AND AFTER SALES SERVICE :**

Operation and Maintenance Manual, both in English and Bengali language, should be provided with each of the solar PV pumping system. The Manual should have information about solar energy, photovoltaic, modules, motor pump set, tracking system, mounting structures, electronics and switches. It should also have clear instructions about mounting of PV module, DO's and DONT's and on regular maintenance and Trouble Shooting of the pumping system. **Name and address of the person or Centre to be contacted** in case of failure or complaint should also be provided. A warranty card for the modules and controlling unit should also be provided to the beneficiary.

**2. Total comprehensive maintenance charge shall be withheld in addition to Security Deposit . Security Deposit will be released after expiry of warranty period of 1 year & Comprehensive maintenance charges will be released @ i) Rs 2.00 for 2 HP, ii) Rs.2.00 for 3 HP, iii) Rs.1.25 for 5 HP Submersible & Surface pump per Hp per year at the end of each maintenance period i.e.at the end of 2nd year, 3rd year, 4th year, 5th year. In case the "Bidder" does not provide service during the warranty & comprehensive maintenance period, the amount so held up will be forfeited**

However, **04(four nos)Bank Guarantee** of above amount valid for 2 years, 3 years, 4 years, and 5 years is also acceptable. In that case CMC charge withheld shall be released after submission of Bank Guarantee.

**Bank guarantee** against 10% Security Deposit of final bill is allowed and shall be accepted by the concerned executing Divisions. However, the B.G. shall be valid for a period of 1 year as per warranty clause of the tender.

Accordingly, the bidder shall have to quote rate inclusive of post-warranty CMC charge .

## **INSTRUCTION TO BIDDERS**

Instruction / Guidelines for tenders for electronics submission of the tenders online have been annexed for assisting the contractors to participate in e-tendering.

**1. Registration of contractor:**

Any contractor willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement system, through logging on to <https://www.wbtenders.gov.in>. The contractor is to click on the link for e-Tendering site as given on the web portal.

## 2. Digital Signature certificate (DSC):

Each contractor is required to obtain a Class –II or Class-III Digital Signature Certificate (DSC) for submission of tenders from the approved service provider of the National Information Centre (NIC) on payment of requisite amount details are available at the Web site stated in clause-I of Guideline to Bidder DSC is given as a USB e-Token.

## 3. Collection of Tender Documents:

The Contractor can search & download NIT & Tender Documents electronically from computer once he logs on the website mentioned in clause 1 using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

## 4. Submission Of Tenders:

### 4.1 General process of submission:

Tenders are to be submitted through online to the website stated above in two folders at a time for each work, one in **Technical Proposal** & the other is **Financial Proposal** before the prescribed date & time using the Digital Signature Certificate (DSC). The documents are to be uploaded virus scanned copy duly Digitally Signed. The documents will get encrypted (transformed into non readable formats)

### 4.2 Technical Proposal:

The Technical Proposal should contain scanned copies of the following further in two covers (folders)

#### A.1. Statutory Cover Containing. (to be submitted in “Technical folder ” folder)

- i) Prequalification Application.
- ii) Tender form no. 2911(ii) & NIT with all addendum & corrigendum (download & upload the same Digitally Signed) Quoting rate will only encrypted in the B.O.Q under Financial Bid in Case quoting any rate in 2911(ii) the tender liable to summarily rejected.
- iii) EMD as per clause no-15 as prescribed in the NIT, against each group of work.
- iv) Test certificate of complete PV water pumping system from MNRE accredited testing laboratory/ empanelled agency certification from MNRE (as applicable).
- v) Test certificate from MNRE approved lab. for PV module, Performance certificate of PV modules for last 3(three) years.
- vi) CE / IEC certification on 61683 , 60068-2 and safety compliance as per ISO 13849 / IEC 61508.
- vii) Warranty certificate from manufacturer for PV modules covering clause 16 of Technical Specification.
- viii) Schematic drawing of SPV array , PCU and motor along with voltage and current calculation mentioning make of SPV modules, PCU & motor.
- ix) Drawing of enclosure and IP 54 test certificate of enclosure.
- x) BIS licence of 2HP, 3HP and 5HP motor pump set (whichever is applicable).
- xi) Letter of Authority from the manufacturer / Distributers as per format furnished in Annex-MFG-I, II & III (whichever is applicable)
- xii) Copy of execution certificate in respect of satisfactory completion of work of Prescribed value as stated in clause 8 of NIT in the form of Completion Certificate .
- xiii) An affidavit as per Annexure- IV (Clause 34 of Bid Document) of satisfactory conduct , bid rigging and common interest on the part of the tenderer in dealing with Govt/Govt. Undertaking works.
- xiv) Documents details in Annexure-V
- xiv) Valid license of Electrical Supervisor
- xv) **Proven Track Record (PTR) towards performance in any project in India of previously 03 years with supporting documents mentioning address, e-mail id and contact no.**

#### A.2. Non Statutory / Technical Documents Cover Containing.

1. Copy of Trade License certificate of execution of works contract.

2. Copy of Registered Partnership deed or receipted application for registration of deed alongwith notarised partnership deed in case of Partnership Firm. / Memorandum of Association.(whichever is applicable)
3. Copy of GSTIN registration certificate
4. Copy of PAN & filed Last 3(three) Assesment Year (2017-18, 2016-17, 2015-16) I.T returns
5. Copy of Balance Sheet for last three years.(2017-18, 2016-17, 2015-16)
6. Copy of Bankers certificate.
7. Average Annual Turnover in any 3 years within last 5 years should be certified from any registered Chartered Firm.
8. Copy of Power of Attorney (For Partnership Firm/ Private Limited Company)
9. Copy of Registration Certificate under Company Act.(if applicable)
10. Professional tax deposit challan of 2019-20

**THE ABOVE STATED TECHNICAL DOCUMENTS SHALL BE UPLOADED on the website <http://wbtenders.gov.in> IN THE FOLLOWING MANNER.**

Scanned copies of above stated documents shall be uploaded on the website <http://wbtenders.gov.in> after converting the same to PDF in the following manner.

Sl No.	Category Name	Sub Category Description	Documents to be uploaded
A.	Certificate(s)	Certificate(s)	1) GSTIN with latest GST return. 2) PAN CARD with IT Return ( A.Y.2018-19,2017-2018, 2016-17 ) 3) P. Tax Deposit Receipt Challan (F.Y 2019-20 ). 4) Valid Electrical Supervisor licence with copy of agreement 5) BIS licence of manufacturer. 6) Declaration on satisfactory conduct, bid rigging and common interest.
B.	Company Detail(s)	Company Details	1) Trade License 2) Registered Partnership Deed or receipted application with notarised deed, Trade License for Partnership Firm 3) Incorporation Certificate, Memorandum of Association ,Trade License for Limited Company. 4) Society Registration Copy with bye laws , Trade License for Engineers Copt. Society. 5) Power of Attorney of the signatory of the Bid to commit the Bidder for partnership Firm / Limited Company
C	Credential	Credential-1	i) Completion Certificate as stated in clause 8 of this NIT with details of work, date of completion and executed amount against the work. In case the certificate is issued by any office under Water Resources Investigation & Development Department, Govt. Of West Bengal, then the contact no & email id of the office is not mandatory to be mentioned in the completion certificate. ii) Authentication Certificate of Manufacturer as stated in Clause 8 and 4.2 A.I of ITB.
D.	Financial Report	P/L & Balance Sheet	Audited Profit & Loss Statements and Balance Sheet for the last 3 years (2017-18, 2016-17, 2015-16)  1. Average Annual Turn over of any 3 years within last 5 years should be certified from any registered Chartered Firm.
E	Additional information		1.Bankers certificate. 2. Proven Track Record (PTR) towards performance in any project in India of previously 03 years with supporting documents mentioning address, e-mail id and contact no.

Note: Failure of submission of any of the

above mention documents will render the tender liable to summarily rejected for both statutory & non statutory cover.

**4.3 Financial Proposal :**

i) The financial proposal should contain the following documents in one cover (folder) i.e Bill of Quantities (BOQ) the contractor is to quote the rate (percentage above/below/at par) online through computer in the space marked for quoting rate in the BOQ.

ii) Only downloaded copies of the above documents are to be uploaded virus scanned & Digitally Signed by the contractor.

5. **Addenda/Corrigenda: If published.(name of the file should be “corrigendm.pdf”)**

Contractors are to keep track of all the Addendum/corrigendum issued with a particular tender and upload all the above digitally signed along with the NIT. Tenders submitted without the Addendum/ Corrigendum are liable to be treated as informal and thereby rejected.

6. **Site Inspection before submission of tender:**

Before submitting any tender, the intending tenders should make themselves acquainted thoroughly with the local conditions and take into consideration all factors and difficulties likely to be involved in the execution of work in all respect including transportation of materials, communication facilities, climate conditions nature of soil, availability of local labour and market rate prevailing in the locality etc. and no claim, whatsoever will be entertained on this account afterwards.

7. **Conditional and Incomplete Tender:**

Conditional and incomplete tenders are liable to summary rejection.

8. **Opening & Evaluation of a Tender:**

8.1 **Opening of Technical Proposal:-**

Technical proposals will be opened by the Superintending Engineer(A-M) , Kolkata (A-M) Resource Circle.

i) Intending tenderers may remain present if they so desire.

ii) Cover (folder) statutory documents would be open first & if found in order and correct , cover(Folder) for non statutory documents will be opened. If there is any deficiency in the statutory & non statutory documents the tender will summarily be rejected.

iii) Decrypted (transformed in to readable formats) documents of the non statutory cover will be downloaded & handed over to the tender evaluation committee.

iv) Uploading of summary list of technically qualified tenderers

N.B: While Evaluation, the committee may summon of the tenderers & seek clarification/ information or additional documents or original hard copy of any of the documents already submitted & if those are not produced within the stipulated time frame, their proposals will be liable for rejection.

8.2 **Uploading of summary list of technically qualified tenderers :-**

Pursuant to scrutiny and decision of the Tender Evaluation Authority (TEA) after Technical Bid Evaluation, the summary list of eligible bidders qualified through Technical Evaluation for a particular serial of work whose financial proposals will be considered, will be uploaded in the web portals.

While evaluation, the Authority may summon the bidders and seek clarification/ information or additional documents or original hardcopy of any of the documents already submitted and if this cannot produce within the stipulated time frame, their proposals will be liable for rejection.

8.3 **Opening and evaluation of Financial Proposal:-**

i) Financial proposals of tenderers declared technically eligible by the Tender evaluation Committee will be opened electronically from the web portal on the prescribed date and time.

ii) The encrypted copies will be decrypted and the rates will be read out to the contractors remaining present at that time.

9. **Special terms & conditions:**

Special Terms & Conditions of the bid are attached with this notice.

10 . **Acceptance of Tender:-**

Lowest valid rate should normally be accepted. However, the Tender Accepting Authority does not bind himself to do so and reserve the right to reject any or all the tenders, for valid reasons and also deserves the right to distribute the work amongst more than one tenderer.

The Bidder whose Bid has been accepted will be notified by the tender Inviting & Accepting Authority through acceptance letter/Letter of Acceptance. The letter of Acceptance will constitute the formation of the contract. The Agreement in W.B.F. No. 2911(ii) will incorporate all necessary documents e.g. N.I.T. all corrigendum, special terms & condition, specification of work, Drawings, different filled up forms, B.O.Q. and the same will be constituted between the Accepting Authority and the successful Bidder.

11. **Rejection of Bid:-**

The Employer (tender accepting authority) reserves the right to accept or reject any Bid to cancel the Bidding processes and reject all Bids at any time prior to the award of Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for Employer's (tender accepting authority) action.

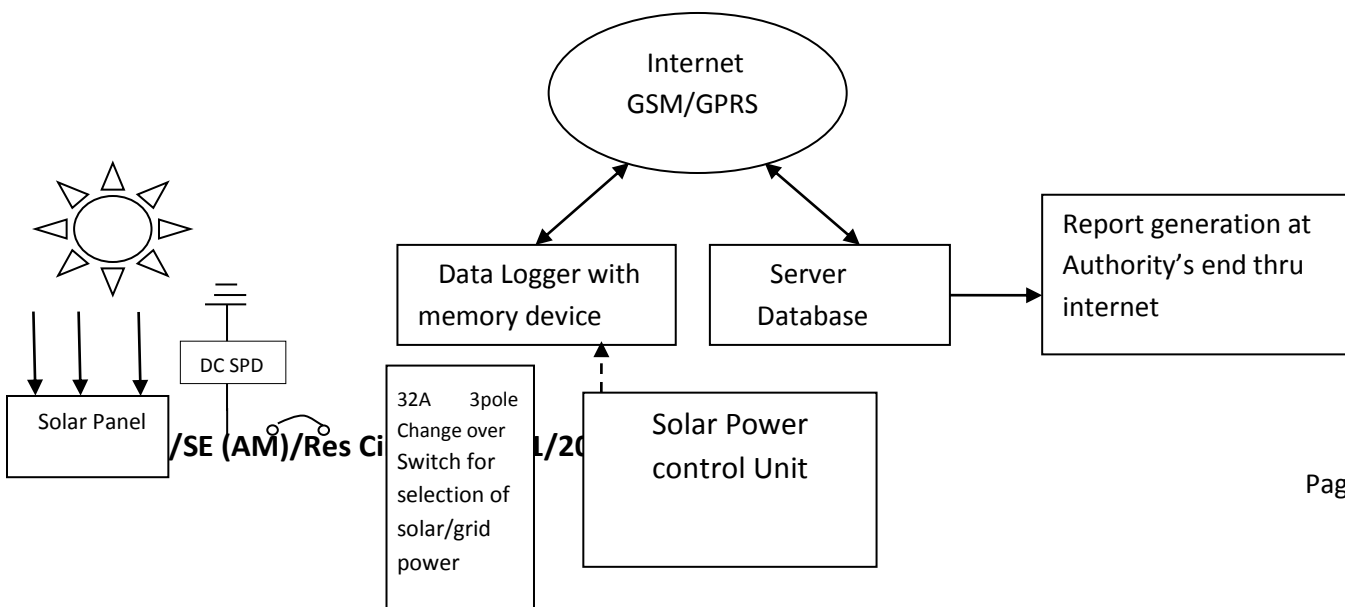
**TECHNICAL SPECIFICATION**

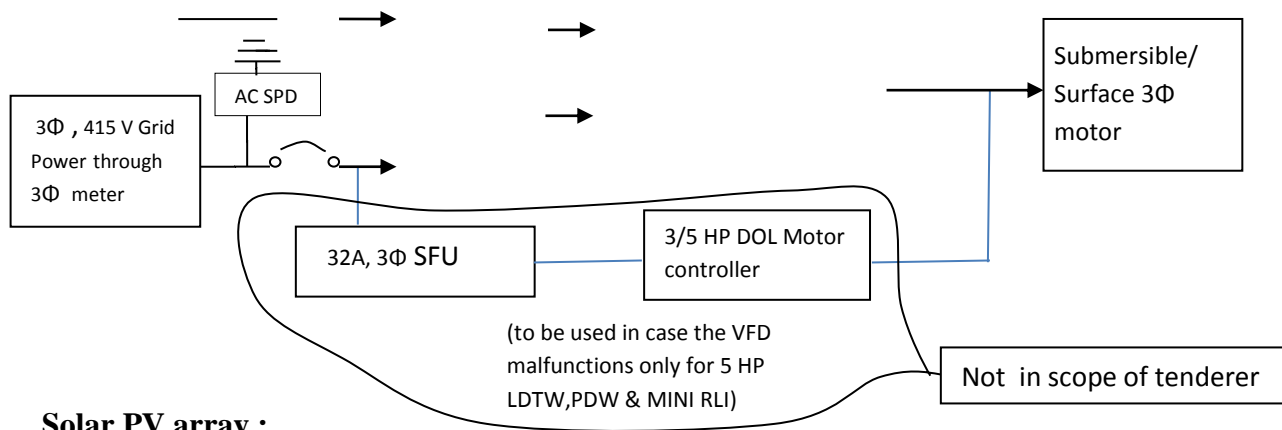
**SUPPLY INSTALLATION OF SOLAR IRRIGATION PUMPING SYSTEM USING DUAL-AXIS MANUAL TRACKING WITH SEASONAL TILTING SYSTEM INCLUDING SUPPLY OF ALL MATERIALS FOR COMMISIONING 2/3/5 HP SCHEME and COMPREHENSIVE MAINTENANCE FOR 5 YEARS.**

Broad objective of the project is supply water for irrigation through electrically operated Surface mounted / Submersible electromotor pump sets , which will be driven by solar power.

The data logger will store specified parameters and transfer them on-line to a central server and display through a web application. Remote monitoring through internet without any necessity to visit the site is an essential requirement.

For effective use of the solar panel, it is essential to tilt the system at an interval to maximize solar power availability.





## Solar PV array :

### 1.1 Technology

**Indigenously produced solar modules** in the PV array and the specification of the components should fulfill the followings and should also fulfill the specification as mentioned in the data sheet of solar module.

Cells	: Polycrystalline
Glazing	: Low-iron, high-transparency tempered glass (3.2mm thick) with an antireflection surface treatment
Back sheet	: Polyvinyl fluoride film (e.g. Tedlar)
Encapsulation	: Ethylene vinyl acetate glue laminate
Frame	: Natural 18 micron anodized aluminum alloy type 63400 WP or better.

### 1.2 Standards & Certifications:

- Modules supplied with the SPV water pumping systems should have certificate as per IEC 61215 specifications or equivalent National or International/ Standards.
- PV modules should be of **minimum 300 Watt peak** and must qualify from MNRE specified NABL accredited laboratory as per relevant IEC standard (enclose test reports/ certificate). Additionally the performance of PV modules at STC conditions may be tested at one of the IEC / NABL Accredited Testing Laboratories including Solar Energy Centre.
- PV modules to be used in a highly corrosive atmosphere (coastal areas, etc.) must qualify Salt Mist Corrosion Testing as per IEC 61701 / IS 61701.
- Modules must qualify to IEC 61730 Part I and II for safety qualification testing.
- The system shall have protections against lightning, hails and storms
- The terminal box on the module should be IP 65 protected have a provision for "Opening" for replacing the cable, if required.
- Proven Track Record (PTR) towards performance in any project in India of previously 03 years with supporting documents mentioning address, e-mail id and contact no.**

### 1.3 Capacity

Total rated power (peak) will be **5400- 5525 Wp(for 5HP) , 3200-3250 Wp(for 3 HP) and 2400Wp or nearest to 2400Wp(for 2HP)** measured under Standard Test Conditions (STC). PV modules with minimum capacity of 300 Wp for 2 HP and ,320/325Wp for 3HP & 5 HP will be suitably connected in series to achieve rated capacity.

### 1.4 Efficiency and Fill Factor

The PV modules will have a minimum efficiency of 15% and fill factor more than 70%

### 1.5 RFID Tag

Each PV module must use a RF identification tag (RFID), mandatorily placed inside the module laminate, which must contain the following information:

- Name of the manufacturer of PV Module
- Model No
- Serial No.
- Month and year of the manufacture (separately for solar cells and module)
- Country of origin (separately for solar cells and module)
- I-V curve for the module

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- g. Peak Wattage of the module Pm, Im, Vm and FF for the module
- h. Date and year of obtaining IEC PV module qualification certificate
- i. Name of the test lab issuing IEC certificate
- j. Other relevant information on traceability of solar cells and module as per ISO 9000 series.
- k. A distinctive serial number shall be engraved on the frame of the module or screen printed on the tedlar sheet of the module. Content of the RFID tag in printed form must be supplied as a part of documentation.

## 2.. Structure and Foundation:

Requisite number of module structures is to be constructed to provide total **5440/5525 Wp for 5HP , 3200/3250Wp for 3HP and 2400Wp for 2 HP** SPV modules being the most suited mounting structures to face the sun optimally and sufficient space for free human movement. The total area of module in each structure shall be limited to 16.5m<sup>2</sup>(max) for fixing 8 modules, 12.5m<sup>2</sup>(max) for fixing 6 nos. modules and 8.50m<sup>2</sup>(max) for fixing 4 nos. modules.

The no. of structures should be as follows:

For 2 HP – 1 no (2400Wp or nearest to 2400Wp SPV capacity having weight not less than 263kg for each structure)

For 3HP – 2 nos (1 no. structure of 1920/1950Wp SPV capacity having weight not less than 191 Kg and other structure of 1280/1300 Wp capacity having weight not less than 145 Kg)

For 5 HP- 3 nos. ( 2 no. structure of each 1920/1950 Wp SPV capacity having weight not less than 191 Kg for each structure and other of 1600/1625 Wp capacity having weight not less than 191 Kg.)

### 2.1 .Mounting structure

- a) Should be of sufficient strength to bear the load of modules.
- b) The support structure to hold the PV modules should be of **IS marked mild steel** sections and hot dip galvanized with minimum 80 micron thickness. Arrangements to be provided to measure **the zinc thickness** with **requisite measuring instrument**.
- c) Size of vertical post: 150mm (for 8 module structure)/150 mm (for 6 module structure)/125mm for 4 module structure) dia, heavy duty IS marked M.S pipe, Hot dip galvanized of minimum 80 micron thickness.
- d) All steel members of the structure including the pole, base plate, braces etc. should be hot dip galvanized with minimum 80 micron thickness.
- e) Anti-theft fasteners should be used for mounting as far as practicable considering maintenance viability of the structure.
- f) Since security of solar panels is a major concern it is required to design the pole and structure in such a way so that the chances of theft can be minimized.

### 2.2 Dual Axis Manual Tracking Structure

Suitable dual axis MANUAL tracking system to be incorporated by the bidder suitable for:

- Daily Tracking across **South-North Axis** (+45 to -45 Deg) **along with the Sun path**.
- Seasonal tilting across **East-West Axis** with for 12 month positions as per the latitude and longitude of that position.

Manual tracking and tilting operation will be done by the trained WUA.

### 2.3 Foundation and Structural Drawings

R.C.C foundation with vertical post erected & fitted with foundation as per drawing.

Structure for fitting –fixing of Solar panel will be designed by the successful Bidder considering 150 km /Hr wind speed with provision of dual axis manual tracking system.

### 3.0 Solar Power Conditioning unit(PCU) :

- a) Should be CE / IEC 60068 and IEC 61683 certified and documents to be uploaded in support of the same.
- b) Functional safety compliance as per ISO 13849 / IEC 61508 .
- c) Incomer: MCB as per IEC 60947-2 standards and 10kA short-circuit
- d) Built –in EMC filters .
- e) Maximum Power Point Tracker (MPPT) is to be provided for optimal use of the Solar panel. MPPT Range is 125V DC to 800V DC.(125 V DC to 550 V DC for 200 class and 400V DC to 800 V DC for 400 class)
- f) Detection of sudden changes of conditions.
- g) Selectable Stop Criteria (frequency and/ or power)
- h)** The system shall have protections against
  - i) Dry run of motor pump set
  - ii) Open circuit/ single phasing,

- iii) Over current,
  - iv) Accidental short circuit ,locked rotor condition.
  - v) Under and over voltage, frequency and
  - vi) Reverse polarity.
  - vii) Low power .
- i) Module has to be designed at 50 deg C ambient temperature and it should work upto 60 deg C. If not ,de-rating of VFD module must be considered to operate up to 50 deg C.
  - j) The Power Conditioning Unit should be mounted in IP 54 protected lock and Key enclosure .
  - k) System should be able to run at low sunshine and minimum of 7 to 8 hours a day run should be possible during normal sunshine.
  - l) Communicable over Modbus RS485 port connectivity for data logger.
  - m) External display & keyboard to be mounted in the internal door(for double door).
  - n) Complete solar pumping system test certificate along with the offered PCU from MNRE accredited test Laboratory

#### 4.0 Solar Lighting

The system shall have lighting arrangement in lighting pole with 11 watt LED lamp backed up with 12 V, 40Ah Sealed Maintenance Free (SMF) Solar Battery with 5 years warranty, 50 Wp solar panel to cover the scheme area.

#### 5.0 Motor pump set:

##### 5.1 Submersible Motor and Pump Set: (5 HP for LDTW schemes with 150mm housing Bore )

Wet type water filled totally enclosed water lubricated submersible pump set with following specifications:

Motor & Pump should be **ISI marked** as per relevant IS. (motor as per IS: 9283/1995 with latest amendments thereof and PUMP as per IS: 8034/2002 with latest amendments thereof or as applicable).

**Motor** : Submersible type **3 phase AC** Squirrel Cage Induction Motor of **5 HP** capacity.

##### **Pump**

Capacity: **27- 21 Cum./ hour** discharge at **30 - 40 m** total dynamic head.

- a. The pump enclosure should be provided with specially developed mechanical seals so as to ensure zero leakage.
- b. All parts of pump and motor should be made of stainless steel.
- c. The suction/delivery pipe (GI/HDPE-63 mm), electric cables (4 sq mm), civil work and other fittings required to install the system will be considered as part of the pump set.
- d. The following details should be marked indelibly on the motor pump set:
  - i. Name of the Manufacturer with Logo
  - ii. Model No.
  - iii. Serial No.
  - iv. Operating voltage, frequency, rpm and bhp.
  - v. Efficiency, total head, discharges at duty point.

#### 5.2 Monoblock Pump sets:

##### i) **5HP for PDW , Mini RLI and 8Ha Sprinkler Irrigation.**

The equipment shall be Electromotor monoset, horizontal, single stage centrifugal pump, conforming to IS:9079/2002(For Mono block) with latest amendments thereof and must have standard **BIS certification mark**. The Motor shall have a speed of 3000 r.p.m(synchronous speed). It should be screen protected drip proof, TEFC, Squirrel cage induction Motor with class 'F' insulation , suitable for Direct On Line starting in **3 phase 415V AC** power supply system. The required parameters for Electric monoset pump is as below:

- |                       |   |
|-----------------------|---|
| 1. Horse Power rating | : 5 HP  |
| 2. Discharge          | : 13.8lps at 18m for Mini RLI & PDW<br>5.80 lps at 35m for Sprinkler of 5 HP                  |
| 3. Delivery size      | : Compatible to be fitted with 65/80mm pipe for PDW, Sprinkler and 100mm for Mini RLI scheme. |

### 5.3 Mono block Pump sets:

- i) **3 HP for STW & PDW**
- ii) **2 HP for 1.75 and 3 Ha Sprinkler Irrigation**

The equipment shall be Electromotor monoset, horizontal, single stage centrifugal pump, conforming to IS:9079/2002(For Mono block) with latest amendments thereof and must have **standard BIS certification** mark. The Motor shall have a speed of 3000 r.p.m(synchronous speed). It should be screen protected drip proof, TEFC, Squirrel cage induction Motor with class 'F' insulation."

For matching requisite operative voltage of motor, voltage step up arrangement or any other alternative arrangement may be adopted if required for proper running of pump-motor set. The monoset pump shall have requisite test certificate from MNRE accredited test laboratory.The required parameters for Electric monoset pump is as below:

1. Horse Power rating :3 H.P and 2 HP
2. Discharge :7.14 lps at 16m for STW & PDW with 3 HP Pumpset.  
2.78 lps at 29m total head for sprinkler irrigation with 2 HP pumpset.
3. Delivery size :Compatible to be fitted with 65/80mm PVC pipe.

#### Daily minimum discharge requirement for different type of installations:

Type of structures	LDTW					STW	PDW	Mini RLI
Motor capacity	5 HP (Submersible)					3 HP (Monoblock)	5 HP (Monoblock)	5 HP x 2nos (Monoblock)
Total dynamic head	30m	22.5m	25m	35m	40m	16m	15m	18m
Minimum water output / Day	134000 LPD	179000 LPD	160000 LPD	115000 LPD	100000 LPD	1,50,000 LPD	3,00,000 LPD	4,50,000 LPD

#### Daily minimum discharge requirement for Sprinkler Irrigation:

Type of structure	Solar Powered Sprinkler Irrigation For- 8 Ha	Solar Powered Sprinkler Irrigation For- 1.75 Ha	Solar Powered Sprinkler Irrigation For- 3 Ha
Motor capacity	5HP (Monoblock)	2 HP (Monoblock)	2 HP (Monoblock)
Total dynamic head	35m	29m	29m
Minimum water output / Day	120000-125000 LPD	55000 LPD	55000 LPD
Operating pressure of sprinkler	1.4 /2.0 kg/cm <sup>2</sup>	1.4-2.0 kg/cm <sup>2</sup>	1.4-2.0 kg/cm <sup>2</sup>
Spray diameter	18m	18m	18m
No. of operating sprinkler at any point of time	20 nos	06 nos	10 nos

**on a clear sunny day under the "Average Daily Solar Radiation" condition of 5.00 KWh / sq.m. on the surface of PV array (i.e coplanar with the PV Modules).**

### 6 Data Logging with GSM/GPRS Communication

Data logging system has to be provided to acquire and store parameters at user-defined intervals. Remote Monitoring is to be provided through GSM/GPRS technology while it will send data periodically with a defined interval to central server.

## 6.1 System should be capable of displaying the following parameters

- a. Solar radiation
- b. Ambient temperature
- c. Module temperature
- d. DC input voltage (from solar panel)
- e. DC Output voltage, current
- f. Total Energy Consumed from Solar System
- g. Running hours of pump sets.
- h. Daily water output

## 6.2 Features:

- a. Power input: DC source.
- b. Should be windows plug and play device or Data can be transferred to an external pen-drive/memory device through a USB port.
- c. Non-volatile EEPROM internal memory that can store one month of data
- d. Display all the electrical parameter and store into a retentive internal memory also display and store the flow related data if the flow meter is connected with the data logger.
- e. The data needs to be stored at regular user defined interval and transmission using GSM/GPRS communication system.
- f. Monitoring of voltage level.
- g. Interfaces: The SDI(Serial Digital Interface)-12/ RS-485 / USB or standard available port.
- h. Withstand capacity: 50 Deg C
- i. Option for digital Input for authentication of the door opening for theft protection with battery backup at night.(optional)
- j. One additional relay output and analogue input should be provided.

## 6.3 Interface

All electronic field instruments should conform to interface standards e.g. SDI-12/ RS 485/ 4-20mA Current Loop, wherever applicable.

## 6.4. External Displays and Indicators

The system should have suitable digital touch panel / keypad display and lamp/LED indicators for the parameters in cl. 6.1 including LPD (calculated),irradiation(calculated), date and time.

It should be possible to view all the displays after opening first door of the enclosure.

## 6.5 Database and Application Environment

Latest version of ASP.net/ MSSQL or equivalent open source platform

Database will receive all the parameters from the Solar irrigation System with time stamp at user-defined interval.

During the warranty period, the bidder will maintain complete Database in their computer system and submit the data to the Authority at monthly interval. Format will be decided in consultation with Authority.

## 6.6 . Web Application, Security and report generation:

- a) The system will have provision to view key parameters at Authority's end through internet and display key parameters and generate reports.

The application will be hosted in the central server during the **Comprehensive maintenance period of 5 years.** Authorised users at Authority's end should be able to generate and print user-defined reports from the web site.

- b) The application should have multilevel security against unauthorised access. Part of the information will be in public domain and other parts will be accessible to authorised users only. Parameters , display format and report generation will be decided by the Authority in consultation with the bidder after finalisation of bid.

## 7.0 Casing and Enclosure Standard (IP) :

**IP54 Metallic Enclosure with test certificate from CPRI/ERDA/ MNRE accredited test house** (issued not more than 15(fifteen) years from the date of this NIT) to be installed at a suitable position on civil structure / Solar module structure.

- IP54 cable glands and louver filters with cover must be used

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- Canopy arrangement provided for protection from rain water
- **Double Door Arrangement**
  - Outside door with pad lock for **protected unauthorized access specially children.**
  - Inside door will have START/STOP switch **for operation** with external graphic display from variable speed solar drive and indication lamps.

**If Stainless Steel enclosure then it must be minimum SS 304 grade.**

**If Power coated, enclosure must have following Paint Process:**

Triple surface treatment painting on enclosure surface – pass salt spray test upto 760Hrs.

**1st Phase: Nano ceramic coating:** A pre-treatment procedure for spray coat-priming-the nano ceramic coating.

**2nd phase Electrophoretic dip coat-priming:** thickness approx. 20 µm

**3rd phase - Textured powder-coating:** thickness approx. 80 µm

**Note: Single door arrangement of above specification may be allowed for schemes with Pump Houses.**

## 8.0 Cabling

### 8.1 DC Cable

- Standard: UL-1581 (UV Rated).
- Working voltage: Up to 1100V.
- Temperature range: -15 Deg C to +70 Deg C.
- Outdoor Suitability: UV Resistant.

**8.2 AC Cable :**Power cables will be of one of the following specifications as applicable:

- PVC insulated (Heavy Duty) armored 3 core, 4 sq.mm. electric cable duly ISI marked as per IS- 1554(part-I) of 1988 with latest amendments.
- PVC insulated (Heavy Duty) 3 x 2 x 2.5 sq.mm. electric cable duly ISI marked as per IS- 694/1990 with latest amendments.
- PVC insulated (Heavy Duty) 3 x 1 x 1.5 sq.mm. electric cable duly ISI marked as per IS- 694/1990 with latest amendments.
- Electrical wire: 1.1 KV single core stranded FR PVC insulated & unsheathed single core stranded copper wire as per IS: 2551-1963 & IS: 9823-1978 / IS 694 / 1990; BS 2004 (1861)

**8.3 Electronic Signal Cable:** Cat 6 or better.

### 8.4 Cable Conduit

- All DC & AC cable must be laid underground through HDPE PLB cable conduit while goes from one stand to another stand
- This HDPE pipe must be PE63 grade
- Cable sealing plug must be used for cable entry and exit into the conduit
- In case of pipe joint, **pipe coupler** must be used
- Underground cable must be laid inside the ground at a trench depth of minimum 600mm

## 9.0 Surge Arrester :

- IEC 61643-1 Class-1 test and IEC 61643-11
- Recommended discharge current 40KA

## 10.0 Earthing: Installation of electrode and connection of grounding conductor

Earthing with 50 mm dia GI pipe 3.64 mm thick x 3.04 Mts. long and 1 x 4 SWG GI (Hot Dip) wire (4 Mts. long), 13 mm dia x 80 mm long GI bolts, double nuts, double washers incl. S & F 15 mm dia GI pipe protection (1 Mts. long) to be filled with bitumen partly under the ground level and partly above ground level driven to an average depth of 3.65 Mts. below the ground level.

The earthing installations shall generally conform to IS:3043/1966 and requirements of Indian Electricity Rules, 1956.

The electrode shall be buried in the ground vertically with its top not less than 200mm below the ground level. The pipe earth electrode shall be surrounded by, either salt & charcoal in alternate layers or a homogeneous mixture of the both, for a radius of about 150mm and up to a height of about 350mm below the top of the electrode. The balance portion of the excavated pit shall be filled with good quality soil and properly compacted.

The earthing lead connecting the earth electrode to the apparatus or installation directly shall be of the same material as earth electrode. The earthing leads shall be either wires or strips of adequate size as specified and of either G.I. or tinned copper. The G.I. leads shall be connected to the electrode by means of 16mm dia G.I. nut bolts with flat & spring washer.

The earthing lead from electrode onwards shall be suitably protected from mechanical injury by means of 15mm dia G.I. pipe for G.I. wires. The portion of this protection pipe within ground shall be buried at least 350 mm deep from ground level.

An earthing electrode shall not be situated within a distance of 2 meter from the building whose installation system is being earthed. The cross sectional area of earth continuity conductor in electrical installation shall be of 8swg GI wire. The earth resistance for various installations shall be within 5(five) ohm for installation capacity up to 5 KW and 1(one) ohm for installation of higher capacity.

All three-phase medium voltage equipment's shall be earthed by two separate and distinct connections with earth through earth electrodes. Single phase equipment's shall be earthed at least at one point. Pipe electrode earthing should be provided for the system.

### **Earth bus bar:**

Supplying and fixing earth bar of galvanized M.S. Flat 40 mm × 5 mm×250mm on wall having clearance of 25 mm. from wall including providing 10mm drilled holes (on busbar) about 30 mm. apart complete with G.I. bolts, nuts, washers etc. as required for tapping.

### **Testing of electrical installation.**

Before the completed installation is put into service, the following tests shall be carried out by the contractor in presence of the Engineer-in-Charge or his representative.

#### **a) Polarity of switches**

It must be ensured by test that all single pole switches have been fitted on the live side of the circuits they control.

#### **b) Insulation Test :**

i) By applying a 500 volt meter between earth and the whole system of conductors or any section thereof, with all fuses in place and all switches closed, all lamps in position or both poles of installation otherwise electrically connected together:- The result in mega ohm shall not be less than 50 divided by the number of points on the circuit, and should not be less than 1 mega ohm.

ii) Between all conductors connected to one phase and all such conductors connected to the neutral or to the other phase conductors of the supply after removing all metallic connections between the two poles of the installation and switching on all switches. The insulation resistance shall be as in (i) above.

#### **c) Earth continuity Test**

The earth continuity conductor including metal conduits, and metal sheaths of cables in all cases shall be tested for electrical continuity. Electrical resistance of the above along with the earthing lead , measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed 1 (one)ohm.

#### **d)Earth Resistance Test**

To ensure effectiveness of installation earth, the value of earth resistance shall be within 5(five) ohm for installation capacity up to 5 KW and 1(one) ohm for installation of higher capacity.

The completed work will be taken over only if the results obtained in above tests are within the limits mentioned above, and in accordance with I.E. Rules.

**11.0 Lightning Protection(pole mounted) :** The Bidder has to setup lightning protection system including lightning rod, ground rod and conductors to protect the entire system.

Lightning protection with 3" X 1.5" G.I pipe of 4 mts height with base flange in proper RCC foundation and S & F Lightning Conductor Air Terminal made of 20 mm dia 1000 mm long GI pipe (ISI Medium) having five discharge prongs of 4 SWG GI (Hot Dip) wire at top duly soldered with 7/16 stranded GI (Hot Dip) wire and 85 mm dia 6 mm thick GI base plate at bottom incl. necessary holes etc including supply & fixing GI (Hot Dip) strips 20 mm x 3 mm thick including Earthing with 65 mm dia GI pipe Medium)x 3.0 Mts. long and 1 x 19/10 stranded GI (Hot Dip) wire (4 Mts. long), 20 mm dia x 125 mm long galvanized bolt, double nuts, double washers including socketing at both ends of stranded GI (Hot Dip) wire by crimping sockets/ thimbles and S & F 65 mm dia GI pipe (ISI-Medium) protection (3 Mts. long) to be filled with bitumen partly under the ground level and partly above ground level to an average depth of 3.65 Mts.( One lightning protection has to be provided for each structure.)

### **12.0 License/Certification**

In case the equipment needs any special licence or certification (e.g. license for radio transmission in certain frequency bands), it will be the Bidder's responsibility to comply with the requirement.

**13. HDPE Pipes and fittings :** All materials should be BIS marked as per guidelines of **Pradhan Mantri Krishi Sinchai Yojana** and as per detail noted in BOQ.

## 14.0 Temporary Flooding

All the subsystems and wiring will be installed at a minimum height from ground to avoid damage due to temporary flooding and also convenient for human operation.

## 15.0 Documentation

Full documentation for installation, operation and maintenance of the system in both in English and Bengali language, should be provided with each of the solar PV pumping system. The Manual should have information about solar energy, photovoltaic, modules, motor pump set, tracking system, mounting structures, electronics and switches. It should also have clear instructions about mounting of PV module, DO's and DONT's and on regular maintenance and Trouble Shooting of the pumping system. Two hardcopies (in printed form) and two softcopies in separate media in CDROM/DVD of each manual will be a part of deliverables.

Manuals shall be for the system and each subsystem as detailed in the following sections.

Documentation shall include System Block Diagrams, Layout Diagrams, and Line Diagrams and Wiring Diagrams for external connections, Interface Specifications, Protocols supported and configuration procedures, as applicable.

Diagnostic Programs and Tools - Diagnostic Hardware and Software (including all necessary tools and tackles) required for maintenance shall have to be explained in detail in the documentation.

Installation manual of system and each subsystem supplied by the respective manufacturers (solar panel, pump, motor, data logger etc.) shall be a part of documentation. Installation procedure/guidelines recommended shall have to be followed during the installation process. **Name and address of the person or Centre to be contacted** in case of failure or complaint, should also be provided. A warranty card for the modules and controlling unit should also be provided to the beneficiary.

## 15.1 Training

Scope of work includes training the users on operation and maintenance of the system. Apart from departmental staff, the training should include the local WUA, who should be able to take care of minor day-to-day problems. They should also be able to report the problem properly to the appropriate authorities in proper format. Training plan indicating course outline, brief contents and schedules shall have to be submitted at time of execution of agreement.

Training will be repeated each year during the Warranty and CMC periods for refreshing the trained staff and training additional staff.

## 16.0 Warranty and Comprehensive Maintenance

All goods supplied for installation and commissioning of the project should be new, unused, and most recent or current models and incorporate all recent improvement in drawing and technical specification unless provided otherwise in the contract. The entire system will be covered under a warranty against all design and manufacturing defects for a period of 5 years.. The PV Modules must be warranted for 25 year for its output wattage. The bidder shall provide **warranty for 01 year and comprehensive maintenance** for four (4) years thereafter. However, the 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

The PCU should have free replacement warranty of 5(five) years. The warranty shall cover the following:

- a) Complaints about fault (s) received by courier , telephone, fax, email or SMS or whatever communication method shall be attended by the supplier within three (3) working days by site visit etc.
- b) Adequate stock of spare parts should be maintained so that unit becomes operational within maximum 3(three) days of complaint.
- c) Technical backup to the beneficiaries: They shall have to provide training to the beneficiaries regarding capacity building in all the aspects of the system like use and maintenance of PV modules and associated electrical controlling units for optimum output etc.
- d) Monthly checking up of the system as per requirement, for proper operation of the system.
- e) The scope of work includes repairing /replacement to make the system functional within comprehensive warranty period whenever a complaint is lodged by the user. The contractor shall attend the same within a reasonable period of time and in any case a breakdown shall be rectified within a period not exceeding 3(three)days.

Day-to-day operation will be done by the beneficiaries.

**17. Insurance :** Insurance coverage shall have to be provided to cover theft and natural calamity, and acceptance for **WBWRDD/SE (AM)/Res Circle /eNIT-1/2019-20**

replacement or repair of any part of the system due to damage or loss for a period of 5 years including warranty period of 1(one) year. The insurance is to be executed in the name of the bidder.

## 18. Performance Criteria

The following performance parameters must be strictly maintained.

- i) Average uptime – 99% computed over one year
  - ii) MTBF (Mean Time Between Failures) - 6 months
  - iii) MTTR (Maximum Time To Repair): 72 hours
- Down time will be computed on 24x7 basis from the time Authority communicates the problem to the bidder over telephone, SMS, email, courier, written report or any other mode of communication.

### Civil Construction and materials:

#### **CEMENT CONCRETE WORKS (PLAIN OR REINFORCED)**

**i) Shuttering and staging :** Wherever necessary, shuttering and staging must be provided. Unless otherwise stated, no payment will be made for such shuttering or staging and the cost thereof will be deemed to have been covered by the rate for relevant finished item of work. Where payment for shuttering has been specified, the rate shall be deemed to cover the cost of the necessary staging as well. Payment, if any, for shuttering will be on the basis of surface area of shuttering in actual contact with concrete.

ii) Shuttering may be of approved dressed timber true to line not less than 2.5 cm. thick., Surface to be in contact with concrete are to be planed smooth except where otherwise stated. As an alternative, sufficiently rigid steel shuttering may be used for which same rate of timber shuttering shall be allowed. In every case, joints of the shuttering are to be such as to prevent the loss of liquid from the concrete. In timber shuttering the joints shall therefore be either tongued and grooved or the joints must be perfectly closed and lined with craft paper or other types of approved materials. In case of steel shuttering also, the joints are to be similarly lined. All shuttering and framing must adequately be stayed and braced to the satisfaction of the Engineer for properly supporting the concrete during the period of hardening. It shall be so constructed that it may be removed without shock or vibration to the concrete.

iii) Before the concrete is placed, the shuttering shall, if considered necessary, be coated with an approved preparation for preventing the adhesion of the concrete of the finished concrete is not stained. Care shall also be taken that such approved preparation shall be kept out of contact with reinforcement.

In no circumstances, shall forms be struck until the concrete reaches strength of at least twice the stress of which the concrete may be subjected at the time of striking. Interior of all mould and boxes must be thoroughly washed out with a hose pipe or otherwise so as to be perfectly cleaned and free from all extraneous matter previous to the deposition of concrete. All form-work shall be removed without shock or vibration. Before the form work is stripped, the concrete surface shall be exposed where necessary in order to ascertain that the concrete has hardened sufficiently. In normal weather and with ordinary cement vertical or side shuttering may be removed after three days and the bottom shuttering of horizontal members after fourteen days in case of slabs and twenty-one days in case of beam and cantilevers etc. from the date of placing the last portion of the concrete in the structure. The above period are the minimum and may be extended if found necessary. Before stripping the shuttering of structural members, the contractor shall take previous permission of the Engineer or his representative.

#### **iv) Protection and curing :**

The contractor shall adequately protect freshly laid concrete, about 1 to 2 hours after its laying, from too rapid drying due to sunshine, drying winds etc. and also from running of surface water and shocks. After 24 hours of laying of concrete, the surface shall be cured by flooding with water of minimum 25 mm depth or by covering with wet absorbent materials. The curing shall be done for a minimum period of 10 days. Over

Foundation concrete masonry work may be started after 48 hours, but curing shall be continued for 10 days.

### **BRICK**

All bricks shall be of approved quality of standard specifications, made of good brick earth, uniform deep red, cherry or copper colour, thoroughly burnt in kiln (machine made) without being vitrified, regular in shape and size, sound, hard, homogeneous in texture, true to shape and of standard dimension and shall be free from cracks, chips flaws, stones or humps of any kind and shall not show appreciable signs of efflorescence either dry or subsequent to soaking in water. The size of bricks shall be 9¾" × 4¾" × 2¾" (conventional), 190 × 90 × 90 mm (modular). The Bricks shall emit a clear ringing sound on being struck and have minimum crushing strength of 105 kg./sq.cm. All the bricks which absorb water more than 20% of their own dry weight after 24 hours immersion in cold water shall be rejected.

### **COARSE AGGREGATE**

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Stone chips of stone ballast for cement concrete work (plain or reinforced shall be hard, of uniform and fine texture, free from faults or plane of weakness and free from weathered faces. The ballast or chip must be free from, loamy clay or any surface coating free from organic matter or other impurities and screened free of dust. Stone of black and hard variety as is generally available from quarries in Pakur areas will be normally used. Stone aggregates from other sources may also be used provided the same is found suitable in the opinion of the Engineer. The ballasts or chips shall be obtained by breaking from large blocks and must be more or less cubical in shape. Stone chips and Ballast should be graded in a way to give maximum density (i.e. minimum void.). All course aggregate for concrete work must be well graded. These shall be screened for removal of dust and if so necessary in the opinion of the Engineer shall be washed at the cost and expense of the contractor.

### **Sand**

All sand shall be clean, sharp and free from clay loam organic or any other foreign matter and shall be obtained from approved sources. The contractor shall get the samples of sand to be used in different kinds of work approved by the Engineer before using the same in work. Sand which in the opinion of the Engineer or his representative, is dirty, must be washed to his satisfaction at the cost and expense of the Contractor.

(i) Sand for all cement concrete works should be coarse (heavier). The sand shall pass through a mess of 5 mm. Square measured clear. Sand shall not be used for concrete work if it contains more than 10 per cent of fine grains passing a 76 mesh sieve as used for cement test nor should the fineness modulus be less than 2:00 unless specific permission is obtained from Engineer.

(ii) Medium coarse sand should be used for cement mortar for masonry, plaster etc.

(iii) Fine sand should be used for building plinth-filling and the like. In Malda District only BANSLOI sand should be used in all types of cement works. In Nadia and Murshidabad Districts, coarse sand from SAINTHIA only should used in structural concrete works.

### **Cement**

All cement used at site should conform to ISS 455 latest version. Cement bags must be stored in a water tight shed as approved by the Engineer. Any cement damaged by water or otherwise detected must be removed from site immediately.

### **Steel**

All steel shall be free from oil and loose rust. Any scale or loose rust shall be removed. ISI marked Tor Steel Rods of various dias: and categories for reinforced concrete works etc. should be used. The contractor must accept the actual weight as calculated on tolerance allowed for rolling or on theoretical weight on running metre basis allowed for a particular section of the bar as the case may be.

**Acceptance of Materials** : Materials shall be accepted at site on the basis of quality assurance certificates and physical verification at site by Departmental Officers.

### **Excavation of Foundation and Filling up Trenches :**

i) Foundation when excavated to the level shown in the drawing will be shown to the Engineer and if on account of bad ground or for any reason whatsoever he decides to go deeper with the foundation, the contractor shall excavate further to the depths required by the Engineer. In no case shall the foundation soling or concrete be laid prior to receiving orders to that effect from the Engineer or his authorized representative.

ii)Excavation shall include throwing the excavated earth at least one meter or half the depth of excavation, whichever is more, clear of the edge.

ii)The excavated areas around the foundation of structures are to be filled up properly to the required levels with earth obtained from excavation or other materials as directed, well rammed with water and consolidated in layers not exceeding 150 mm. at a time. The quantity for this item of work will be measured on the basis of quantity of excavation paid for less the volume occupied by the structure in foundation.

### **Installation of Buried Pipe Net Work : Earth Cutting for pipe trenches:**

(a) The position of spout outlets have to be fixed before starting of earth cutting.

(b) Large stones or rubble should be separated and removed from the excavated soil to prevent any damage to the completed pipeline.

(c) The bottom of trench should have uniform gradient throughout its length and it should be free from humps before pipe is laid. Fine earth or sand can be used to maintain required grade. Stones or other hard substances should be removed before pipe laying.

(d) Check the trench depth and gradient before pipe laying.

(e) Excavated materials should be deposited at a sufficient distance away from the trench to prevent damage to pipeline through falling stones and debris.

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**Stacking of HDPE Pipes:**

Pipes should be stacked on a surface flat and free from sharp objects, stones and projections in order to avoid deformation or damage. Ends of pipes should be protected from abrasion and chipping. The pipes should be supported evenly over their whole length. The bottom layer of the stack should be supported on wooden battens of uniform size, at least 50mm wide and placed not more than 2 m apart.

**TABLE 1  
TECHNICAL PARTICULARS**

(To be filled in by Bidders and submitted along with offer)  
(Additional sheet shall be used if required)

The following particulars are to be submitted by the Tenderer along with Technical Proposal. However, all particulars are subject to the approval of the EIC and no claim shall be accepted in the course of the approval process or thereafter.

Materials to be installed must be of same specification as declared here. (Type separate sheet in company letter hand).

SL. No.	Particulars	To be Filled By the Tenderer
<b>P.V. ARRAY</b>		
1.01	Peak capacity at STC : 5525 Wp,3250Wp,2400Wp	
1.02	Peak wattage of each module :	
1.03	Type of PV Module : Multi Crystalline Silicon Solar Cell Module	
1.04	Tested and certified by : Modules should be IEC 61215 & IEC 61730 Part-I & Part-II ,qualified , properly Laminated and hermetically sealed.	
1.05	Minimum efficiency of the P.V modules 15 %	
1.06	Fill Factor Not less than 70%	
1.07	<b>Name of the Manufacturer</b>	
1.08	Minimum power(watt peak) :	
1.09	Minimum Open Ckt Voltage, $V_{oc}$ :	
1.10	Minimum Short Ckt. Current, $I_{sc}$ :	
1.11	Module Dimensions L x W x H (mm)	
1.12	Weight(Kgs)	
1.13	Junction Box Protection : i) IP 65 rated ii) Each PV Module must use a RF Indicator Tag(RFID) with required information	
1.14	Warranty : i) Complete System should be warranted for 5 years. iii) SPV Module shall cover warranty of 10 years for 90% wattage output & warranty of 25 years for 80% wattage output.	
<b>2. Submersible /Surface mounted Motor-Pump Set</b>		
2.01	Capacity of motor : 5 H.P/3 HP / 2HP	
2.02	<b>Name of the Manufacturer</b>	
2.03	Name & address , of service centre	
2.04	Pump discharge with head :	
2.05	Submersible Pump motor set BIS licence no.(for 5HP)	
2.06	Surface Pump motor set BIS licence no. (for 5 HP)	
2.07	Maximum pumping head	
2.08	Pump type	
2.09	Motor Efficiency	
2.10	Rated rpm	
2.11	Rated voltage	
2.12	Rated Current	
2.13	Motor Winding	
2.14	PROTECTIONS	

	All protections as mentioned in Clause-5 of TSP :	
2.15	Submersible Pump internal parts :	
<b>3.00 .SPV Module Mounting Structure</b>		
3.1	<b>Name of Manufacturer :</b>	
4.00	<b>Make of Battery with 5 years warranty:</b>	
5.00	<b>Inverter Power Controlling Unit</b>	
5.01	Name of the Manufacturer	
5.02	Pump Controller rating :	
5.03	Manufacturer CE /IEC- IEC-61683 & 60068 Certificate No.	
5.04	Functional Safety compliance certificate	
5.05	Temperature withstand Capacity : Required 50 degree	
5.06	MPPT Range:	
5.07	Controller I/P VOC	
5.08	Controller I/P Vmin	
5.09	Controller I/P Current	
5.10	Controller O/P Current	
5.11	Controller I/P Power	
5.12	Enclosure IP protection reqd IP 54	
5.13	Operating Temperature reqd -20+60C	
5.14	Controller Efficiency reqd 96%	
5.15	Protection Provided as in Clause 3 of Technical Specification	
6.00	<b>Cables, Switches &amp; Accessories</b>	
6.01	<b>Name of AC cable manufacturer</b>	
6.02	<b>Name of DC cable manufacturer</b>	
6.03	AC cables ISI marked as per IS 694 and 1554	
6.04	DC Cables UV resistant as per standard UL 4703	
7.00	<b>Name of Changeover switch manufacturer</b>	
7.01	Complying as per Cl 3.4 of Tech. Spec.	
8.00	<b>Name of HDPE pipe manufacturer</b>	
8.01	Whether PE63 grade compound with silicon & double coated	
9.00	<b>Data Logger</b>	
9.01	<b>Name of manufacturer</b>	
9.02	Whether complying all requirements of Cl. No.6 to 6.6 of Tech. Spec.	
10.00	<b>Name of IP54 enclosure manufacturer</b>	
11.00	<b>Scheme drawing alongwith PV voltage and current calculation, wiring diagram of PCU &amp; PV array mentioning make of each and every component.</b>	

Note: Please provide data against the specified component, Do not mention “as per attached sheet” anywhere in the above data sheet.

Annexure-I

ON NON JUDICIAL STAMP PAPER OF ANY DENOMINATION  
ANNEXURE - **MFG-I (For complete Photo voltaic Water Pumping System )**

UNDERTAKING

WHEREAS M/s..... who is our authorized Dealers / Distributers have tendered to supply the **PV Water Pumping System** to WRIDD integrated by us, have requested us to guarantee the quality, quantity and delivery schedule of our manufactured materials to be supplied by the above Dealer/Distributor, we hereby guarantee as under:-

1. That we shall be responsible for the quality and standard of the materials supplied by the above authorized Dealers / Distributers in the same way as if it was supplied by us.
2. That the materials will bear I.E.C /C.E /I.S.I / MNRE accredited laboratory Certification Mark & our BRAND MARK (wherever applicable) according to the license issued to us vide No. .... dated...../...../20.....which is valid upto..... a photocopy of which will be supplied to the WRIDD.
3. That in case any material is found sub-standard or defective the same will be immediate replaced by the above selling authorized Dealers / Distributers failing which we undertake replace such materials free of cost.
4. That we guarantee to supply the quantity guaranteed by the above authorized Dealers / Distributers so that the WRIDD is able to get the required quantities according to the delivery schedule given by the WRIDD.
5. That the WRIDD will have the right of pre-delivery testing and inspection in our factory of the materials to be supplied through the authorized Dealers / Distributers in the same where as it was supplied by us.
6. The warrantee of our branded items shall be for a period of 5 years from the date of acceptance of the delivery by the consignee(s) of each item for any replacement free of cost to the Authority.

7. SPV Module shall cover warranty of 10 years for 90% wattage output & warranty of 25 years for 80% wattage output.(attach separate guarantee/ warranty declaration of PV module manufacturer).

8. That we have been permitted to issue authorization of PV module / Solar Power conditioning unit / Motor pump set by the manufacturer and a valid copy of permission is enclosed.

Group No:

SI No:

PV module make:

Solar controlling unit make:

Make of structure:

Make of motor:

Attach Copy of Dealer ship/ Distributorship / Channel Partner .

M/s.....

Manufacturer/ Authorized Dealers / Distributors/ Channel Partners

Mobile no-

Email-

GST No:

Annexure-II

ON NON JUDICIAL STAMP PAPER OF ANY DENOMINATION

**ANNEXURE - MFG-II (Solar Panels / Motor Pump Set / Solar Control unit / IP 54 ENCLOSURE/ HDPE pipe & fittings / Module Mounting Structure)**  
(For Manufacturer)

UNDERTAKING

WHEREAS M/s.....(bidder) who is our authorized Dealers / Distributors have tendered to supply the ..... ( material) manufactured by us to WRIDD have requested us to guarantee the quality, quantity and delivery schedule of our manufactured materials to be supplied by the above Dealer/Distributor, we hereby guarantee as under:-

1. That we shall be responsible for the quality and standard of the materials supplied by the above authorized Dealers / Distributors in the same way as if it was supplied by us.
2. That the materials will bear I.E.C /C.E /I.S.I / MNRE accredited laboratory Certification Mark & our BRAND MARK (wherever applicable) according to the license/certificate issued to us vide No. .... dated...../...../20.....which is valid upto..... a photocopy of which will be supplied to the WRIDD.
3. That in case any material is found sub-standard or defective the same will be immediate replaced by the above selling authorized Dealers / Distributors failing which we undertake replace such materials free of cost.
4. That we guarantee to supply the quantity guaranteed by the above authorized Dealers / Distributors so that the WRIDD is able to get the required quantities according to the delivery schedule given by the WRIDD.
5. That the WRIDD will have the right of pre-delivery testing and inspection in our factory of the materials to be supplied through the authorized Dealers / Distributors in the same where as it was supplied by us.

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6. The warrantee of our branded items shall be for a period of 5 years from the date of acceptance of the delivery by the consignee(s) of each item for any replacement free of cost to the buyer

\*7. SPV Module shall cover warranty of 10 years for 90% wattage output & warranty of 25 years for 80% wattage output.

Group No:

SI No:

PV module make:

Solar controlling unit make:

Make of structure:

Make of motor:

( Whichever is applicable)

M/s.....

Manufacturer

Mobile no-

GST no.-

Email

\*Only for SPV module

Annexure-III

ON NON JUDICIAL STAMP PAPER OF ANY DENOMINATION  
**MFG-III (Solar Panels / Motor Pump Set / Solar Control unit / HDPE pipe & fittings )**  
(For Dealers/ Distributers/ Channel Partners)  
UNDERTAKING

WHEREAS M/s.....(bidder) has tendered to supply the .....(material) to Water Resources Investigation and Development Department, GoWB, manufactured by .....(manufacturer) has requested us being the authorized Dealers / Distributers/ Channel Partner of the material to guarantee the quality, quantity and delivery schedule of the materials to be supplied by .....(bidder).

We hereby guarantee as under:-

1. That we shall be responsible for the quality and standard of the materials supplied by .....(bidder)in the same way as if it was supplied by us.
2. That the materials will bear CE /IEC/ I.S.I / MNRE accredited laboratory Certification Mark & the BRAND MARK (wherever applicable) according to the license issued to .....(manufacturer) vide No. .... dated...../...../20.....which is valid upto.....a photocopy of which will be provided to WRDD.
3. That in case any material is found sub-standard or defective the same will be immediate replaced by the above .....(bidder) failing which we undertake replace such materials free of cost.
4. That we guarantee to supply the quantity guaranteed by .....(bidder)so that the Water Resources Investigation and Development Department, GoWB is able to get the required quantities according to the delivery schedule given by the WRDD.

**WBWRDD/SE (AM)/Res Circle /eNIT-1/2019-20**

5. That the WRDD will have the right of pre-delivery testing and inspection of the materials to be supplied by.....(bidder) in the same where as it was supplied by us.

6. The warrantee of our branded items shall be for a period of 5 years from the date of commissioning of the system by .....(bidder) for any replacement free of cost to the buyer.

7. That we have been permitted to issue authorization of PV module / Solar Power conditioning unit / Motor pump set by the manufacturer and a valid copy of permission is enclosed.

\*8. . SPV Module shall cover warranty of 10 years for 90% wattage output & warranty of 25 years for 80% wattage output.(attach separate guarantee/ warranty declaration of PV module manufacturer)

Group No:

PV module make:

Sl. No:

Solar controlling unit make:

\*Only for SPV module

Make of motor:

Attach Copy of Dealer ship/ Distributorship / Channel Partner .

( Whichever is applicable)

M/s.....

Manufacturer/ Authorized Dealers / Distributers/ Channel Partners

Mobile no-

GST no.:-

Email-

ANNEXURE-IV

## **AFFIDAVIT ON NON JUDICIAL STAMP PAPER OF Rs. 100/-**

DECLARATION FOR NOT BARRED/DELISTED/BLACK LISTED

Declaration against Common Interest

Declaration regarding Bid-Rigging/malpractices

To  
The Superintending Engineer (A-M)  
Kolkata (A-M) Resources Circle  
Mayukh Bhavan, Salt Lake, Kolkata-700091

We M/S , \_\_\_\_\_(Address)

Do hereby submit undertakings

1. That We/M/S , \_\_\_\_\_ (Address) have not been Barred/Delisted/Black Listed by Union or State Governments/ Any Government Undertakings of this Country during last Five years for supply of the materials included in the Tender as referred above.
2. That we shall be responsible if any falsification is found in this statement during course of the supply by us, related to this Tender and the Authority will have the right to withdraw the supply Order of the said materials and cancel the agreements

3. That we shall intimate immediately if we are Barred/ Delisted/Black Listed within the period of supply of the said materials and the Authority will have the right to withdraw the supply order and cancel the Agreements.
4. I/We, Sri/Smt. \_\_\_\_\_, the authorized signatory on behalf of \_\_\_\_\_ do hereby affirm that I/We/any of the member of \_\_\_\_\_ bidding against e-NIT No. \_\_\_\_\_ do not have any common interest either as a partner or any Partnership Firm / Consortium as a Proprietor / Owner of any other firm in the same serial for the work I/We want to participate.
5. In response to the above referred Tender No. for supply of above materials with all requisite equipment as per technical specifications, I/We as a Proprietor/Director/Partner of .....(name of the bidder) hereinafter called 'the Bidder' do hereby affirm that I/We shall refrain from any form of Bid-Rigging as per provisions of the Competition Act, 2002 and shall be liable to pay penalties as mandated by laws, in case of such eventuality apart from such other actions as may be mandated.

Authorised Signatory  
(with Official Seal)

Tender Reference No.  
Group No:  
Sl. No

### **Annexure-V**

**Bidders are requested to provide the details of licence to be uploaded with tender in following format:-**

( FOR IS Materials)

Sl No	Description of Item/Component Part	Name of manufacturer	Licence No	Valid upto	Item no. of the Group	Group No

For NON IS Materials-

Sl No	Description of Item/Component Part	Name of manufacturer	Testing Authority	Test report no	Item no. of the Group	Group No

**Bidders are requested to provide the details of Earnest Money and Credential to be uploaded with tender in following format:-**

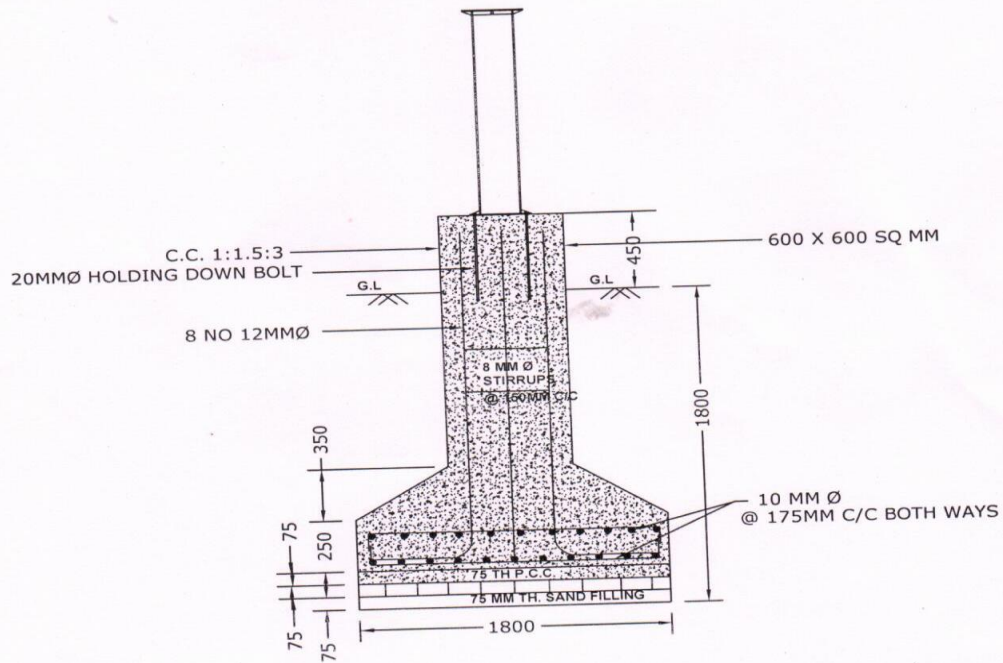
Sl No	Group no	Transaction ID of online EMD	Amount of EMD	Value of Credential uploaded	Average Annual Turn over of last 3 years

Signature of the Bidder with Seal  
(Please mention the name of partners if it a consortium)

Note- Add rows as required for furnishing the details.

**Drawings**

# TYPICAL FOUNDATION DETAILS FOR 8 SOLAR PV MODULE STRUCTURE (1800 X 1800 X 1800)

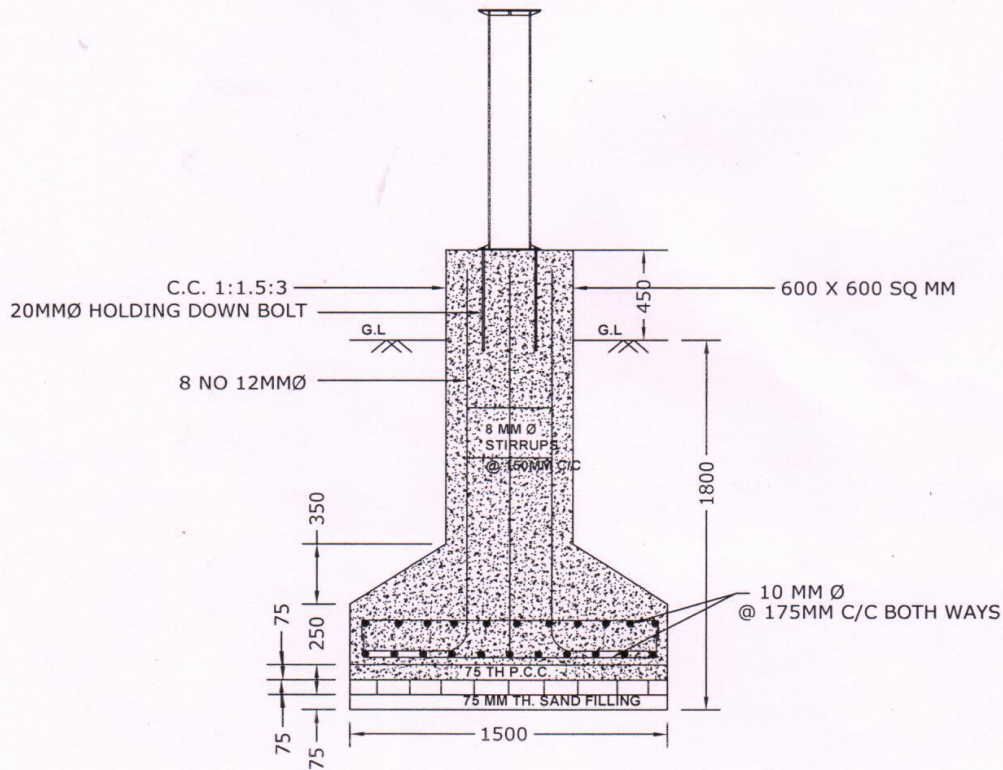


## NOTE:-

1. DRAWING IS FOR REFERENCE ONLY ACTUAL STRUCTURAL FOUNDATION DESIGN TO BE CORRELATED WITH THE SITE CONDITION AND APPROVED BY EIC BEFORE EXECUTION.
2. THE FOUNDATION IS FOR 8 SOLAR MODULE STRUCTURE.

ALL DIMENTION ARE IN MM

# TYPICAL FOUNDATION DETAILS FOR 6 SOLAR PV MODULE STRUCTURE (1500X 1500X 1800)

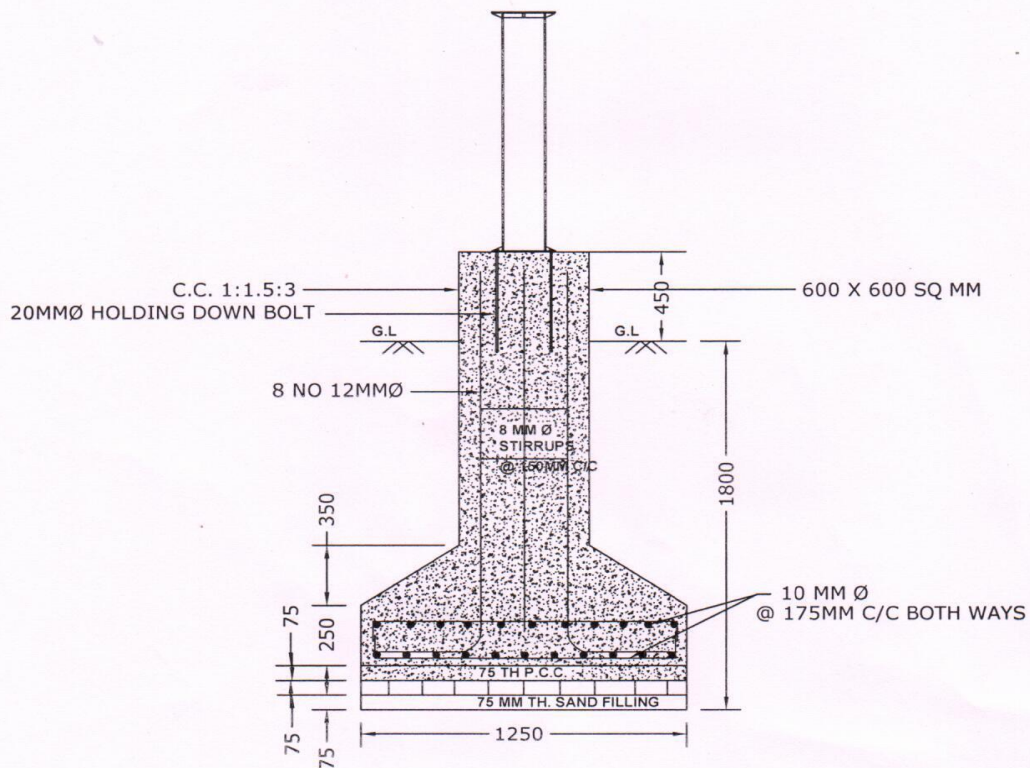


## NOTE:-

1. DRAWING IS FOR REFERENCE ONLY ACTUAL STRUCTURAL FOUNDATION DESIGN TO BE CORRELATED WITH THE SITE CONDITION AND APPROVED BY EIC BEFORE EXECUTION.
2. THE FOUNDATION IS FOR 6 SOLAR MODULE STRUCTURE.

ALL DIMENTION ARE IN MM

# TYPICAL FOUNDATION DETAILS FOR 4 SOLAR PV MODULE STRUCTURE (1250 X 1250 X 1800)



## NOTE:-

1. DRAWING IS FOR REFERENCE ONLY ACTUAL STRUCTURAL FOUNDATION DESIGN TO BE CORRELATED WITH THE SITE CONDITION AND APPROVED BY EIC BEFORE EXECUTION.
2. THE FOUNDATION IS FOR 4 SOLAR MODULE STRUCTURE.

ALL DIMENTION ARE IN MM

MMS Structure drawings are in drawing folder.

## PRE QUALIFICATION APPLICATION

To,  
The Superintending Engineer(A-M),  
Kolkata (Agri-Mechanical) Resources Circle  
Mayukh Bhawan,1st Floor, Salt lake,  
Kolkata-700091

Ref :-- e-Tender no. :  
Tender Id :  
Gr. No :

Dear Sir,

Having examined the statutory, Non statutory & NIT documents, I/we hereby submit all the necessary information and relevant documents for evaluation.

We are interested in bidding for the work(s) given in Enclosure to this letter.

We understand that,

Tender inviting & Accepting Authority/Engineer-in-charge can amend the scope & value of the contract bid under this project.

b) Tender inviting & Accepting Authority/Engineer-in-charge reserve the right to reject application without assigning any reason.

Address:

Name of the Bidder: -----  
(Please mention the name of partners if it a consortium)

Mobile No.: -----

E-mail address: -----

Office Address: -----

Encl: e-filling:-  
Statutory Documents.  
Non Statutory Documents.  
Financial Document.

Date:

Signature of applicant

**Ministry of New & Renewable Energy**

**National Solar Mission Division**

\*\*\*\*\*

**Solar Cells/Modules Manufacturing Capacities**

As per the National Solar Mission targets, indigenous manufacturing capacity to the tune of 4-5 GW is to be achieved by the year 2020 in India. As per the information available with MNRE till date, the installed capacity of Solar cells and Modules in the country is 1468 MW &

5648 MW respectively (details given below). All the Solar Manufacturers are requested to update the information regarding Installed & Operational Capacities as on date to the undersigned at Email: [nsm.mnre@gmail.com](mailto:nsm.mnre@gmail.com) , with a copy to [sk.gupta81@nic.in](mailto:sk.gupta81@nic.in) as early as possible and latest by 25.10.2016. If a manufacturer is left in the list, they may also provide the requisite information. This may be taken on priority.

**(Sunil Kumar Gupta)**

Scientist-‘D’ (NS)

<b>Solar Cells Capacities</b>			
<b>S.No.</b>	<b>Name of Company</b>	<b>Present Status Cell Capacity</b>	
		<b>As on 30-06-2016</b>	<b>As on 30-06-2016</b>
		<b>Installed (In MW)</b>	<b>Operational (In MW)</b>
1	BEL	10	5
2	Bharat Heavy Electricals Limited	10	10
3	Central Electronics Limited	10	0.05
4	Dev Solar	3	3
5	Euro Multivision Limited	50	50
6	Indosolar Ltd	250	200
7	Jupiter Solar Pvt. Ltd	280	280
8	Lanco Solar	0	0
9	Maharishi Solar Technology	10	0
10	Moser Baer Solar Limited	250	100
11	Mundra Solar PV Limited (Adani Group)	0	0
12	Premier Solar Systems Ltd	75	75
13	Solar Semiconductor (Renwsys India)	30	30
14	Surana Solar	120	100
15	Synergy Solar	0	0
16	Tata Power Solar Systems Limited	180	140
17	Udhaya Energy Photovoltaics Pvt Ltd	10	10
18	Waaree Energies Pvt Ltd	0	0
19	Websol Energy System Liited	120	120
20	XL Energy Ltd.	60	NA
		<b>1468</b>	<b>1123.0</b>

<b>Solar Module Capacities</b>			
<b>S.No.</b>	<b>Name of Company</b>	<b>Present Status Module Capacity</b>	
		<b>As on 30-06-2016</b>	<b>As on 30-06-2016</b>
		<b>Installed (In MW)</b>	<b>Operational (In MW)</b>
1	Access Solar Limited	18	NA
2	Agrawal Solar	40	NA
3	Ajit Solar Pvt LTd	35	20
4	Alpex Exports Pvt Ltd	200	150
5	AMV Energy Systems Private Limited	10	NA
6	Andromeda Energy Technologies Pvt Ltd	30	15
7	Andslite	20	0.75
8	Arion Solar	5	5
9	AVI	15	15
10	BEL	10	10

11	Bharat Heavy Electricals Limited	26	26
12	Blue Brid	20	20
13	Brawn Battery	25	NA
14	Central Electronics Limited	42	3.8
15	Deity Fuel PV	20	20
16	Dev Solar	3	3
17	Electrona/Zynergy	36	35
18	Emmvee Photovoltaics Pvt Ltd	175	175
19	Empire Photovoltaic	36	36
20	Enfield Solar	20	15
21	Enkay Solar	20	20
22	Evergreen Solar Systems	20	20
23	Gautam Solar Pvt Ltd	65	65
24	Genus Solar	20	10
25	Goldi Green Technoligies Pvt Ltd	125	125
26	Green Brilliance Energyy Pvt Ltd	50	50
27	Greentek	25	10
28	H. R. Solar Solution Pvt. Ltd.	15	10
29	HBL Power	20	NA
30	HHV Solar Tehnologies Pvt Ltd	100	90
31	Icon Solar Pvt.Ltd	50	24
32	Integrated solar	25	20
33	Jain Irrigation Systems Ltd	55	55
34	Jakson Solar	60	50
35	JP Solar	20	NA
36	Jyoti Solar	25	NA
37	Jyotitech Solar LLP	35	28
38	Karishma Solar	20	NA
39	Kohima Solar	55	20
40	Kotak Urja Pvt Ltd	75	36
41	Lanco Solar Pvt Ltd	175	175
42	Maharishi Solar Technology	15	4
43	Mas Solar	20	5
44	Microsol Power P Ltd.	60	15
45	Microsun solar	60	60
46	Modern Solar Pvt Ltd	40	32
47	Moser Baer Solar Limited	230	50
48	MX Power	10	10
49	Navitas Green Solutions Pvt. Ltd.	75	50
50	Neety Euro Asia Solar Energy	15	12
51	Novergy Energy Solutions P. Ltd.	45	45
52	Nucifera	15	15
53	Photon Energy Systems Ltd	50	50
54	Photonix Solar Pvt LTd	40	40

55	Plaza Solar	20	NA
56	Premier Solar Systems Ltd	100	100
57	Prosun	5	3
58	PV Power Technologies	50	50
59	Raajratan Ventures	30	30
60	Radiant Solar	80	30
61	Rahine Solar	40	20
62	Rajasthan Electronics & Instruments Limited	20	19
63	Reliance Industries Ltd - SOLAR	30	NA
64	Renwsys India	180	80
65	Ritika Systems Pvt Ltd	40	40
66	Rolta Power Pvt Ltd	60	50
67	Saatvik Green Energy	175	175
68	Savitri Solar	80	NA
69	Seemac Pvt. Ltd.	40	40
70	Shan Solar Pvt Limited	30	30
71	Shukra Solar	5	NA
72	SLG Solar System	8	NA
73	Solarmaxx	15	12
74	Solex	30	25
75	Sonali Energiees Pvt. Ltd.	100	100
76	Sova Power Limited	100	100
77	Stellar Solar	20	NA
78	Sun Solar Techno Limited	30	18
79	SunFuel	15	1
80	Sunshine Power	10	10
81	Surana Solar	120	120
82	Synergy Solar	50	50
83	Tata Power Solar Systems Limited	300	300
84	TITAN Energy Systems Ltd	100	100
85	Topsun Energy Limited	75	60
86	Udhaya Energy Photovoltaics Pvt Ltd	7	7
87	USL Photovoltaics Pvt Ltd	7	NA
88	Vikram Solar Pvt Ltd	500	400
89	Vinova Energy Systems Pvt.Ltd.	10	2
90	Vipul Solar	25	NA
91	VRV Solar	25	NA
92	Waaree Energies Pvt Ltd	500	500
93	Websol Energy System Liited	90	90
94	XL Energy Ltd.	210	NA
		<b>5848</b>	<b>4307.5</b>

\*NA- Information Not Available

S/d  
Superintending Engineer(AM)  
Kolkata(AM) Resources Division

Copy forwarded for information and necessary action to:

1. The Principle Secretary to the Govt. of West Bengal , Water Resources Investigation & Development Department, 11A Mirza Galib Street, Khadya Bhavan, Block-A, 5th Floor, Kolkata-700087.
2. The EIC & EOS, Govt. of West Bengal, WIRDD, 11A, Mirza Galib Street, B-Block, 6th floor, Kolkata-700087
3. The Chief Engineer-I/II, WRDD, 11A, Mirza Galib Street, B-Block, 6th floor, Kolkata-700087.
4. The Project Director, WBADMIP, WRIDD
5. The Director of Personnel & Ex-Officio Chief Engineer, WRDD, 11A, Mirza Galib Street, B-Block, 6th floor, Kolkata-700087.
6. The Additional Chief Engineer (R&D), WRDD, 11A, Mirza Galib Street, B-Block, 6th floor, Kolkata-700087.
7. The Director, State Water Investigation Directorate, Sech Bhavan, Salt Lake City, Kolkata-700091.
8. Financial Advisor, WIRDD, 11A, Mirza Galib Street, B-Block, 6th floor, Kolkata-700087
9. The Private Secretary to Hon'ble MIC, WRIDD,
- 9-17 The .Superintending Engineer (A-M) / (A-I), Siliguri /Berhampore/Burdwan/Midnapore/Raiganj/ Krishnagar/ Kolkata/ Bankura/ Investigation & Planning (A-M)/(A-I) Circle.
18. The Executive Engineer (A-M)/(A-I).....Division.
- 19 Notice Board of this office.
- 20 The Director of Information & Cultural Affairs, Nabanna, Howrah.—he is requested to publish the abridged e-NIT of 2018-19 of this office in One Bengali , One English and one Hindi Daily Newspaper at the earliest.

S/d  
Superintending Engineer (A-M)  
Kolkata (AM) Resources Circle