



Chhattisgarh State Renewable Energy Development Agency (CREDA)

(Dept. of Energy, Govt. of Chhattisgarh)

Near Energy Education Park, Village Fundhar
VIP (Air Port Road) Raipur 492015 (C.G.)
Ph.: 91-8370009931

E-mail: saursujla@gmail.com, Website: creda.co.in

TENDER DOCUMENT No. 2162/CREDA/SPV-PUMPS/SSY-V/2020 Dated: 10-06-2020

**FOR SURVEY, DESIGN, SUPPLY, INSTALLATION & COMMISSIONING OF
SOLAR PHOTO VOLTAIC IRRIGATION PUMPS OF CAPACITIES 03 HP & 5HP
AC & DC SURFACE AND SUBMERSIBLE WITH FIVE YEARS ON SITE
WARRANTEE, COMC & INSURANCE ANYWHERE IN THE STATE OF
CHHATTISGARH**

Particulars	From Date & Time	To Date & Time	Place
Date of issue of notice inviting bid	10-06-2020 05:00 pm	----	----
Period of availability of bidding document at website	10-06-2020 05:00 pm	08-07-2020 05:00 pm	http://www.creda.co.in
Pre Bid Meeting & submission of queries in writing	22-06-2020 10:00 am	22-06-2020 05:00 pm	At Mega Watt Plant, Conference Hall, Atal Nagar, Nava Raipur
Inspection of Materials by Tender Committee as per Valid Test Report and Submission of Summary of Test Report and M.A.F.	08-07-2020 10:00 am	08-07-2020 05:00 pm	At Ground Near H.O. CREDA, VIP Road, Raipur
Submission of Technical Bid	10-07-2020 10:00 am	17-07-2020 05:00 pm	At H.O. CREDA, RE-IV, Section.
Submission of e-Price Bid-I & II	10-07-2020 10:00 am	17-07-2020 05:00 pm	http://www.cspc.co.in
Opening of Technical Bid	21-07-2020 10:00 am	22-07-2020 05:00 pm	At Mega Watt Plant, Conference Hall, Atal Nagar, Nava Raipur
Declaration of Eligible Tenderer	24-07-2020 05:00 pm	----	At H.O. CREDA, RE-IV, Section.
Opening of e- Price Bid	25-07-2020 10:00 am	25-07-2020 05:00 pm	At Mega Watt Plant, Conference Hall, Atal Nagar, Nava Raipur.

Tender Document Cost– Rs.20,000.00 + 18% GST = Rs.23,600.00

(in words Rupees Twenty Three Thousand Six Hundred Only)

Document can also be downloaded from our website www.creda.co.in with the cost of tender as mentioned in NIT, which shall have to be deposited along with the tender document.

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NOTICE INVITING TENDER

CREDA invites sealed tenders for Survey, design, supply, installation, and commissioning of Solar Photovoltaic Irrigation pumps with five years COMC, onsite warrantee, Insurance for anywhere in the State of Chhattisgarh from registered company with manufacturing facility in India and System integrators for SPV Module/Pump set/Controller with 3 years track record in off-grid SPV systems, as per following details -

Sl.No.	Item Description	Approximate Quantity	Cost of Tender Document	EMD	Essentials
1.	SPV Pumps 3 HP(AC/DC Submersible/ Surface)	12,200	Rs 20,000.00 +18% GST = Rs.23,600.00	Rs.15,00,000.00	As per clause no. 1A to 1F of Eligibility Criteria (Page no.8-9)
2.	SPV Pumps 5 HP(AC/DC Submersible/Surface)	7,800			
TOTAL		20,000	23,600.00	15,00,000.00	----

The quantity of pumps mentioned in above table may vary as per actual site conditions and demand.

Important Events and time schedule for this tender are as follows -

Particulars	From Date & Time	To Date & Time	Place
Date of issue of notice inviting bid	10-06-2020 05:00 pm	----	----
Period of availability of bidding document at website	10-06-2020 05:00 pm	08-07-2020 05:00 pm	http://www.creda.co.in
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Declaration of Eligible Tenderer	24-07-2020 05:00 pm	----	At H.O. CREDA, RE-IV, Section.
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Price Bid shall be submitted online only at <http://www.cspc.co.in>, however Technical bid will have to be submitted in hard copy at Chief Engineer (RE – IV) Section, Near Energy Education Park VIP Road, Raipur. Bidders are advised to follow the instructions provided for Registration and e-Submission Process accordingly. (for any query about e-bidding please visit user manual at <http://www.cspc.co.in>.)

Demonstration of Models and Standard Materials required as per this tender specification will be shown on **22-06-2020** at At Mega Watt Plant, Conference Hall, Atal Nagar, Nava Raipur.

Details of this tender are mentioned at Tender Documents which can be downloaded from our website www.creda.co.in. The tenderer should have to deposit tender document cost along with EMD as mentioned above through demand draft payable to CREDA Raipur while submitting tender.

Tenderers are requested to attend Pre-Bid meeting with their suggestions/objections/reservations if any with details so as to avoid any confusion and to ensure clarity and transparency regarding the tender.

CREDA reserves all rights to accept/reject any or all tenders in full/part without assigning any reasons.

**Chief Engineer
RE-IV, H.O. CREDA
Raipur (CG)**

CHECK LIST

To ensure that your tender submitted to CREDA is complete in all respects, please go through the following checklist & tick mark for the enclosures attached with your tender -

Sl. No.	Description	Complied	Page No. / Flag
1.	Earnest Money Deposit		
2.	Tender Document Fee (proof of submission)		
3.	The original document duly signed & with stamp on each page, as a confirmation of acceptance of Terms & Conditions (T&C).		
4.	Copy of Registration: Certificate as System Integrator of CREDA in SPV Programme valid for FY 2020-21.		
5.	Copy of Approved Test Reports/Acknowledgement of SPV Pump in the name of Bidder.		
6.	Original Net Worth Certificate and Turnover Certificate duly signed by Chartered Accountant		
7.	Completion and Performance Certificates of SPV Pumps installed Off Grid by the Bidder in Govt Scheme of any state or Market Mode Scheme of CREDA.		
8.	Proof of being Eligible Manufacturer of Modules/ Pumps/VFD/ SPV Pump/Structure of SPV Pump.		
9.	Copy of certificate for last three years turnover of works done regarding SPV Projects.		
10.	Declaration of conflict of interest - by bidder about any relatives working with CREDA.		
11.	Manufacture Authorization certificates of major components of solar pumping system.		
12.	Forwarding Letter & Undertaking by the Tenderer		
13.	PAN, GSTIN, Tax clearance certificate of the Tenderer		
14.	Undertaking on indigenusness of components		
15.	Self-certificate from Tenderer on not being a debarred from Government contract or a blacklisted company.		
16.	Undertaking for the remaining test reports (for which acknowledgements have been submitted) submission within 90 days from the date of agreement.		
17.	Original copy of agreement in case of consortium bidders		

Details of EMD and Tender fee attached

Sl. No.	Description
1.	Earnest Money Deposit - Earnest Money Deposit of Rs. Fifteen Lakhs, submitted in the form of Demand Draft / Banker's Cheque from any scheduled bank drawn on _____ Bank _____ Branch, bearing DD/BC No. _____ dated _____ is attached herewith.
2.	Tender Document Fee - Tender Document Fee of Rs. Twenty Three Thousand Six Hundred , submitted in the form of Demand Draft / Banker's Cheque from any scheduled bank drawn on _____ Bank _____ Branch, bearing DD/BC No. _____ dated _____ is attached herewith.

(Sign & Seal of the Manufacturer)

Details of Bank Account for RTGS/ NEFT:

Name	CREDA
Bank & Branch Name	ICICI Bank, Panchpedi Naka, Raipur
Bank Account Number	134601000400
Branch IFSC Code	ICIC0001346

UNDERTAKING OF THE TENDERER

I/We have read carefully and examined the notice inviting tender, schedule, General Rules and terms and conditions of the contract, special conditions, Schedule of Rates and other documents and Rules referred to in the tender document for the supply.

I/We hereby tender my rates for the execution of the work for CREDA as specified within the time stipulated in the schedule in accordance with all aspects with the specifications, designs, drawings and instructions with such conditions so far as applicable.

I/We agree to keep the tender valid for **One Hundred Eighty (180) days** from the due date of submission thereof and not to make any modifications in its terms and conditions.

A sum of **Rs. Fifteen Lakhs** is hereby forwarded as **Earnest Money** in the form of crossed demand draft / RTGS / NEFT payable to CREDA at Raipur (C.G.). If I/We, fail to commence or complete the sanction ordered in specified time or fail to fulfil the any condition of tender document, I/We agree that the CREDA shall, without prejudice to any other right or remedy, be at liberty to forfeit the said Earnest Money absolutely. The said Earnest Money shall be retained by CREDA towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be required by CREDA.

I/We hereby declare that I/We shall treat the tender documents, specifications and other records connected with the work as secret/confidential and shall not communicate information derived there from to any person other than a person to whom I/We have authorized to communicate the same or use the information in any manner prejudicial to the safety of CREDA/Government.

I/We shall abide to all the laws and shall be responsible for making payments of all the taxes, duties, levies and other Govt. dues etc. to the appropriate Govt. departments.

Our GST Registration No._____. The PAN No. under the Income Tax Act is _____.

I/We shall be responsible for the payment of the respective taxes to the appropriate authorities and should I/we fail to do so, I/we hereby authorize CREDA to recover the taxes due from us and deposit the same with the appropriate authorities on their demand.

Dated:

Signature

Place:

Name of tenderer with seal.....

Witness:

Signature:

Name:

Postal Address:

.....

SECTION - 1

INSTRUCTIONS FOR TENDERERS

1. ELIGIBILITY CRITERIA :

- A.** Tenderers of Chhattisgarh should have minimum direct experience of Supply and Installation of **100 Nos.** and that of other state should have minimum direct experience of supply and installation of **200 Nos.** of SPV Pumps under a Govt. Scheme of any state or Market Mode Scheme of CREDA for last three financial years i.e. 2017-18, 2018-19, 2019-20 & 2020-21 till 30.06.2020. Satisfactory commissioning/functioning report containing complete system details from the concerned state/central agencies department shall be provided along with bid document. All these SPV pumping system should in successful operation as on date. (Experience in terms of works done for other private / non Govt. companies/ firms etc. shall not be considered). **Tenderer registered as a Pvt. Ltd. / Ltd. / Partnership / Proprietorship firm incorporated / registered in the State of Chhattisgarh shall be treated as Tenderer of Chhattisgarh.**
- B.** Experience Certificates submitted should be in attached format (as per annexure-VI) **or other Format containing similar information as in attached format (annexure-VI) shall be considered only in-case of submitted in Hindi / English Language only.** Work order, L.O.I. / L.O.A etc., will not be acceptable.
- C.** Tenderers must have a Positive Net worth of **Rs.50 Lacs as on 31st March 2019 (which is defined as “Net value of the Assets minus (-) Net value of liabilities”)**. They shall have to submit a **Original Certificate** duly signed by a qualified and registered Chartered Accountant having UDI number as a proof. Produced certificate must tally with the audited balance sheet.
- D.** Tenderers should have an aggregate turnover of minimum **5 crores** in last three years i.e. 2016-17, 2017-18 & 2018-19 in SPV Projects. Certified copies of the annual returns and audited balance sheet submitted to the Registrar of Companies/ Income Tax Authorities should be enclosed. For the preceding years a **Original Summarised Sheet** of turnover certified by registered CA must be enclosed.
- E.** Tenderer must have valid test report of any **2 categories** for 3HP & 5HP Submersible or Surface, AC or DC Solar pumping systems separately in their names for which tenderer must make offer for installation. They will have to provide copy of such test report of their SPV Pumps from Solar Energy Test Centre or any other test centre approved by Ministry of New & Renewable Energy (MNRE)/ NABL. **Tenderer will be debarred from price bidding for all other categories for which they have not submitted valid test report / acknowledgement.**

Bidders may submit Acknowledgement of submission of materials along with make, capacity & numbers of Solar Module, Controller & AC / DC Surface / Submersible Pumps, **fee receipt from MNRE/NABL approved test centers** for offered pumps for testing (**in case they don't have approved test certificates of offered pumps at the time of bid**). Bidders shall be required to submit the approved test certificates before raising claim for payment else payment shall not be made to them.

Bidders shall have to submit the Test certificate against Acknowledgement within 90 days of execution of agreement otherwise EMD may be forfeited and bidder may be blacklisted / debarred by CREDA. However this time limit may be further extended / reduced by CREDA if required.

Bidder should have test certificate for the offered pumps valid at the time of opening of the bid as per specifications mentioned in this Tender document and guidelines issued by **MNRE vide letter no.41/3/2018-SPV Division dated:17th July 2019**. Tenderer who are debarred from business by Govt. /Govt. Agency in any state would not be eligible to participate in this bid. A self-declaration should be submitted by the bidder to this effect, failing which bid shall be rejected.

F. Tenderer who are debarred from business by Govt. /Govt. Agency in any state would not be eligible to participate in this bid. A self-declaration should be submitted by the bidder to this effect, failing which bid shall be rejected.

2. **CONSORTIUM** - Consortium will be allowed in this Tender up to 2 partners subject to fulfilling following criteria -

- (i) Both the partners should jointly fulfil eligibility criteria as per clause 1A,1B, 1D and 1E.
- (ii) The lead partner should fulfil criteria as per clause 1C individually and other partner should have Positive Net worth as on 31st March 2019. For Positive Net worth of other partner Audited balance sheet must be enclosed.
- (iii) Both the partners should individually fulfil criteria of 1F.
- (iv) If either partner submits any alternate / individual bid then both bids (individual & consortium) shall be rejected.
- (v) The Consortium agreement notarized in Non Judicial stamp paper of Rs. 100 as per draft given in annexure-"III" must be submitted along with the bid documents.
- (vi) In Consortium if one or both the partners are from Chhattisgarh then they should have minimum experience of 100 pumps and if both the partners are from outside the state then they should have minimum experience of 200 pumps.

3. **START-UP AND NEW ENTREPRENEUR -**

- A. CREDA may consider awarding work of installation up to **25 pumps** on **L-1** price to Start-up & New Entrepreneur.
- B. **START-UP-** CREDA may consider Start-up Company registered only in area of Solar PV modules/Motor-pump Sets/Solar Motor Pump Controller/Solar Pump inverters and PV System integrator, if it produces certificate of being a Start-up entities as issued by Government of India.
- C. **NEW ENTREPRENEUR-** (New Entrepreneur means System Integrator who doesn't fulfil the eligibility criteria as per clause 1A to 1E). CREDA shall consider Companies/Proprietorship firm/Partnership firm as NEW ENTREPRENEUR which are registered in CREDA as "Class A".
- D. EMD of **Rs. 2 Lacs** in form of D.D.
- E. Start-up & New Entrepreneur tenderer must have valid test report or acknowledgement of at least 01 category for 03 or 05 HP Submersible/Surface, AC/DC Solar Pumping Systems in their names. They will have to provide copy of such Test reports or Acknowledgement of their SPV Pumps from Solar Energy Test Centre or any other test centre approved by Ministry of New and Renewable Energy (MNRE) or NABL.
- F. Start -up & New Entrepreneur are not allowed to Quote Prices.
- G. Maximum **5%** of the total work may be reserved for start-up and new entrepreneur.

4. **BIDDING PROCESS -**

For ease of accessing the e-bidding website and registration the following is to be done by bidder -

- A. Visit <http://www.cspc.co.in>
- B. Click on e-bidding button on right hand side of the page.
- C. The user will be directed to e-bidding page where all information regarding registration is available along with helpline details.
- D. Price Bid shall be submitted online only at <http://www.cspc.co.in> however technical bid will have to be submitted in hard copy.
Bid Documents (including Technical Bid and samples) must reach at Chief Engineer (RE-IV) Section, Near Energy Education Park VIP Road, Raipur latest by **05.00 PM on 21.07.2020**. Tenders submitted after scheduled time and date shall not be considered.

5. EMD -

Earnest Money Deposit of Rs. Fifteen Lakhs & Two Lakhs for Start-up and New entrepreneur submitted in the form of Demand Draft/Pay Order or RTGS/NEFT as mentioned in the NIT vide no 2162/CREDA/SPV-PUMPS/SSY-V/2020 Date: 10.06.2020, EMD submitted in any other form e.g. **Cash/Bank Guarantee/FDR /TDR etc. shall not be accepted.**

6. SUBMISSION OF DOCUMENTS -

Documents should be submitted in prescribed manner in separate envelopes as follows-

- A.** Main Envelope: Main Envelope must enclosed all A, B, C & D envelopes. Bidder Name, Address and status of firms should be clearly written on main envelope. In case the bidder is participating as "CONSORTIUM", Name and address of both Partners with Title as "CONSORTIUM" must be mention on main envelope. Start-up or New Entrepreneur must mention title as "Start-up" or "New Entrepreneur" as applicable on main envelope.
- B.** Envelope-(A): Tender Fees and EMD.
- C.** Envelope-(B): Financial Eligibility Documents: Net worth & Turnover certificate as per clause 1C & 1D.
- D.** Envelope-(C): Technical Eligibility Documents: Experience certificates, Test Reports & Summary of Test Reports and Manufacturer Authorization Form as per clause 1A, 1B & 1E.
- E.** Envelope-(D): Complete tender document in original duly seal & signed by authorized signatory on each & every page of the tender document.

Bid Document which doesn't follow the above format shall be disqualified.

7. SPECIFICATION AMENDMENTS -

The Specifications of SPV Pumps should be as per prevailing MNRE & CREDA norms, as Specified in the tender. If any amendments are issued by MNRE/CREDA in due course of time, in this context, then those shall be applicable under this tender.

8. GST & PAN -

Bidder shall have to submit copies of GST registration number and PAN numbers issued by the appropriate authority.

9. RMS -

Login ID & Password of RMS/Data Logger shall be mentioned in each JCC and all data will have to be shared at suitable platform provided by CREDA as and when required.

10. THE BID -

Technical Bid must be deposited in the tender box only kept in the Chief Engineer RE-IV Section, CREDA, H.O., Raipur **from 10:00 AM to 05:00 PM dated 17-07-2020** nobody is authorized to receive or grant receipt for tender delivered on behalf of CREDA. Tender received through any other means shall not be considered.

11. ANALYSIS OF RATE -

- A.** Bidder should quote their rates considering variation of site conditions and all other factors in price of different components and keeping the quantum and quality of work in mind. In this regard MNRE GOI has approved Pump capacity and pump type wise benchmark cost for the year 2019-20 vide no. 318/38/2018GCRT dated 25 July 2019 New Delhi. This official memorandum of MNRE is the part of this tender and is attached herewith (**as annexure - VII**), in which benchmark costs of off-grid Solar PV agricultural pumps for general category state are applicable to CREDA.
- B.** If the successful bid is unbalanced in relation to the benchmark cost of MNRE as stated in **annexure-VII** by more than **10%**, the successful bidder shall have to provide Additional Performance Security (APS) to the extent of difference of **90%** of benchmark cost and rates quoted by the successful bidder for total allocable quantity in such categories in which he has submitted unbalanced bid, in the form of Demand Draft/RTGS issued by approved scheduled bank in favour of CREDA.

- C. The Additional Performance Security (APS) shall be retained by CREDA and the same shall be returned after successful Completion of allocated work. Those other bidders who accept the L1 Rates also required submitting Additional performance security for allocated work.
- D. Selection of L-1 Rates: - The Successful bidder who found to be L1 (as manner described in this tender document, Clause no. - 35), shall be offered allocated quantity of pumps (as described in this tender document, Clause no.-36). L1 bidder shall have to accept the offer of CREDA within 10 days along with laid down "ADDITIONAL PERFORMANCE SECURITY", this APS amount of complete allocated quantity shall be submitted at the time of Agreement. The amount of APS will be communicated to L1 bidder along with acceptance letter. Highly unbalanced rate shall not be considered while deciding final approved rates.
- E. If L1 bidder refuses to accept the offer and deposit intended APS within the prescribed time, then his bid will be rejected by sanctioning authority and earnest money shall be forfeited and blacklisted for 2 years and debarred to participate in any tender and any activity of CREDA till further orders.
- F. In case L1 bidder accept the offer and deposit the APS, L1 rates of the pumps will be fixed for rest of the successful bidders. Now other bidder shall be offered rest quantity of pumps (as prescribed in this tender document, Clause No.- 36)
- G. In Case L1 bidder refuse to accept the offer and doesn't deposit prescribed APS, offer letter shall be sent to the L2 bidder on L2 rates. Same process shall be repeated till the final rates are fixed.
- H. By the process mentioned above the final rates will be fixed and shall be offered to other successful bidders.
- I. The APS Shall be submitted by other successful bidder before Sanction of allocated pump.
- J. If the bidder fails to complete the work or left the work incomplete, this Additional Performance Security (APS), S.D. and EMD shall be forfeited by the CREDA and the agreement shall be terminated and bidder shall be blacklisted and debarred to participate in any tender and any activity of CREDA till further orders.
- K. Start-up & New Entrepreneur will not be required to submit the Additional performance security (APS).

12. REGISTRATION OF BIDDER -

Bidders who are not registered with CREDA, upon allocation of work shall register himself as system integrator of CREDA within 30 days of such allocation failing which work allocation shall stand cancelled without any further notice in this regard and allocation work shall be re-allocated to other parties as per tender condition. This clause is not applicable for Start-up and New Entrepreneur

13. VALIDITY -

Full descriptive particulars and complete specifications should accompany the offer. Offers should be kept open for acceptance for at least **180 days** from the date of opening. After finalization of this tender the approved rates shall be valid till one year from the date of award; however CREDA shall have liberty to increase or decrease this validity if needed.

14. TERMS & CONDITIONS -

- A. The terms, conditions and specifications mentioned in tender document shall be binding on the tenderers and no condition or stipulation contrary to the conditions shall be acceptable. It may please be noted that the tenderers who do not accept terms and conditions stipulated in this tender documents, their offers shall be liable to be rejected out-rightly without assigning any reason whatsoever.
- B. Each page of tender document & enclosures shall be signed by the tenderer and seal affixed. All the pages of the documents issued must be submitted along with the technical offer. In case of any corrections / alterations in the tender, the tenderer should attest the same; otherwise tenders may not be considered. In case of Consortium both the partners shall sign & seal.
- C. Tenderers are also instructed to submit their tenders in properly arranged manner (with index, proper paging and with flags on important documents). Incomplete, lose,

conditional or improper arranged tenders will not be accepted.

15. CREDA RESERVES THE RIGHT -

- (i) To reject or accept any or all tenders wholly or partly without assigning any reason on the grounds considered advantageous to CREDA, whether it is the lowest tender or not.
- (ii) To split the quantities against the tender further for the same items/work. No reason will be assigned by CREDA for this and will be binding on the tenderers.
- (iii) Due to large quantum of work & limitation of the time period for completion of the work CREDA may take consent from other tenderers if they agree to work on rates standardized by CREDA.
- (iv) CREDA may undergo agreement with those eligible tenderers who give consent to work on rates standardized by CREDA and may allocate work to them. Rates approved through this tender may be standardized for all eligible tenders to work in **year 2020-21** and shall be valid till **30-06-2021**. However CREDA reserves right to curtail or extend this period.

16. COMMUNICATIONS -

- A. All the communication between Bidder and CREDA shall be in writing. Notice sent by Fax or other Electronic means shall be effective on confirmation of the transmission. Notice sent by registered post or speed post shall be effective of delivery or at expiry of normal delivery period as under taken by Postal Service.
- B. Offers through Telegraph/Fax/Emails/Post/Courier or open offers etc. received shall be summarily rejected.

17. TENDER DOCUMENT FEE AND EARNEST -

- A. Each tenderer should submit Tender Document Fee and earnest money in the form of Demand Draft/Pay Order or RTGS/NEFT as mentioned in the NIT vide no.2162/CREDA/SPV-PUMPS/SSY-V/2020 Date: **10.06.2020**, in a separate envelope as prescribed at **point no.6 of page 8**, else they will summarily be rejected and returned. Tender Document Fee & EMD submitted in any other form e.g. **Cash/Bank Guarantee/FDR /TDR etc. shall not be accepted.**
- B. MSME unit registered as manufacturer of solar products in Chhattisgarh state and public sectors of government are exempted from EMD subjected to submission of valid competency document.

18. SUBMISSION / DISPLAY OF SAMPLES -

Tenderers will have to provide samples of their Module, Pump, Controller, LA & Chemical Earthing Kit, B.O.S. and Structure etc. as per MNRE/ CREDA's Specifications **along with valid test report/ acknowledgement** should be submitted for examination before **10:00 AM dated 08-07-2020** at Ground near H.O. CREDA, Airport Road, Raipur. These samples shall be examined by Technical Committee of CREDA and provide satisfactory certificate for each item to individual bidder. The bidders must submit this certificate in technical bid document positively.

19. PRE-BID MEETING -

- A. A pre-bid meeting shall be organized on **22-06-2020 at 10:00 AM** at Raipur to explain the terms & conditions of the tender and to clarify doubts of the tenderers so that all doubts and confusions are resolved before the tender is submitted. Only one authorized representative of the parties who fulfils the primary eligibility conditions as mentioned in NIT and desire to purchase/download the tender document shall be allowed to participate in the said meeting. Amendments/clarifications, if any arising during pre-bid meet, shall be uploaded on **www.creda.co.in**. It is advisable for all tenderers to attend this Pre Bid Meeting.
- B. All suggestions, doubts, confusion, request, queries etc., shall have to be presented to CREDA in writing on or before **23-06-2020 till 5:00 PM**. After that any representation

in this regard shall not be considered.

- C. The purpose of pre-bid meeting will be clarifying issues and to answer questions in any matter that can be raised at that stage. Minutes of the meeting and the responses given will be uploaded for information of bidders. Any modification of the bidding document which may become necessary as a result of pre-bid meeting shall be part of original tender document and communicated through corrigendum.
- D. For this Pre- Bid Meeting instructions shall be issued separately as per Govt. SOP on COVID-19.

20. TECHNICAL CRITERIA -

- a. Tenderer must have valid test report of any **2 categories** for 3HP & 5HP Submersible or Surface, AC or DC Solar pumping systems separately in their names for which tenderer must make offer for installation. They will have to provide copy of such test report of their SPV Pumps from Solar Energy Test Centre or any other test centre approved by Ministry of New & Renewable Energy (MNRE)/ NABL. **Tenderer will be debarred from price bidding for all other categories for which they have not submitted valid test report / acknowledgement.**

Bidders may submit Acknowledgement of submission of materials along with make, capacity & numbers of Solar Module, Controller & AC / DC Surface / Submersible Pumps, **fee receipt from MNRE/NABL approved test centers** for offered pumps for testing (**in case they don't have approved test certificates of offered pumps at the time of bid**). Bidders shall be required to submit the approved test certificates before raising claim for payment else payment shall not be made to them.

Bidders shall have to submit the Test certificate against Acknowledgement within 90 days of execution of agreement otherwise EMD may be forfeited and bidder may be blacklisted / debarred by CREDA. However this time limit may be further extended / reduced by CREDA if required.

Bidder should have test certificate for the offered pumps valid at the time of opening of the bid as per specifications mentioned in this Tender document and guidelines issued by **MNRE vide letter no.41/3/2018-SPV Division dated:17th July 2019.**

- B. The Bidder should have sufficient technically qualified and well-experienced manpower for execution of the project and after sales service of the systems. These details may be called by CREDA and in case there is any deficiency found the Bidder may be debarred.

21. FORFEITURE OF EARNEST MONEY DEPOSIT -

It should be clearly understood that in the event of tenderer failing to enter into the agreement in the prescribed format on their quoted rates and also fails to execute assigned works under any Scheme of CREDA, within stipulated time, if he is so communicated within the validity period of the offer, the full amount of earnest money will be forfeited and tenderer shall be debarred from future business with CREDA. CREDA's decision in this regard will be final and binding on the tenderers.

22. PRICE OF SUPPLY OF SOLAR PUMPING SYSTEMS WITH INSTALLATION, COMMISSIONING AND TESTING OF SOLAR PUMP SET -

- I. The Price quoted for all models of each category solar pumping system with Supply, installation, commissioning and testing, MMS, Lightening arrester, 02-nos earthing, Civil works and all other required BOS like HDPE Pipe, Suction Pipe, Rope wire, Clamp, Bore cap, Cables, Suitable Nut Bolts etc. with 5 years system warranty, insurance and COMC. The GST shall be paid extra as per prevailing rate (the GST regulation notification no. 24/2018-Central tax (Rate) dated 31.12.2018). The prices shall be filled exactly as per **e-Price Bid-I enclosed.**
- II. Any change in GST shall be applicable during the period of contract.
- III. In this regard if there is any change in the composition ratio of goods and services by

any Authority/ Courts, same shall be applicable.

23. ENGINEERING DOCUMENT -

Tenderers will have to submit Engineering Documents with technical details, drawings, Specifications of components and make etc. to CREDA for approval, as and when asked by CREDA. Works may only be started out only after approval of the Engineering Document and their samples.

24. SAMPLES -

Samples of the components shall have to be submitted to the CREDA in prescribed manner on scheduled date.

25. INSPECTIONS -

CREDA reserves right to inspect the material at Godowns / Temporary Stores before dispatch and also at works sites.

26. TAX OBLIGATIONS -

CREDA shall deduct TDS for Income Tax, applicable cess on Civil Work etc. under various acts and deposited with the appropriate authority. Costs and taxes before execution of agreement with CREDA so as to ensure tax deposition as per Government Rules accordingly.

27. JURISDICTION OF THE COURT -

Any dispute arising out of the contract shall be subject to the jurisdiction of Hon'ble High Court of Chhattisgarh.

SECTION - 2

GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS -

In writing General Conditions of Contract, the specifications and bill of quantity, the following words shall have the meanings hereby indicated, unless there is something in the subject matter or content inconsistent with the subject.

- CREDA shall mean the Chhattisgarh State Renewable Energy Development Agency represented through the Chief Engineer.
- Work shall mean any work entrusted to the tenderer as mentioned in the scope of work and sanction order.
- The "Engineer in charge" shall mean the Engineer or Engineers authorized by CREDA for the purpose of this contract. Inspecting Authority shall mean any Engineering person or personnel authorized by CREDA to supervise and inspect the erection of the SPV Pump.
- "The Eligible SI/Tenderer" shall mean the tenderer awarded with the contract or their successors and permitted assigns. Contract Price shall mean the sum named in or calculated in accordance with the provisions of the contract as the contract price. General Conditions shall mean the General conditions of Contract.
- "Specifications" shall mean the specifications annexed to these General Conditions of contract and shall include the schedules and drawings attached thereto or issued to the eligible SI from time to time, as well as all samples and pattern, if any,
- "Month" shall mean calendar month. "Writing" shall include any manuscript, typewritten, printed or other statement reproduced in any visible form whether under seal or written by hand.

2. PROOF OF MANUFACTURER -

Those bidders who are also manufacturers of an important component of SPV Pump such as SPV Modules, Surface or Submersible Pump, VFD or Structures of SPV Pumps shall have to submit proof of their factory, SSI Registration and list of Machineries and Equipment's.

3. CONTRACT DOCUMENT -

The term "Contract" shall mean and include the General conditions, specifications, schedules, drawings and sanction orders etc., issued against the contract schedule of price or their final general conditions, any special conditions applying to the particular contract specification and drawings and agreement to be entered into. Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian contract Act or any other Act in vogue or by any person of common knowledge and prudence.

4. MANNER OF EXECUTION -

- A. Execution of work shall be carried out under Market Mode Scheme of CREDA in an approved manner as outlined in the technical specifications or where not outlined, in accordance with desired Specifications laid down by CREDA, to the reasonable satisfaction of the Engineer.
- B. Successful Tenderer / Bidder here-in-after called the **SI** (System Integrator).
 - i) The eligible SI shall conduct a detailed survey of site and submit application of beneficiary along with Processing Fee, after due verification and signature by Deputy Director of Agriculture. All necessary documents and survey details shall have to be submitted in concerned District Office of CREDA in prescribed manner.
 - ii) Engineer-in-Charge of District Office of CREDA shall examine these applications. After his satisfaction will decide the type of pump like AC / DC and Submersible or Surface type. Engineer-in-charge may visit the site if he/she is not satisfied

- with survey report.
- iii) After satisfaction Engineer-in-charge will forward the application to Executive Engineer of concerned Regional office of CREDA for approval.
- iv) Executive Engineer of concerned Regional office of CREDA shall issue the sanction order of subsidy to eligible SI for installation of SPV Pump.
- v) HO CREDA will be final authority to decide the type of pump and set of combination of pump.
- vi) The SI shall start work within **15 days** after the date of sanction of work.
- v) All the materials required for the installation of SPV Pumps as per Sanction Order issued shall be kept at site in the custody of the SI. CREDA shall not be responsible for any loss or damage of any material during the installation.
- vi) All the electrical works should be done as per various provisions of Indian Electricity Act. The persons engaged for carrying out electrical works should have a valid **B-class** license or above issued by licensing board of Chhattisgarh.
- vii) SI will collect beneficiary contribution at rate as notified by the State Govt. and processing fee (fixed by Government) directly from beneficiaries. The processing fees will be submitted in CREDA with the application. After installation joint inspection will be done in presence of beneficiary, SI and CREDA and after successful commissioning of SPV Pumps and its approval from CREDA a JCC will be signed and the subsidy claim will be forwarded for payments as per guidelines and procedures of CREDA. SI will retain the beneficiary's contribution, but the same amount would be deducted from quoted price while making final payment.
- viii) The SI must complete 30% of work allocated till 15.12.2020 and balance 70% till 31.03.2021 from the date of LOI, including rainy season.

5. **VARIATIONS, ADDITIONS & OMISSIONS -**

CREDA shall have the right to alter, amend, omit, split or otherwise vary the quantum of work, by notice in writing to the SI. The eligible SI shall carry out such variation in accordance with the rates specified in the contract so far as they may apply and where such rates are not available; those will be mutually agreed between CREDA and the eligible SI.

6. **INSPECTION -**

- A. The Engineer-in-Charge or his authorized representative(s) shall be entitled at all reasonable times to inspect and supervise and test during installation and commissioning. Such inspection will not relieve the eligible SI from their obligations under this contract.
- B. Material can be inspected before dispatch or in transit by the authorized representatives of CREDA at the factory / godown at the cost of the eligible SI, if desired by CREDA.
- C. CREDA will undertake real time performance and quality test of randomly selected solar pumping system and components during the course of execution as per MNRE specifications and guidelines to ensure quality and performance of pump and components.

7. **COMPLETION OF WORK -**

- A. Time being the essence of contract, the installation of the SPV Pumps shall be completed within the time schedule prescribed in the Sanction order. **The SI must complete 30% of work allocated till 15.12.2020 and balance 70% till 31.03.2021 from the date of LOI, including rainy season.**
- B. After finalizing of rates and successful bidder, approved rates along with draft agreement will be sent to all successful bidders for acceptance, they will have to

provide Acceptance within 10 days of issuance of draft agreement.

- C. CREDA will issue "LETTER OF INTENT" within 10 days after last date of agreement, to those bidders who accept the approved rates and submit the agreement.
- D. After issuance of "LOI", System integrator will start Survey, Selection of beneficiary, installation & Commissioning and all other works within the time as given in above Point "A".
- E. Detailed Manner of execution is mentioned in Section-2, Clause 4 of this tender document.

8. ELIGIBLE SYSTEM INTEGRATOR'S DEFAULT LIABILITY -

CREDA may by written notice of default to the eligible SI, terminate the contract in circumstances detailed hereunder -

- (a) If in the opinion of the CREDA, the eligible SI fails to complete the work within the time specified in the sanction order or within the period for which extension has been granted by CREDA to the eligible SI.
- (b) If in the opinion of CREDA, the eligible SI fails to comply with any of the provisions of this contract.
- (c) In the event of CREDA terminating the contract in whole or in part as provided in paragraph (a) above, CREDA reserves the right to engage another eligible SI or agency upon such terms and in such a manner as it may deem appropriate and the eligible SI shall be liable to CREDA for any additional costs or any losses caused to CREDA as may be required for the completion of erection of the SPV Pumps and or for penalty as defined under this tender document until such reasonable time as may be required for the final completion of the work.
- (d) In the event CREDA does not terminate the contract as provided in paragraph (a) the eligible SI shall continue performance of the contract, in which case he shall be liable to CREDA for penalty for delay as set out in this tender document until the work is completed.

9. FORCE MAJEURE -

The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as act of God, acts of public, enemy, LWE problems, acts of government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that if SI shall submit delay notice with appropriate cause of delay to the CREDA in writing within **15 days** of force majeure. CREDA shall verify the facts and may grant such extension as facts justify. Delay in supply of any accessories of Solar Pumps etc. by the related vendors, to whom the tenderer has placed order, shall also not be treated as force majeure.

10. REJECTION OF WORKS -

In the event of any of the material supplied/work done by the eligible SI is found defective in material or workman ship or otherwise not in conformity with the requirements of this contract specifications, CREDA shall either reject the material and/or work and advise the eligible SI to rectify the same. **CREDA may impose penalty for such rejection up to the 200% cost of the entire system. Habitual/repeated offenders shall be black listed/debarred to participate in the any Tender/ Activity of CREDA till further orders.** The eligible SI on receipt of such notices shall rectify or replace the defective material and rectify the work free of cost. If the eligible SI fails to do so CREDA may -

- a) At its option replace or rectify such defective materials and/or work and recover the extra cost so involved from the eligible SI plus **15%** service charges of the cost of such rectification, from the eligible SI and/ or terminate the contract for balance work/ supplies with enforcement of penalty **as stated above.**
- b) Defective materials/workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The eligible SI shall be liable for any loss/damage sustained by CREDA due to defective work **with enforcement of penalty as stated above.**

11. EXTENSION OF THE TIME -

If the completion of installation is delayed due to any reason beyond the control of the eligible SI, the eligible SI shall without delay give notice to the CREDA in writing of his claim for an extension of time. CREDA on receipt of such notice may or may not agree to extend the contract/delivery date of the Solar System as may be reasonable but without prejudice to other terms and conditions of the contract.

12. MAKES OF EQUIPMENTS TO BE USED IN THE WORK -

- (I)** The Solar Modules, Solar Pumps, Controller & Other BOS shall be made in India.
- (II)** The eligible SI has to ensure that equipment's as per Technical Requirements of guidelines of CREDA as complied with. The eligible SI has also to ensure that he will use only components of approved vendors of CREDA. The material/works for which CREDA/MNRE or BSI or ISI specification is not available, engineer-in-charge of the works will examine and approve the material/works, preferably of all makes on which CREDA has report of satisfactory performance. Test certificates for all major equipment's should be submitted to the engineer-in-charge of the works before installation of the same.
- (III)** Successful SI upon issue of LOI must submit Manufacture Authorization Form (MAF) From manufacture of Solar pump/ Controller/ Module which it is intending to use during installation guarantee at least five year warrantee of pump and controller and at least 10 year warrantee on module, before installation of pump, **no payment shall be made if he fails to do so.**
- (IV)** SI Should submit warrantee Agreement of **at least 5 year** for major components i.e. SPV pumps, Modules, VFD/ Controller and Structures with manufacturer or distributors certified by the manufacturer before installation of Pumps.

13. WARRANTEE PERIOD AND POST INSTALLATION SERVICES -

- A.** The work done/material supplied by the eligible SI should be warranted for satisfactory operation and against any defect in material and workmanship including Pumps, Controllers and other balance of equipment's, at least for a period of **5 (five) years**, from the date of commissioning of the SPV Pumps including other works as per scope of work.
- B.** Warrantee on SPV Modules shall be for **10 (ten) years** from the date of commissioning of the SPV Pumps must be warranted for their output peak watt capacity, which should not be less than **90%** at the end of **10 years** and not less than **80%** at the end of **25 years**.
- C.** The above warrantee certificates shall be furnished to the CREDA for approval. Any defect noticed during this period should be rectified by the supplier free of cost upon written notice from CREDA provided such defects may be due to bad workmanship or bad materials used.
- D.** The warrantee period shall be extended by the period during which the plant remains non-operative due to reasons within control of the eligible SIs.
- E.** This warrantee must be an unconditional onsite warrantee and the eligible SI will have to replace the defective material within **7 days** positively from the date of information given to him.
- F.** Care should necessarily be taken to make the SPV Pumps operational, once the reporting of the fault/non-operational status is done, within a week. If the SPV Pumps is not made operational within **7 days**, the rectification/replacement (keeping the same configuration in consideration) will be done by CREDA at the risk and cost of system integrator, after rectification / replacement the warranty clause will remain compliable as per tender conditions. No claim in this regard will be entertained.

- G. System Integrators shall have to establish their service stations in the allocated area and shall have to keep sufficient quantity of spares and man power to ensure proper service network for taking care of smooth functioning of SPV Pumps installed by them or it is essential to keep spares at least 2% of installed pumps. SI shall have to give a toll free number to register complaints.

14. **TERMS OF PAYMENT -**

The following terms of payment shall apply for the tender -

- A. **95%** of the cost as per the sanction order after satisfactory supply, installation, commissioning & performance test of the SPV Pumps at site with proper handing over.
- B. Balance **5%** of the cost shall be retained by CREDA as Security Deposit for a period of **60 months** from date of commissioning.
- C. In case MNRE rejects or reduces a particular case of settlement of CFA, the same may be recovered from concerned SI accordingly from their pending claims / payments in CREDA.

15. **PENALTY FOR DELAY IN COMPLETION OF CONTRACT -**

If the eligible SI fails to complete the assigned work within the schedule time specified in the sanction order or any extension granted there to, CREDA will recover from the SI as penalty a sum of **Two per cent (2%)** of the system price excluding GST/Tax for every delayed system per month. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed **5% (Five Per cent)** of the cost.

Review of the progress of installation of pump allocated to SIs shall be done time to time by CREDA and if the progress of installation is found unsatisfactory, the allocation of entire remaining uninstalled pumps or their part of can be re-allocated to other SI as per discretion of CREDA.

16. **SECURITY DEPOSIT (SD) -**

- A. The Earnest Money shall be retained by CREDA as additional SD for five years after agreement is done to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be required by CREDA.
- B. Beside this **5%** of the cost shall also be retained as SD during the five years of warrantee period.

17. **INSURANCE -**

- A. The eligible SI shall arrange insurance coverage for the materials and SPV Pumping system at his/ beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The eligible SI shall take up insurance or such other measures for the manpower so as to cover the claim for damage arising under workmen's compensation Act and other applicable State/Central laws. CREDA shall not bear any responsibility on this account.
- B. Eligible SI shall arrange for insurance coverage for complete SPV pumping system during COMC period i.e. for **05 year** from the date of installation, at single instance (5 years insurance premium must be paid at the time of insurance). Insurance should cover for damage and theft. In case of such incidence, SI must replace the lost/damaged part within **7 days** from the date of intimation, failing which the rectification/replacement (keeping the same configuration in consideration) will be done by CREDA at the risk and cost of system integrator, after rectification / replacement the warranty clause will remain compliable as per tender conditions. No claim in this regard will be entertained.

18. PENALTY DUE FROM THE ELIGIBLE SI -

All costs of damages and delays for which the eligible SI is liable to the CREDA will be deducted from any money due to the eligible SI including the security deposit of any project under CREDA.

19. RESPONSIBILITY OF ELIGIBLE SI -

Notwithstanding anything mentioned in the specifications of subsequent approval or acceptance of the SPV Pump by CREDA, if any, the ultimate responsibility for satisfactory performance of the entrusted work shall rest with the eligible SI. If in any case the eligible SI does not complete the work as per the sanction orders issued to them then CREDA may take over the task & complete the project at the risk and cost of eligible SI.

20. RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE -

If any loss or damage occurs to the work or any part thereof or materials/plant/equipment's for incorporation therein the period for which the eligible SI is responsible for the cause thereof or from any cause whatsoever, the eligible SI shall at his own cost rectify/replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the Engineer. The eligible SI shall also be liable for any loss or damage to the work/equipment's occasioned by him in course of any operation carried out to him during performing the contract.

21. RESPONSIBILITY TOWARDS THE WORKMAN OR OUTSIDERS -

- A. The eligible SI shall have to take insurance coverage from any authorized Insurance Company against Workmen compensation due under Workmen Compensation Act and submit copy of the insurance document before issuance of Sanction order.**
- B. The eligible SI shall ensure all safety measures during execution and repairs of the work. CREDA, will, in no case be responsible for any accident fatal or non-fatal, caused to any workman or outsider in course of transport or execution or repairs of work.**
- C. All the expenditure including treatment or compensation will be entirely borne by the eligible SIs. The eligible SI shall also be responsible for any claims of the workers including PF, Gratuity, ESI & other legal obligations.**

22. NON-ASSIGNMENTS -

The eligible bidder shall not assign or transfer the sanction orders issued as per this contract or any part thereof without the prior approval of CREDA.

if eligible bidder transfer/assigned/sublet full or any part of work allocated to him without prior permission from CREDA in writing to any third party shall be liable to debar/black listed from any Tender/Activity of CREDA till further orders.

23. SUBLETS -

- A. The eligible bidder may sublet / sub contract part of the work with approval of CREDA in writing up to 25% of the allocated work. It is expressly agreed that original bidder shall be responsible and liable for all his obligations under this agreement not withstanding anything contained in the agreements with his sub contractor and no default under any such agreement shall exempt the original bidder from his obligation or all liabilities here under.**
- B. After approval of the proposal of the sub contract CREDA shall issue a permission letter for the same.**
- C. The original bidder shall not be allowed to sub contract the work assigned to him to more than one sub contractor. In special condition CREDA may permit more than one sub contractor.**
- D. The original bidder should satisfy himself before recommending CREDA whether the sub contractor so proposed is fit for the work, process, experience, qualifications, man**

- power and component necessary for the job proposed be entrusted to him.
- E. Whatever warranty mentioned in the Tender document shall be honoured by the original bidder. Original Bidder shall be held responsible for any defect / non functionality of any work / system or any components.
 - F. CREDA will not ask to sub contractor for any rectification / replacement of work / system or any component. All liabilities regarding warranty shall be on part of original bidder.
 - G. The original bidder shall be responsible of submission of JCCs to concerned district officers of CREDA with his and sub contractor signatures and seal on every document comprising JCCs. The seal of sub contractor should clearly the name of sub contractor with phrase "on behalf of original bidder". All liabilities like warranty, insurance, specification, compliance of bid conditions and government rules and regulations etc., shall be on the part of original bidder.
 - H. Sub contractor will have to be registered as SI in CREDA immediate after approval.
 - I. CREDA will pay to the original bidder after successful commissioning of the system.
 - J. The original bidder shall have to pay within 15 days of receipt of payment from CREDA. CREDA may pay directly to the sub contractor on-behalf of original contractor after receipt of written consent / recommendation for payment from original bidder.
 - K. If original bidder fails to pay any amount to sub contractor within 45 days then on receipt of information from sub contractor CREDA shall have right to deduct the same from bill or any due amount of original bidders and pay the same to sub contractor.
 - L. The allocated work to sub contractor shall be part of the experience of sub contractor.
 - M. Details of the Subletting are mentioned in manual on policy and procedure for sub contract in CREDA.

24. CERTIFICATES NOT TO AFFECT RIGHTS OF CREDA -

The issuance of any certificate by CREDA or any extension of time granted by CREDA shall not prejudice the rights of CREDA in terms of the contract nor shall they relieve the eligible SI of his obligations for due performance of the contract.

25. SETTLEMENT OF DISPUTES THROUGH ARBITRATION -

- A. Except as otherwise specifically provided in the contract, all disputes concerning questions of fact arising under the contract shall be decided by the Chief Executive Officer (CEO), CREDA provided a written appeal by the eligible SI is made to CREDA. The decision of the CEO, CREDA shall be final and binding to the all concerns.
- B. Any dispute or difference including those considered as such by only of the parties arising out of or in connection with the contract shall be to the extent possible be settled amicably between the parties. If amicable settlement cannot be reached then all disputed issues shall be settled by arbitration.

26. LAWS GOVERNING CONTRACT -

The contract shall be constituted according to and subject to the Laws of India and jurisdiction of the High Court of Bilaspur, Chhattisgarh.

27. LANGUAGE AND MEASURES -

All documents pertaining to the Contract including specifications, schedules, notice correspondences, operating and maintenance instructions, drawings or any other writings shall be written in English / Hindi language. The metric system of measurement shall be used in this contract.

28. CORRESPONDENCE -

- A. Any notice to the eligible SI under the terms of the contract shall be served by registered mail to the registered office of the eligible SI or by hand to the authorized local representative of the eligible SI and copy by post to the eligible SI's principal place of business.
- B. Any notice to CREDA shall be served to the Chief Engineer, CREDA Raipur in the same manner.

29. SECRECY -

The eligible SI shall treat the details of the specifications and other documents as private and confidential and they shall not be reproduced without written authorization from CREDA.

30. AGREEMENT -

The successful eligible SI shall have to enter into an agreement with the CREDA in the approved contract agreement form within **10 days** of the receipt of call from CREDA.

31. DECLARATION OF CONFLICT OF INTEREST - The contractor hereby declares that nobody connected with or in the employment of CREDA is not/shall not ever be admitted as partner in the contract.**32. CAPACITY ASSESMENT OF THE BIDDER -**

The SI's maximum capacity for installation of solar pumps (in nos.) under this bid shall be assessed as –

- | | | | |
|----|-------------------------------------------------------------------------------------------------------------------------------------|-------|----------|
| 1. | No. of 3HP to 5HP (both inclusive) capacity SPV Pumps installed in year 2016-17,2017-18, 2018-19, 2019-20 & 2020-21 till 30.06.2020 | ----- | a |
| 2. | No. of greater then 5HP capacity SPV pumps installed in year 2016-17, 2017-18, 2018-19, 2019-20 & 2020-21 till 30.06.2020 | ----- | b |
| 3. | No. of less than 3HP capacity SPV pumps installed in year 2016-17, 2017-18, 2018-19, 2019-20 & 2020-21 till 30.06.2020 | ----- | c |

Assessed maximum capacity for installation of pumps in this bid—**{a+ (bX2) +(c/2)}**

For installation carried out in Chhattisgarh the above determined assessed capacity shall be further doubled.

33. TENDER EVALUATION CRITERIA -

- A.** Offers of only those parties, who are found qualified based on Eligibility Criteria and Techno-commercial Bid, will be taken into further consideration and financial bid of only those parties who are qualifying the criteria of Techno-commercial Bid will be opened.
- B.** Other things being equal, the lowest rates shall normally be preferred, but CREDA shall have rights and liberty to amend/lower the rates.
- C. Conditional tenders shall not be accepted.**
- D.** However CREDA shall have rights and liberty to call any /other parties to work on approved rates as and when requires in accordance with quantum of work and scheduled time limits for completion of targets.

34. EVALUTION OF PRICE BID -

Price bid shall be evaluated on the basis of Quoted rates. Lowest rates of each category of pump shall be considered however CREDA shall have discretionary power to amend/lower the rates.

35. ALLOCATION OF TARGETS AND AREA OF WORK -

Effective price shall be calculated as per following formula for decide the order of offered rates for allocation as per 32.

Effective price =

(Unit price of 03HP AC Surface X W1)+(Unit price of 03HP DC Surface X W2)+(Unit price of 03HP AC Submersible X W3)+(Unit price of 03HP DC Submersible X W4) + (Unit price of 05HP AC Surface X W5)+(Unit price of 05HP DC Surface X W6)+(Unit price of 05HP AC Submersible X W7)+(Unit price of 05HP DC Submersible X W8)

$$W1+W2+W3+W4+W5+W6+W7+W8$$

W1= 2.01, W2= 2.22, W3= 2.01, W4= 2.22, W5= 2.8, W6= 3.3, W7= 2.8, W8= 3.3

Where Weightage W1, W2..... = MNRE Benchmark Cost of respective pump/1,00,000

If a particular category price is not offered or valid test report/ acknowledgement from MNRE accredited lab is not submitted along with bid than highest rate offered by all bidders in such categories of pump (which have been read out during price bid opening) shall be used in this formula.

The calculated effective price shall be used for determination of L1, L2 and so on for work allocation. If two bidder have same effective price the one whose assessed capacity is higher, shall be considered better placed for above ordering.

36. ALLOCATION OF TARGETS AND AREA OF WORK

The allocation of quantities shall be done as following for all category of pumps:

L-1	1000 or assessed capacity which-ever is less.
L-2 to L-3	750 or assessed capacity which-ever is less.
L-4 to L-5	500 or assessed capacity which-ever is less.
L-6 & Others	Balance un-allocated quantity shall be allocated to the balance bidders being considered for allocation of target in ratio of their assessed capacity or maximum 400 whichever is less in first allocation.

- a) However, the increase or decrease of these allocations shall be decided at sole discretion of CREDA, which shall be final, binding and conclusive on the bidders.
- b) In first allocation only 10,000 pumps will be allocated as per above formula including L-1 to L-5. Rest of the allocation will be distributed as per the performance of eligible bidders.
- c) Allocation can be further extended as per discretion of CREDA, in interest of expeditious work completion.
- d) CREDA reserves all rights for allocation of works anywhere in Chhattisgarh.
- e) Review of the progress of installation of pump allocated to Tenderers shall be done time to time by CREDA and if the progress of installation is found unsatisfactory, the allocation of entire remaining uninstalled pumps or their part of can be re-allocated to other Tenderer as per discretion of CREDA.

37. BID REJECTION -

If financial bid of a bidder has been opened on the basis of technical bid of a bidder which has been determined to be substantially responsive to the bidding document and in latter stage it is found that bidder does not meet the eligibility criteria or the technical bid is found substantially non-responsive, CREDA reserves rights to reject such bid of a bidder any time.

We (on behalf of Eligible SI/Tenderer) have read all the above stated details & accept to comply with it in total

(Name, Signature & Seal of the SI)

SECTION - 3

SCOPE OF WORK

General Scope of Work for this tender shall be in accordance with the Guidelines of Market Mode of CREDA. The scope in brief will be as follows-

1. Survey of Sites, designing, supply, installation & commissioning of SPV Pumps of various capacities as per design and specifications approved by CREDA & MNRE on turnkey basis. Tenderer shall have to take approval of the engineering documents, Bill of Materials and samples from CREDA prior to commencement of the work. Five years unconditional onsite warrantee for manufacturing defects shall be required for each of the system after successful commissioning and proper handing over.
2. The scope of work shall also include the followings :
 - i. Survey of Sites, estimation of yield of bore well/water source, Right Selection of Pump Size & Type, Submission of site clearance certificate and yield report where the SPV Pumps are to be installed. A layout plan of the site should also be submitted clearly indicating the identified location for installation of SPV Modules, Structures and other components shall be installed. Sanction order shall be issued only after receipt of satisfactory reports suitable for system installation. SI shall furnish all necessary information to beneficiary for SPV Pump, Rates, Subsidy, Beneficiary Contribution, Processing Fee, Warrantee, Do & Don'ts etc. so as to avoid further misunderstandings and disputes.
 - ii. Collection of Beneficiary Share and Processing Fee (Fixed by Government)
 - iii. Submission of Application Form in CREDA in prescribed manner along with necessary documents and processing fee.
 - iv. Detailed planning of time bound smooth execution of project.
 - v. Design, supply, installation & commissioning of SPV Pumps of required capacities and type as per design and specifications approved by CREDA & MNRE, on turnkey basis.
 - vi. Minimum 1 test report of complete system with certified solar panel, solar pump and controller shall be submitted before payment.
 - vii. Performance Guarantee Test: Successful performance guarantee test to demonstrate the rated capacity of SPV Pump as per CREDA's norms shall have to be conducted by SI in presence of representatives of CREDA, if required.
 - viii. Providing User Manuals and Warrantee Cards to beneficiaries.
 - ix. SI shall have to submit JCCs within **60 days** of Installation and Commissioning of SPV Pumps in District Office of CREDA.
 - x. Unconditional onsite warrantee for manufacturing defects for Five years faultless operation, assure inventory for maintenance.
 - xi. SI/Supplier has to provide quarterly monitoring report of actual ground conditions for every installation.

- xii.** Providing Prompt Service Facilities to customers/beneficiaries.
- xiii.** Risk liability of all personnel associated with implementation and realization of the project.
- xiv.** Training of at least two persons nominated by user, on the various aspects of operation and maintenance of the offered system after commissioning of the system.
- xv.** The eligible SI shall maintain sufficient inventory of the spares to ensure that the system can be made functional within **7 days** from the communication of breakdown of the system during currency of the warrantee period.
- xvi.** The eligible SI shall run the system on trial basis and shall closely monitor the performance of the system before handing over the system and ensure water discharge as per MNRE specifications. CREDA shall examine the water discharge and ascertain if the discharge is adequate with reference to the capacity of the SPV Pump.
- xvii.** System Integrators shall have to establish their service stations in the allocated area and shall have to keep sufficient quantity of spares and man power to ensure proper service network for taking care of smooth functioning of SPV Pumps installed by them. SI shall provide toll free/Mobile number of service centre to register complaints.

SECTION - 4

SPECIFICATION FOR SOLAR PHOTOVOLTAIC WATER PUMPING SYSTEMS

1. SCOPE -

This specification covers design qualifications and performance specifications for Centrifugal Solar Photo Voltaic (SPV) Water Pumping Systems to be installed on a suitable bore-well, open well, water reservoir, water stream, etc., and specifies the minimum standards to be followed under New Scheme for Farmer s launched by Government of India on 08.03.2019.

2. TERMINOLOGY -

In addition to the terminology specified in 3 of IS 5120 and IEC 62253, the following shall also apply.

- a) **Static Water Depth** — It is the depth of water level below the ground level when the pump is not in operation.
- b) **Draw-Down**—It is the elevation difference between the depth of static water level and the consistent standing water level in tube well during operation of pump set.
- c) **Submergence** — It is the minimum height of water level after drawdown above the pump suction casing.
- d) **Manometric Suction Lift** — Manometric suction lift is the vacuum gauge/suction manometer reading in meter of water column when pump operates at suction lift.
- e) **Static Suction Lift** — Static suction lift/head is the vertical distance between sump water level and center of pump inlet.
- f) **Daily Water Output** — It is the total water output on a clear sunny day with three times tracking SPV panel, under the “Average Daily Solar Radiation” condition of 7.15 KWh / m² on the surface of SPV array (i.e. coplanar with the SPV Modules).
- g) **Wire to Water Efficiency** — It is the combined system efficiency of SPV Converter/ Controller with Inbuilt MPPT mechanism, Pump set and piping.
- h) **SPV Controller** — Pump Controller converts the DC voltage of the SPV array into a suitable DC or AC, single or multi-phase power and may also include equipment for MPPT, remote monitoring, and protection devices
- i) **Maximum Power Point Tracker (MPPT)** — MPPT is an algorithm that is included in the pump controller used for extracting maximum available power from SPV array under a given condition. The voltage at which SPV array can produce maximum power is called 'maximum power point' voltage (or peak power voltage).

3. CONSTRUCTIONAL FEATURES -

A. General -

SPV Water Pumping System set uses the irradiance available through SPV array. The SPV array produces DC power, which can be utilized to drive a DC or an AC pump set using pump controller. A SPV Water Pumping system typically consists of *Pump Set* Pump set may be of any one of the following types -

- i) Mono-block pump set;
- ii) Open well submersible pump;
- iii) Submersible pump;

B. Motor -

The motor of the pump set may be of the following types -

- i) AC Induction Motor.
- ii) DC Motor [PMSM/BLDC/SRM (with brush or brushless)].
- iii) Provision for remote monitoring for the pumps must be made in the pump controller through an integral arrangement having following basic functions:
 - Controller must be assigned with a unique serial number and its live status must be observed remotely on online portal through login credentials.
 - Live status must indicate whether controller is ON/OFF.
 - The parameter i.e. the water output, water flow rate, in fault condition, array input voltage/current, power and motor frequency should at logged at an interval of 10 minutes
 - Controller must have a back up to store the data locally (at least for 1year)

C. **Solar Photo Voltaic (SPV) Array -**

1. **SPV** arrays contains specified number of same capacity, type and specification modules connected in series or parallel to obtain the required voltage or current output. The SPV water pumping system should be operated with a PV array minimum capacity in the range of **900 Watts peak to 9000 Watts peak**, measured under Standard Test Conditions (STC). Sufficient number of modules in series and parallel could be used to obtain the required voltage or current output. The power output of individual PV modules used in the PV array, under STC, should be a minimum of 300 Watts peak, with adequate provision for measurement tolerances. Use of PV modules with higher power output is preferred.
2. Modules supplied with the SPV water pumping systems shall have certificate as per IS14286/IEC 61215 specifications or equivalent National or International/Standards. STC performance data supplied with the modules shall not be more than one year old.
3. Modules must qualify to IS/IEC 61730 Part I and II for safety qualification testing.
4. The minimum module efficiency should be minimum 15 percent and fill factor shall be more than 70 percent.
5. Modules must qualify to IEC TS 62804-1:2015 for the detection of potential-induced e-gradation - Part 1: Crystalline silicon (Mandatory in case the SPV array voltage is more than 600 VDC)
6. The name plate shall conform the IS 14286/IEC61215
7. Module to Module wattage mismatch in the SPV array mismatch shall be within (\pm) 3 percent.
8. Variation in overall SPV array wattage from the specified wattages shall be within zero percent to +10 percent.
9. The PV Modules must be warranted for output wattage, which should not be less than 90% of the rated wattage at the end of 10 years and 80% of the rated wattage at the end of 25 years.
10. **IDENTIFICATION AND TRACEABILITY -**

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

 - (i) Name of the manufacturer of PV Module
 - (ii) Name of the Manufacturer of Solar cells
 - (iii) Month and year of the manufacture (separately for solar cell and module)

- (iv) Country of origin (separately for solar cells and module)
- (v) I-V curve for the module
- (vi) Peak Wattage, I_m , V_m and FF for the module
- (vii) Unique Serial No and Model No of the module
- (viii) Date and year of obtaining IEC PV module qualification certificate
- (ix) Name of the test lab issuing IEC certificate
- (x) Other relevant information on traceability of solar cells and module as per ISO 9000 series.

The RFID must be inside of module lamination. The module laminate, but must be able to withstand harsh environmental conditions.

11. The panel should be supplied with CREDA Logo in the form of sticker on the back of SPV panel or duly laminated inside the glass of solar module with the remark "Manufactured for CREDA". Inter connections of solar modules should be through good quality male female joint. Name of manufacturer, Sl.No. of Module & manufacturing year should be clearly fixed inside the glass lamination of every module. Back label should be affixed behind every module which should clearly state the specifications & capacity of the module.
12. All SPV module must be indigenously built and made in India.

D. MOTOR-PUMP SET

1. Solar pump must be indigenously built and made in India.
2. The SPV water pumping systems may use any of the following types of motor pump sets -
 - a) Surface pump set
 - b) Submersible pump set
3. The "Motor-Pump Set" should have a capacity in the range of 3 HP to 5 HP and should have the following features -
 - a) The mono block DC/ AC centrifugal motor pump set with the impeller mounted directly on the motor shaft and with appropriate mechanical seals which ensures zero leakage.
 - b) The motor of the capacity ranging from 3 HP to 5 HP should be AC/DC. The suction and delivery head will depend on the site specific condition of the field.
 - c) Submersible pumps could also be used according to the dynamic head of the site at which the pump is to be used.
 - d) Selection of pump at the time of survey must be done appropriately as per site conditions, depth & yield of the bore well.
4. The pump and all external parts of motor used in submersible pump which are in contact with water, should be of stainless steel of grade 304 or higher as required. The motor- pump set should have a 5 years warranty and therefore, it is essential that the construction of the motor and pump should be made using parts which have a much higher durability and do not need replacement or corrode for at least 5 years of operation after installation.
5. The suction/ delivery pipe shall be of HDPE or UPVC column pipes of appropriate size, electric cables, floating assembly, civil work and other fittings required to install the Motor Pump set. In case of HDPE pipes the minimum pressure rating of 8 kg/sqcm-PE100 grade for pumps up to 3 HP, 10 kg/sqcm-PE100 grade for 5 HP pumps. UPVC column pipe/HDPE Pipe must be provided as per bore depth.

E. MODULE MOUNTING STRUCTURE (MMS) -

1. MMS as per drawings (**which is given as annexure "VIII"-A₁ to A₄₄**) should be installed along with the hot dipped galvanized (minimum **80 microns**) array support structure for mounting of SPV modules at site. The panel frame structure should be capable of withstanding a minimum wind load of **150 Km.** per hour, after grouting and installation. MMS should be sturdy & designed to assist SPV Modules to render maximum discharge. The hardware (fasteners) used for installation of SPV Modules & MMS should be of suitable Stainless Steel (**SS 304**). Each MMS should be grouted on pedestals & Foundation as per drawings. Each module should be fastener by four theft proof nut built. Module Mounting Structure including foundation bolt, other nut & bolt, steel nut & bolts, washer, theft proof nut & bolts, clamps for holding controller etc. for 6,8,9 & 10 modules should have weight at least 235 Kg., 350Kg., 365Kg. and 375Kg., $\pm 5\%$ respectively as per drawing and specification attached in tender document.
2. Module Mounting Structures should have theft proof arrangements with the use of GI Steel C-channel along with the array support structure for locking arrangement of SPV modules for protecting them from theft. Its size should be with reference to the specifications of the SPV modules such that modules can comfortably slide in the channel while installation. It should not hide any portion of the photovoltaic circuit encapsulated in the lamination of the SPV module, there by un-affecting the efficiency & rating of the SPV modules. Anti-Theft Nut Bolts of SS (with washers) should also be used for better theft proofing along with "C" Channel MMS.
3. To enhance the performance of SPV water pumping systems arrangement for seasonal tilt angle adjustment and three times manual tracking in a day should be provided. In order to make structure rigid, the gap between Telescopic pattern supports should be minimal, further, for bearing of center load of whole structure only pins should be used instead of threaded bolts.
4. The general hardware for structure fitment should be either SS 304 or 8.8 grade. Modules should be locked with antitheft bolts of SS 304 Grade. Foundation should be as per drawing attached.

F. SPV Controller

1. Controller must be indigenously built and made in India.
2. Maximum Power Point Tracker (MPPT) shall be included to optimally use the power available from the SPV array and maximize the water discharge.
3. The SPV Controller must have IP (65) protection or shall be housed in a cabinet having at least IP (65) protection.
4. Adequate protections shall be provided in the SPV Controller to protect the solar powered pump set against the following:
 - a) Dry running;
 - b) Open circuit;
 - c) Accidental output short circuit;
 - d) Under voltage;
 - e) Reverse polarity;
 - f) SPD to arrest high current surge; and
 - g) Lightning arrestor.
5. A good reliable DC Circuit Breaker as per IS/IEC 60947-2 suitable for switching DC power ON and OFF shall be provided in the SPV Controller.
6. All cables used shall be as per IS694. Suitable size of cable shall be used in sufficient length for inter-connection between the SPV array to SPV

Controller and the SPV Controller to solar powered pump set. Selection of the cable shall be as per IS14536.

7. Controller shall have provision for GSM/GPRS Gateway with Geo tagging. GSM/ GPRS Charges to be included in the Costing till the end of Warranty period of the Pump set.

G. Universal Solar Pump Controller (USPC)-

USPC Specifications for Stand-alone applications:

1. **Preamble:** The Controller for Solar PV pumping system is the heart and brain of the system. The Solar PV pumping system deployed at huge cost to the farmer and the exchequer for the Government is currently utilised only for half of the days in a year (around 150 days per year) on an average. In order to optimally utilize the solar photovoltaic system that generates the electricity throughout the year during sunshine hours, the controller supplied for installation of solar pumping system should be able to perform several other tasks for agricultural and other needs of a farmer. This will increase the productivity of agriculture sector and income of farmer. With the use of USPC the solar system could be used effectively throughout the year.

2. **Technical Specification for Stand Alone and On Grid Application**

The USPC with SPV modules and structure can be used for agrarian applications such as water pumping, apple grading and polishing system, wheat (grain) flour grinding machine / aata chakki, cutter/chaff, deep-fridger / cold storage, blower fan for cleaning of grains, heating loads and any other standard voltage (400/415V) three phase motor/equipment of capacity not more than the capacity of Solar PV pumping system. The USPC operation schematic diagram is shown in Fig. 1. Further, the applications are not limited upto the few shown in the figure.

- I. Following table gives specifications of electrical supply from USPC for motors other than the solar pumps. For operating the pump the UPSC must follow the MNRE specifications for SPV pumping systems.

S.No.	Description	Desired requirement
1	Motor Supply Phases	Three phase R-Y-B
2	Rated motor frequency	48-50Hz
3	Frequency operation	0 to 52Hz
4	Rated motor voltage	415V± 5%
5	Desired motor operation	Constant V by F or constant motor flux control

- II. Proposed electrical properties of USPC when operating motors other than motor- pump set:

Sr No.	Description	Desired requirement
1	Characteristic of voltages	Pure sinusoidal or Filtered AC output voltage at motor terminal. No PWM pulses allowed at the motor terminal, as it generates pronounced voltage spikes. The USPC output is intended to use for the traditional induction motors based applications which are design for sinusoidal grid supply.
2	THD of motor terminal voltages	Below 3%
3	THD of motor current (in	Below 5%

	case of balance/linear motor)	
4	Balance supply	Three phases should be balanced and no negative sequence components to be allowed
5	Voltage spikes	Recurring or non-recurring voltage spikes more than 620V (peak of 440V AC supply) is not allowed between any two terminals
6	Alarms and Protections	Output voltage low, Output frequency low/high, Low irradiance/PV power, Current overload, Peak Torque overload

III. Controller should be able to run SPV pumping system as per MNRE specifications as well as any other type of motor of suitable rating, subject to the load characteristics of the equipment in which the motor is used is any of the following:

- a) Constant torque loads
- b) Constant power loads
- c) Quadratic loads
- d) Impact loads
- e) Hydraulic loads

Subject to the maximum torque being not more than 150% of the rated torque of the motor.

IV. To ensure energy efficiency of solar PV system and to maintain reliability of PV installation against aging effect, module mismatch with time, partial shading, etc. , the desired USPC properties and configuration should be as follows:

- (a) Static MPPT efficiency of USPC should be equal or more than 98% during operation of 10 to 100% of rated STC PV power, and average MPPT tracking efficiency in the dynamic condition should be greater than 97 % with hot and cold profiles when feeding the water pumping, hydraulic or heating loads, so as to maintain MPPT irrespective of variation in solar energy or irradiance. `
- (b) USPC efficiency should be as follows for the operation at 80% rated STC power of the PV array:

Sr No.	SPV pumping system capacity	Controller power efficiency should be more than or equal to
1	3 HP	93.00%
2	5 HP	93.00%

- (c) Considering voltage variation over the year due to variation in temperature, irradiance and effect due to ageing, environmental damages to PV panels with time, USPC should have MPPT channels as an integral part of system (or externally connected part) with wide range of input PV voltage for MPPT tracking of the PV panels. Input voltage range variation should be tested as per manufacturer declaration (min, nominal or 90% of the maximum) or if no declaration is made than at least it should be tested as per the table given below.

Sr No.	Motor Pump set capacity	Input voltage range		
		Minimum	Nominal	Maximum
1	3 HP	(Vnominal-50)	Nominal	(Vnominal+50)
2	5 HP	(Vnominal-70)		(Vnominal+70)

- V. There should be Mode selection located on control panel of the USPC along with display and user should be able to select either to run motor-pump set of any other application. The software/firmware required to operate these applications must get automatically loaded when an appropriate position of the switch is engaged.
- VI. USPC must have at least four numbers of three phase output cables to feed power to the applications. The output power cable for specific application should get selected automatically upon selection of applications via keypad or via mobile or via remote control connectivity. The manual selector switch should not be used at the output to manage different loads. This is to ensure the hassle free operation of applications by farmer with adequate safety.

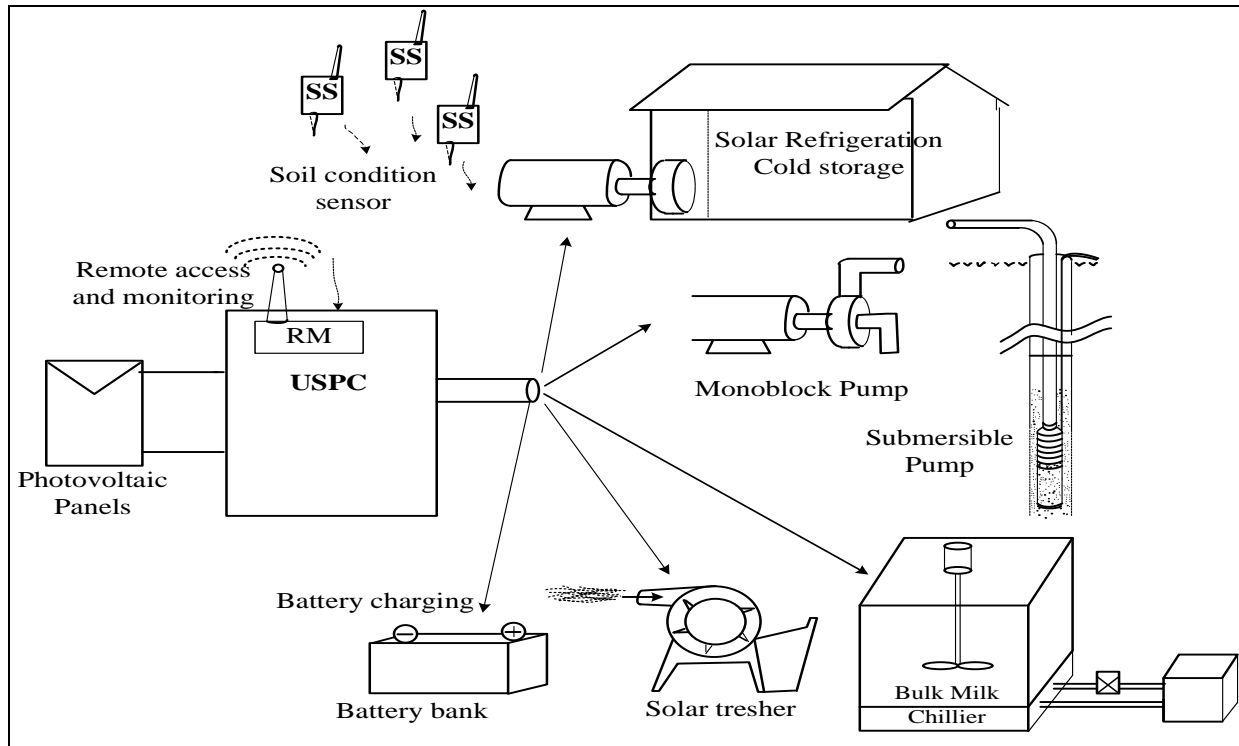


Fig. USPC operation schematic diagram.

- VII. USPC based Solar system must be equipped with Remote monitoring and remote fault identification:
- Remote monitoring features should be integral part of solar pump controller and should provide time wise remote monitoring of PV voltage, PV Power, Water output, head, when used in solar pump mode. When operated in farm equipment mode, it should show, PV voltage, PV power, motor voltage, motor current and motor frequency.
 - Cumulative energy generation from PV panels for a month, year and 5years should be provided.
 - Remote monitor should show current status of system like On, Off and fault.
 - Software associated with remote monitoring should also provide location of SPV pumping system.
 - Controller should have support of sufficient Internal memory/ SD card / memory card to support remote monitoring in case of network failure.

USPC must have IP65 protection or must be housed in a cabinet having at least IP65 protection.
Separate rates are invited for universal controller & controller suitable for 3, 5 Surface & Submersible pump set in e-price bid-II enclosed.

H. EARTHING ARRANGEMENT

1. Earthing of the motor shall be done as per IS 9283 in accordance with the relevant provisions of IS 3043. Separate earthing shall be provided for Controller, pump and SPV array.
2. For safety purpose, it shall be ensured during installation that the earthing is capable of taking care of leakage current.
3. In case of UPVC/HDPE pipes used as discharge pipe, a separate non-corrosive, low resistance
4. Conductor from motor earth terminal to control panel earth terminal shall be provided for earthing.
5. A lightning arrestor shall be provided with every SPV Water Pumping System.

I. USE OF INDIGENOUS COMPONENTS

It will be mandatory to use indigenously manufactured solar modules. The motor-pump-set, controller and balance of system should also be manufactured indigenously. The SI has to declare the list of imported components used in the solar water pumping system.

J. PERFORMANCE REQUIREMENTS

Under the "Average Daily Solar Radiation" condition of 7.15 KWh / sq.m. on the surface of PV array (i.e. coplanar with the PV Modules), the minimum water output from a Solar PV Water Pumping System at different "Total Dynamic Heads" should be as specified below -

a) For D.C. Motor Pump Set -

- i) 110 liters of water per watt peak of PV array, from a Total Dynamic Head of 10 meter (Suction head, if applicable, maximum of 7 meter) and with the shut off head being at least 12meter.
- ii) 55 liters of water per watt peak of PV array, from a Total Dynamic Head of 20 meter (Suction head, if applicable, up to a maximum of 7 meters) and with the shut off head being at least 25meter.
- iii) 38 liters of water per watt peak of PV array, from a Total Dynamic Head of 30 meters and the shut off head being at least 45meter.
- iv) 23 liters of water per watt peak of PV array, from a Total Dynamic Head of 50meter and the shut off head being at least 70meter.
- v) 15 liters of water per watt peak of PV array, from a Total Dynamic Head of 70 meters and the shut off head being at least 100meter.
- vi) 10.5 liters of water per watt peak of PV array, from a Total Dynamic Head of 100 meters and the shut off head being at least 150meter.

The actual duration of pumping of water on a particular day and the quantity of water pumped could vary depending on the solar intensity, location, season etc.

Indicative performance specifications for the Shallow and Deep well SPV Water Pumping Systems are given in the Annexure IV.

b) For A.C. Induction Motor Pump Set -

- i) 99 liters of water per watt peak of PV array, from a Total Dynamic Head of 10 meter (Suction head, if applicable, maximum of 7 meters) and with the shut off head being at least 12meter.
- ii) 49 liters of water per watt peak of PV array, from a Total Dynamic Head of 20 meter (Suction head, if applicable, up to a maximum of 7

- meters) and with the shut off head being at least 25 meter.
- iii) 35 liters of water per watt peak of PV array, from a Total Dynamic Head of 30 meter and the shut off head being at least 45meter.
 - iv) 21 liters of water per watt peak of PV array, from a Total Dynamic Head of 50 meter and the shut off head being at least 70meter.
 - v) 14 liters of water per watt peak of PV array, from a Total Dynamic Head of 70 meter and the shut off head being at least 100 meter.
 - vi) 9 liters of water per watt peak of PV array, from a Total Dynamic Head of 100 meter and the shut off head being at least 150 meter.

The actual duration of pumping of water on a particular day and the quantity of water pumped could vary depending on the solar intensity, location, season, etc.

Indicative performance specifications for the Shallow and Deep well SPV Water Pumping Systems are given in the Annexure V.

4. TESTS FOR HYDRAULIC AND ELECTRICAL PERFORMANCE OF PUMPSET -

- i. The motor-pump set shall be tested independently for hydraulic and electrical performance as per the relevant IS specification including following test -
 - a) Constructional requirements /features
 - b) General requirements
 - c) Design features
 - d) Insulation resistance test
 - e) High voltage test
 - f) Leakage current test
- ii. Testing of SPV Water Pumping Systems shall be done as per procedure specified by the MNRE.

5. GUARANTEE OF PERFORMANCE -

- a) The SPV Water Pumping Systems shall be guaranteed for their performance of the nominal volume rate of flow and the nominal head at the guaranteed duty point as specified in 7.1 under the "Average Daily Solar Radiation" condition of 7.15 KWh/m² on the surface of SPV array (i.e. coplanar with the Photo Voltaic (PV) Modules). The actual duration of pumping of water on a particular day and the quantity of water pumped could vary depending on the solar intensity, location, season, etc.
- b) Solar Photo Voltaic Water Pumping Systems shall be guaranteed by the manufacturer against the defects in material and workmanship under normal use and service for a period of at least 60 months from the date of commissioning.
- c) Sufficient spares for trouble free operation during the Warrantee period should be made available as and when required.

6. MARKING AND PARAMETERS TO BE DECLARED BY THE MANUFACTURER -

The motor pump-set and Controller used in SPV Water Pumping Systems shall be securely marked with the following parameters declared by the manufacturer:

- i. **Motor Pump-set -**
 - a) Manufacturer's name, logo or trade-mark;
 - b) Model, size and SI No of pump-set;
 - c) Motor Rating (kW /HP);
 - d) Total head, m, at the guaranteed duty point;
 - e) Capacity (LPD) at guaranteed head;
 - f) Operating head range, m;

- g) Maximum Current(A);
- j) Voltage Range (V)and;
- k) Type - AC or DC Pump set;&
- l) Photo Voltaic (PV) Array Rating in Watts peak(W_p)

ii. Controller -

- a) Manufacturer's name, logo or trade-mark;
- b) Model Number;
- c) Serial Number;
- d) Voltage Range;
- e) Power Range in kW for Controller ;and
- f) Current rating(A)

7. OPERATION AND MAINTENANCE MANUAL -

An Operation and Maintenance Manual in Hindi, should be provided with the solar PV pumping system. The Manual should have information about solar energy, photovoltaic, modules, DC/AC 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. Helpline number and Name and address of the Service Centre and contact number of authorized representative to be contacted in case of failure or complaint should also be provided. A warranty card for the modules and the motor pump set should also be provided to the beneficiary.

8. Raw material test certificates (MTC) of all types of raw material used in dual axis manual tracking type MMS as per appropriate IS code should be submitted along with dispatch documents.

9. TESTS TO BE PERFORMED ON DUAL AXIS MANUAL TRACKING TYPE MMS FOR SOLAR WATER PUMPING SYSTEM -

1. For ascertaining proper welding of structure part following should be referred -
 - a. Weld wire grade should be of grade **(ER 70 S -6)**
 - b. D.P. Test (Pin Hole / Crack) **(IS822)**
2. For ascertaining hot dip galvanizing of fabricated structure following should be referred -
 - a. Min coating required should be as per IS4759.
 - b. Testing of galvanized material.
 - i. Preece Test (CuSO₄ Dip Test) **(IS2633)**
 - ii. Mass of Zinc **(IS 6745)**
 - iii. Adhesion Test **(IS2629)**

e-Price Bid-I**e-Price Bid (For supply, installation, Commissioning & Testing of Pump)**

Schedule of Rates for SPV DC- AC Surface/ Submersible Pumps

*(e-bidding as per Specifications & Scope of Work of No. 2162/CREDA/SPV-PUMPS/SSY-V/2020 Dated : 10.06.2020)*Supply, Survey, formulation of proposal, Installation and Commissioning of **Solar Photovoltaic Pumps (all types of MNRE Models)** anywhere in the State of Chhattisgarh.

Sl. No.	Particulars	Rates of Solar Pumping System with Solar Module, Solar Pump, Controller, M.M Structure, L.A, Earthing-02 Nos., Rope wire, Cable, PVC Pipes and other required BOS and with five years warrantee, System insurance , COMC ,Civil work, installation, commissioning and testing Excluding GST
1.	2700 Wp SPV Modules & 3 HP DC (Surface Pump)	
2.	2700 Wp SPV Modules & 3 HP AC (Surface Pump)	
3.	3000 Wp SPV Modules & 3 HP DC (Submersible Pump)	
4.	3000 Wp SPV Modules & 3 HP AC (Submersible Pump)	
5.	4800 Wp SPV Modules & 5 HP DC (Surface Pump)	
6.	4800 Wp SPV Modules & 5 HP AC (Surface Pump)	
7.	4800 Wp SPV Modules & 5 HP DC (Submersible Pump)	
8.	4800 Wp SPV Modules & 5 HP AC (Submersible Pump)	

Above rates are FOR anywhere in the State of Chhattisgarh inclusive of roadworthy packing, loading, unloading, all types of incidental expenses, 5 years warrantee, insurance and COM as mentioned in the tender document. Above rates applicable for all types of pump models for each category as per MNRE Specifications 2019-20 and Tender Annexure-IV,V (Page 54-57). **According to GST notification no. 24 /2018-Central Tax (Rate) Dated 31.12.2018 GST Rate will be applicable under composite supply and installation basis. Rate of GST on Supply of Goods (70% of gross consideration treated as supply of Goods) 5% GST and balance portion (30% of gross consideration treated as taxable installation services) 18% GST will be Paid extra as per prevailing rate.** No other cost will be claimed other than above quotes price & the applicable GST.

Note: In this regard if there is any change in the composition ratio of goods and services by any Authority/ Courts, same shall be applicable.

Signature of the Authorized Signatory :

Seal of Company :

Date :

e-Price Bid-II**e-Price Bid (For supply, installation, Commissioning & Testing of Controller & Universal Solar Pump Controller)**

Schedule of Rates for Controller & Universal Solar Pump Controller for SPV DC- AC Surface/
Submersible Pumps

(e-bidding as per Specifications & Scope of Work of No. 2162/CREDA/SPV-PUMPS/SSY-V/2020 Dated :
10.06.2020)

Supply, Installation and Commissioning of Controller & Universal Solar Pump Controller for **Solar Photovoltaic Pumps (all types of MNRE Models)** anywhere in the State of Chhattisgarh.

Sl. No.	Particulars	Rates of Supply of Controller for Solar Pumping System Excluding GST	Rates of Supply of Universal Solar Pump Controller for Solar Pumping System Excluding GST
1.	2700 Wp SPV Modules & 3 HP DC (Surface Pump)		
2.	2700 Wp SPV Modules & 3 HP AC (Surface Pump)		
3.	3000 Wp SPV Modules & 3 HP DC (Submersible Pump)		
4.	3000 Wp SPV Modules & 3 HP AC (Submersible Pump)		
5.	4800 Wp SPV Modules & 5 HP DC (Surface Pump)		
6.	4800 Wp SPV Modules & 5 HP AC (Surface Pump)		
7.	4800 Wp SPV Modules & 5 HP DC (Submersible Pump)		
8.	4800 Wp SPV Modules & 5 HP AC (Submersible Pump)		

Above rates are FOR anywhere in the State of Chhattisgarh inclusive of roadworthy packing, loading, unloading, all types of incidental expenses, 5 years warrantee, insurance and COM as mentioned in the tender document. Above rates applicable for all types of controller for solar pumping system each category as per MNRE Specifications 2019-20 and Tender Annexure- IV, V (Page 54-57). **According to GST notification no. 24 /2018-Central Tax (Rate) Dated 31.12.2018 GST Rate will be applicable under composite supply and installation basis. Rate of GST on Supply of Goods (70% of gross consideration treated as supply of Goods) 5% GST and balance portion (30% of gross consideration treated as taxable installation services) 18% GST will be Paid extra as per prevailing rate.** No other cost will be claimed other than above quotes price & the applicable GST.

Note: In this regard if there is any change in the composition ratio of goods and services by any Authority/ Courts, same shall be applicable.

Signature of the Authorized Signatory :

Seal of Company :

Date :

SCHEDULE - I**PART 'A': GENERAL INFORMATION**

(Strike off whichever is not applicable. Separate sheets should be used, wherever necessary)

- 01.** Name & Address of the Bidder :
- 02.** Name & Address of the firm/Company etc. :
- a) Registered office :
- b) Factory/works address :
- c) Fax Nos. :
- d) Telephone / Mobile Nos. :
- e) Email id :
- 03.** Confirm whether tenderer is Manufacturer : Yes/No
- 04.** Only manufacturer to give following particulars
- a) Address of factory :
- b) Year of starting manufacture :
- c) Whether same/similar materials :
Manufactured earlier
(if yes, give reference)
- d) Yearly/monthly production capacity :
- e) Maximum yearly production :
Achieved so far
- 05.** Whether the firm is SSI Unit of : Yes/No
Chhattisgarh State:
- a) If yes, write registration No. :
- b) Whether documentary evidence :
Regarding registration enclosed
- c) Items for registration :
- d) Period of registration :
- d) Whether latest copy Competency/ : Yes/No
Certificate furnished
- 06.** Whether the firm is 100% owned by
- a) State Government : Yes/No
- b) Central Government : Yes/No
- If yes, Notification/certificate issued from : Yes/No
The competent authority to this effect is
Enclosed
- 07.** a) Whether the bidder is old participant : Yes/No
with CREDA
- b) If yes, whether documentary : Yes/No
Evidence is enclosed.
- 08.** Any other information that bidder may like : If yes, give details
to give in order to highlight his bid

PLACE :

SIGNATURE OF TENDERER

NAME IN FULL

DATE :

DESIGNATION/STATUS

FIRM/COMPANY SEAL

SCHEDULE - I**PART 'B' : COMMERCIAL INFORMATION**

(Strike off, whichever is not applicable. Separate sheets should be used. Wherever necessary)

01. i) Earnest Money Details : Bank draft/Bankers cheque payable to "CREDA", Raipur
- ii) Amount of E.M.D. & full details : ₹
- iii) If exempted, state whether the bidder is / Fully Owned State/Central Govt. Unit : SSI Unit of C.G.
- iv) Reference of documentary evidence regarding exemption enclosed. : Yes/No
02. Whether the offer is valid for 6 months from the date of opening of commercial/technical bid. : Yes/No
03. Rate of Sales Tax on the date of bid (exclusive in the rate quoted) :
04. **DISCOUNT:**
- a) Whether any rebate/discount is offered. : Yes/No
- b) If yes, whether the rebate is unconditional/conditional Rate/amount of rebate/discount : Yes/No
- c) If conditional State condition : Yes/No
05. **PAYMENT TERMS:**
Whether CREDA's terms of payment is acceptable to tenderer : Yes/No
06. **COMPLETION PERIOD OF WORK:**
Whether tenderer is agreeing for completion period of work as Specified in the tender : Yes/No
07. **PENALTY CLAUSE:**
Whether agreeable to CREDA's Penalty Clause : Yes/No
08. Whether agreeable to CREDA's clause of warrantee period : Yes/No
09. **SECURITY DEPOSIT:**
Whether Security Deposit clause is understood : Yes/No
10. Indicate State, Central Sales Tax Registration Number State : Yes/No
Central:
- (Please Note that in case of non-registration with Commercial Tax, Department Purchase Tax as admissible shall be deducted by the Purchaser from the Bills of the supplier)
11. Please mention whether rates offered are applicable for part quantities. : Yes/No

PLACE:

SIGNATURE OF TENDERER

DATE:

NAME IN FULL

DESIGNATION/STATUS

FIRM/COMPANY SEAL

SCHEDULE - II**PART 'C' : TECHNICAL INFORMATION**

(Strike off whichever is not applicable. Separate sheets should be used. Wherever necessary)

01. Whether material offered is exactly as per technical specification : Yes/No
02. Whether the copies of completion certificate received during last 3 years from other State Nodal Agency or from other Organization for Solar pumping systems (if yes, give details) enclosed. : Yes/No
03. Whether pamphlets/technical details literatures along with drawing etc. furnished with the offer : Yes/No
(if yes, give details)
04. Whether the tenderer agrees to furnish material test certificates in respect of chemical composition and physical properties from Govt./ Govt. approved lab with each batch of supplies. : Yes/No
05. Whether the tenderer has furnished details of manufacturing equipments and short history of plant : Yes/No
(if yes, give details)
06. Whether details of manufacturing process furnished with offer. : Yes/No
(if yes, give details)
07. a) Whether all testing facilities are available. : Yes/No
If so, give details and in case of non-availability of facilities indicate approved lab available in surrounding areas where tests are proposed to be conducted.

PLACE

SIGNATURE OF TENDERER

DATE

NAME IN FULL

DESIGNATION/STATUS

FIRM/COMPANY

SEAL

SCHEDULE - III
TECHNICAL DEVIATIONS

From,
Tenderer Name & Address -

To,
The CE,
CREDA, HO,
Raipur

Sub - Technical Deviations.

Dear Sir,

The technical deviations & variations to the specifications stipulated in the tender, for the item quoted are as under -

Sl.No.	Condition	Clause No. of Tender document	Page No. of Tender document	Statement of deviations and variations
---------------	------------------	----------------------------------------------	--------------------------------------------	-------------------------------------------------------

2. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and other conditions. Variation/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the tender.

PLACE

SIGNATURE OF TENDERER

DATE

NAME IN FULL

DESIGNATION/STATUS

FIRM/COMPANY SEAL

NOTE - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this schedule.

SCHEDULE - IV**PAST EXPERIENCE****From :**

Bidder's Name & Address -

To,

The CE,**CREDA, HO,****Raipur****Sub - Performance/Past Experience.****Dear Sir,**

We furnish herewith the record of our performance and experience as follows -

Sl.No.	Purchaser's Name & Address	Order No. Date	Ordered Quantity	Qty. supplied (Nos.)	Value of Order
---------------	-------------------------------------------	---------------------------	-----------------------------	---------------------------------	---------------------------

PLACE

SIGNATURE OF TENDERER

DATE

NAME IN FULL

DESIGNATION/STATUS

FIRM/COMPANY SEAL

NOTE - Photocopy of the completion certificate received from other State Agencies/Govt. Undertakings etc. should be enclosed.

ANNEXURE - I

STANDARDS FOR SOLAR POWERED IRRIGATION SYSTEMS

Component	Standard	Description
1. PV Module- Design	IEC 61215-1:2016	Terrestrial Photovoltaic (PV)modules- Design qualification and type approval- Part 1 : Test requirements
	IEC 61215-1-1:2016	Terrestrial Photovoltaic (PV) modules- Design qualification and type approval- Part 1-1 : Special requirements for testing of crystalline silicon photovoltaic (PV) modules
	IEC 61215-1-2:2016	Terrestrial Photovoltaic (PV) modules- Design qualification and type approval- Part 2: Test procedures
2. Module Testing	IEC 61701: 2011	Salt mist corrosion testing of photovoltaic (PV) modules, wherever applicable
3. PV Module Safety	IEC 61730-1:2016	Photovoltaic (PV) module safety qualification- Part 1: Requirements for construction
	IEC 61730-2:2016	Photovoltaic (PV) module safety qualification- Part 1: Requirements for testing
	UL 1703/ UL 61730	PV module safety standards
4. Junction Box/ Fuses/ Cut-Offs	IEC 62790: 2014	Junction boxes for Photovoltaic modules – Safety requirements and tests
	UL 2579	UL 2579: Low Voltage Fuses- Fuses for Photovoltaic systems, wherever required
5. Connectors	UL 4248-18	Fuse Holders- Part 18: Photovoltaic Systems
	IEC 62852: 2014	Connectors for DC-application in photovoltaic Systems- Safety requirement test
6. Controllers	UL 6703	Connectors for use in Photovoltaic Systems
	IEC 61683:1999	Photovoltaic Systems- Power Conditions-Procedure for measuring efficiency
	IEC 60068-2-1: 2007	Environmental testing- Part 2-1: Tests- Test A : Cold
	IEC 60068-2-2: 2007	Environmental testing- Part 2-1: Tests- Test B : Dry heat
	IEC 60068-2-14: 2009	Environmental testing- Part 2-14, Test- Test-N: Change of temperature
	IEC 60068-2-30: 2005	Environmental testing-Part 2:30 Tests -Db: Damp heat, cyclic (12 h+ 12 h cycle)
	IEC 60529 : 2013	Degrees of protection provided by enclosures (IP Code)
7. Wires, Cable and Cords	UL 1581	Reference Standard for Electrical Wire, Cables and Flexible Cords
	UL 4703	Photovoltaic Wire

Note :

1. All pump systems mentioned under this tender should qualify the bench mark performance specified at specification for Solar Photo Voltaic Water Pumping Systems (Total water and Liter/Watt peak/Day requirement).
2. Submitted Test Reports / Acknowledgement should also include above standards.

ANNEXURE - IA

Detailed Specifications of BOS

Sl.No.	Components	Specification
1	Surface/Submersible cables	for 3HP 2.5/4 sq.mm., for 5HP 4 sq.mm. 3 core flat ISI mark copper cable. Sine wave filter should be used as and when required.
2	Cable for Panel	Wiring with MC4 connector 6/4 sq.mm. copper flexible universal DC cable with MC4 connector.
3	HDPE pipe for Submersible	Pump set- ISI 100% virgin with minimum PE100, DN63, PN8 as per IS 4984 of 1995 for 3HP and PN10 for 5HP Pump set.
4	Suction and delivery pipe for surface pump	IS 15265 PVC pipes hoses for suction line for agriculture pumps.
5	Rope wire/ Garware safety Rope	Stainless steel/GI 6mm for 3HP, 8mm for 5HP rope wire standard make. Garware/standard make safety rope of suitable size can also be used.
6	EarthingKit-1 and lighting arrestor	Chemical earthing as per IS 3043/IEC 60364-5-54/62561-2 standard make. LA 14 ft. GI pipe with 30mm GI strip.
7	EarthingKit-2	Chemical earthing with tested compound IEC 6235-3 of standard make.
8	SS theft proof Nut Bolt	SS304 anti theft Nut bolt with washer.
9	MS and SS Nut bolt and washer	MS with SS polish nut bolt and washer for main pole and other are SS nut bolt.
10	Conduit pipe/ black drip pipe	2mm thick PVC conduit pipe ISI make or black drip pipe for covering panel wiring.
11	Cable Tie	UV protected cable tie.
12	Foot Valve, Coupler	ISI/standard make PVC foot valve and standard make clamp.
13	Bend and Union	ISI B Class
14	Clamp, Bore cap	Bore cap & clamp good quality and standard make.
15	Instruction manual	DO & Don'ts, O&M instruction after Installation with SI,DO and CREDA toll free number etc.
16	Sticker	As per CREDA design

Note: Selection of Pump should be as per bore testing and for maximum discharge and pump also support minor irrigation system minimum drip irrigation system positively.

DRAFT AGREEMENT

CONTRACT AGREEMENT BETWEEN Chief Engineer Chhattisgarh State Renewable Energy Development Agency (CREDA) Raipur AND M/s..... Represented by THIS CONTRACT AGREEMENT against Tender No. 2162/CREDA/SPV-PUMPS/SSY-V/2020 Dated: 10.06.2020 (also referred to as "Service Contract") is made on the day of July 2020.

BETWEEN

- (1) Chief Engineer Chhattisgarh State Renewable Energy Development Agency (CREDA) Raipur a society incorporated under the laws Society Registration Act 1973 , (1973 , Sr. No. 44) (with amendment from time to time) and having its Registered Office at VIP Road Near Energy Education Park, Village- Fundhar, Raipur and (hereinafter called "The Employer" and also referred to as "CREDA")

And

- (2) Represented bya company incorporated under the laws of Companies Act 1956/2013/ Partnership firm/ Proprietorship firm/Consortium (as applicable, with amendment from time to time) and having its Principal place of business at and Registered Office at.....hereinafter called "The Contractor" and also referred to as "....."

Whereas the contractor has offered to enter into contract with the said CREDA for the Supply of Solar Irrigation Pumps and for installation, commissioning and comprehensive operation & maintenance of Solar Pumps with 5 Year Warranty for the capacities of 3Hp to 5Hp.

Wide Tender No.2162/CREDA/SPV-PUMPS/SSY-V/2020 Dated: 10.06.2020 on the terms and conditions herein contained and the rates approved by the CREDA (Letter No. dated annexed here to) have been duly accepted and where as the necessary security deposit shall be furnished in accordance with the provisions of the tender document and whereas no interest will be claimed on the security deposits.

Now these presents witness and it is hereby agreed and declared by and between parties to these presents as follows -

- 1) The Contractor shall, during the period of this contract, that is to say from to or completion thereof, until this Contract shall be determined by such notice as is hereinafter mentioned, safely carryout, by means of labours employed at his own expenses and by means of tools, implements and equipment etc. to be supplied by him to his labour at his own expenses, for installation of "Solar Pumps" as described in tender documents. (annexed to the agreement).
- 2) The NIT (Notice Inviting Tender), Corrigendum to NIT, Notices, Bid documents (Qualifying, Technical and Financial), approved rates annexed hereto and such other additional particulars, undertaking, instructions, general conditions of contract, Scope of work, Technical specifications of Solar Pumping Systems and Annexures therein, engineering documents, detailed specifications of BOS & drawings, so far they relate to the Tender No. 2162/CREDA/SPV-PUMPS/SSY-V/2020 Dated: 10.06.2020 as may be found requisite to be given during execution of the work shall be deemed and taken to be an integral part of the contract and shall also be deemed to be included in the expression "The Agreement or "The Contract "wherever herein used.
- 3) The contractor shall also supply the requisite number of workmen with means & materials as well as tools, appliances, machines, implements, vehicles for transportation, cartage etc. required for the proper execution of work within the time prescribed in the work orders and /or as per the tender conditions.

- 4) The Engineer in Charge or his authorized representative (s) shall be entitled at all reasonable times to inspect and supervise and test during installation and commissioning. Such inspection will not relieve the eligible SI from their obligations under this contract.
- 5) Material can be inspected before dispatch or in transit by the authorized representatives of CREDA at the factory at the cost of the eligible SI, if desired by CREDA. CREDA reserves right to inspect the material at Godowns / Temporary Stores before dispatch and also at works sites.
- 6) CREDA shall deduct TDS for Income Tax, applicable cess on Civil Work etc. under various acts and deposited with the appropriate authority. Costs and taxes before execution of agreement with CREDA so as to ensure tax deposition as per Government Rules accordingly.

7) **ELIGIBLE SYSTEM INTEGRATOR'S DEFAULT LIABILITY -**

CREDA may by written notice of default to the eligible SI, terminate the contract in circumstances detailed hereunder -

- (a) If in the opinion of the CREDA, the eligible SI fails to complete the work within the time specified in the sanction order or within the period for which extension has been granted by CREDA to the eligible SI.
- (b) If in the opinion of CREDA, the eligible SI fails to comply with any of the provisions of this contract.
- (c) In the event of CREDA terminating the contract in whole or in part as provided in paragraph (a) above, CREDA reserves the right to engage another eligible SI or agency upon such terms and in such a manner as it may deem appropriate and the eligible SI shall be liable to CREDA for any additional costs or any losses caused to CREDA as may be required for the completion of erection of the SPV Pumps and or for penalty as defined under this tender document until such reasonable time as may be required for the final completion of the work.
- (d) In the event CREDA does not terminate the contract as provided in paragraph (a) the eligible SI shall continue performance of the contract, in which case he shall be liable to CREDA for penalty for delay as set out in this tender document until the work is completed.

8) **FORCE MAJEURE -**

The eligible SI shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as of God, acts of public, enemy, LWE problems, acts of government, cyclone, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that if SI shall submit delay notice with appropriate cause of delay to the CREDA in writing within **15 days** of force majeure. CREDA shall verify the facts and may grant such extension as facts justify. Delay in supply of any accessories of Solar Pumps etc. by the related vendors, to whom the tenderer has placed order, shall also not be treated as force majeure.

9) **REJECTION OF WORKS -**

In the event of any of the material supplied/work done by the eligible SI is found defective in material or workman ship or otherwise not in conformity with the requirements of this contract specifications, CREDA shall either reject the material and/or work and advise the eligible SI to rectify the same. CREDA may impose penalty for such rejection up to the 200% cost of the entire system. Habitual/repeated offenders shall be black listed/debarred to participate in the any Tender/ Activity of CREDA till further orders. The eligible SI on receipt of such notices shall rectify or replace the defective material and rectify the work free of cost. If the eligible SI fails to do so CREDA may -

- a) At its option replace or rectify such defective materials and/or work and recover the extra cost so involved from the eligible SI plus **15%** service charges of the cost of such rectification, from the eligible SI and/ or terminate the contract for balance work/ supplies with enforcement of penalty as stated above.

b) Defective materials/workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The eligible SI shall be liable for any loss/damage sustained by CREDA due to defective work **with enforcement of penalty as stated above.**

10) EXTENSION OF THE TIME -

If the completion of installation is delayed due to any reason beyond the control of the eligible SI, the eligible SI shall without delay give notice to the CREDA in writing of his claim for an extension of time. CREDA on receipt of such notice may or may not agree to extend the contract/delivery date of the Solar System as may be reasonable but without prejudice to other terms and conditions of the contract.

11) PENALTY FOR DELAY IN COMPLETION OF CONTRACT -

If the eligible SI fails to complete the assigned work within the schedule time specified in the sanction order or any extension granted there to, CREDA will recover from the SI as penalty a sum of **Two per cent (2%)** of the system price for every delayed system per month. For this purpose, the date of taking over shall be reckoned as the date of completion. The total penalty shall not exceed **5% (Five Per cent)** of the cost.

Review of the progress of installation of pump allocated to SIs shall be done time to time by CREDA and if the progress of installation is found unsatisfactory, the allocation of entire remaining uninstalled pumps or their part of can be re-allocated to other SI as per discretion of CREDA.

12) PENALTY DUE FROM THE ELIGIBLE SI -

All costs of damages and delays for which the eligible SI is liable to the CREDA will be deducted from any money due to the eligible SI including the security deposit of any project under CREDA.

13) ELIGIBLE SI'S RESPONSIBILITY -

Notwithstanding anything mentioned in the specifications of subsequent approval or acceptance of the SPV Pump by CREDA, if any, the ultimate responsibility for satisfactory performance of the entrusted work shall rest with the eligible SI. If in any case the eligible SI does not complete the work as per the sanction orders issued to them then CREDA may take over the task & complete the project at the risk and cost of eligible SI.

14) RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE -

If any loss or damage occurs to the work or any part thereof or materials/plant/equipment's for incorporation therein the period for which the eligible SI is responsible for the cause thereof or from any cause whatsoever, the eligible SI shall at his own cost rectify/replace such loss or damage, so that the permanent work confirms in every respect with the provision of the contract to the satisfaction of the Engineer. The eligible SI shall also be liable for any loss or damage to the work/equipment's occasioned by him in course of any operation carried out to him during performing the contract.

15) RESPONSIBILITY TOWARDS THE WORKMAN OR OUTSIDERS -

- The eligible SI shall have to take insurance coverage from any authorized Insurance Company against Workmen compensation due under Workmen Compensation Act and submit copy of the insurance document before issuance of Sanction order.
- The eligible SI shall ensure all safety measures during execution and repairs of the work. CREDA, will, in no case be responsible for any accident fatal or non-fatal, caused to any workman or outsider in course of transport or execution or repairs of work.

- All the expenditure including treatment or compensation will be entirely borne by the eligible SIs. The eligible SI shall also be responsible for any claims of the workers including PF, Gratuity, ESI & other legal obligations.
 - SI shall have to submit JCCs within **60 days** after Installation and Commissioning of SPV Pumps in District Office of CREDA.
- 16) Contractor shall provide 05 year warranty in installed solar pump from the date of commissioning as per the terms & conditions prescribed in the Tender No. 2162/CREDA/SPV-PUMPS/SSY-V/2020 dated: 10.06.2020.
 - 17) **DECLARATION OF CONFLICT OF INTEREST** - The contractor hereby declares that nobody connected with or in the employment of **CREDA** is not/shall not ever be admitted as partner in the contract.
 - 18) (a) The contractor shall arrange insurance coverage for the materials and SPV Pumps at his/beneficiary's custody for the work under execution and successful commissioning and subsequent handover to the beneficiary. The contractor shall take up insurance or such other measures for the manpower so as to cover the claim for damage arising under workmen's compensation Act and other applicable State/ Central laws. CREDA shall not bear any responsibility on this account.
 (b) Contractor shall arrange for insurance coverage for SPV pumps and module during COMC period i.e. for 05 year from the date of installation. Insurance should cover for damage and theft. In case of such incidence, SI must replace the lost/damaged part within 7 days.
 - 19) The contractor shall abide by the terms and conditions, rules, guidelines, construction practices, safety precautions etc. stipulated in the tender document including any correspondence between the contractor and the **CREDA** having bearing on execution of work and payments of work to be done under the contract.
 - 20) The contractor shall be responsible to follow all the laws including Workmen Compensation Act and all other laws in force & shall be responsible for all the obligations towards labour including EPF, ESI, etc.
 - 21) All the taxes deductible at source as per Acts in vogue shall be recovered by **CREDA** and deposited with the appropriate authorities
 - 22) Contractor agrees to abide by any decision/instruction passed by the appropriate authority under Anti-profiteering rules notified by the state/central government under GST act.
 - 23) Any dispute arising out of the contract shall be subject to the jurisdiction of Hon'ble High Court of Chhattisgarh.

"Herewith everything and anything contained in Tender document no. 2162/CREDA/SPV-PUMPS/SSY-V/2020 dated: 10.06.2020 is part of this agreement which has been dully signed by both bidder and authorised signatory of CREDA".

In witness whereof the parties present today has hereby entered into agreement.

**Signed & sealed on behalf of the above
Named contractor**

Name :
Designation :

Signed on behalf of CREDA

Name: **Rajesh Trivedi**
Designation: **Chief Engineer**

Witness:

1. Name:-.....

2. Name:-.....

Address:-.....

Address:-.....

.....

.....

CONSORTIUM AGREEMENT

This Consortium Agreement executed on this Day of 2020

BETWEEN

M/S, a Company/Proprietorship Firm/Partnership Firm incorporate under the Law of companies Act 1956/2013 and having its registered/principal office at (GST No.....) through its proprietor S/o (herein after called the "Partner-I"/ "Lead Partner" which expression shall include its successors, executors and permitted assigns)

AND

M/s a Company/Proprietorship Firm/ Partnership Firm under Firm (GST No.) and having its registered/principal office at Through its Partner Mr. S/o (herein after called the "Partner-II"/"Second Partner" which expression shall include its successors, executors and permitted assigns)

For the purposes of submission a pre-qualification bid (hereinafter called "PQ Bid") and submitting the final bid in case of being pre-qualified in response to Owner's Pre-qualification document (hereinafter called PQ document) no. **TENDER DOCUMENT NO.....** and entering into a contract in case of award for the work of Survey, Design, Supply, Installation & Commissioning of Solar Photo Voltaic Irrigation Pumps of various capacities with five years onsite warrantee, COMC & insurance anywhere in the state of Chhattisgarh for **SOUR SUJLA YOJNA of CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA)**

AND WHEREAS as per PQ document, Consortium bids will also be considered by the Owner provided they meet the specific requirements in that regard.

NOW THIS INDENTURE WITNESSETH AS UNDER -

In consideration of the above premises and agreements all the partners to this Consortium do hereby now agree as follows:

1. We the partners in the Consortium hereby confirm that the name and style of the Consortium shall be "..... /" "Consortium."
2. FORMATION AND PRINCIPLE PLACE OF BUSINESS

FORMATION -

The partner of the consortium do hereby form a Consortium pursuant to the laws of state of Chhattisgarh in order for the consortium to carry on the purposes for which provision is made herein

PRINCIPAL PLACE OF BUSINESS -

The Consortium Partner shall maintain principal place of business at
The partners of the consortium may re-locate its office from time to time or have additional offices as the partners may determine

3. PURPOSE OF THE CONSORTIUM -

The object of the consortium to bid and perform Tender No. 2162/CREDA/SPV-PUMPS/SSY-V/2020 dated: 10.06.2020 from CHHATTISGARH STATE RENEWABLE ENERGY DEVELOPMENT AGENCY (CREDA) For Survey, Design, Supply, Installation & Commissioning of Solar Photo Voltaic Irrigation Pumps of Various Capacities with Five Years on Site warrantee, COMC & Insurance anywhere in the state of Chhattisgarh for SOUR SUJLA YOJNA and to deal with the same in any manner what so ever.

4. TERM -

The term of the consortium shall commence as of the date hereof and shall be terminated and dissolved upon the earliest to occur of (i) on mutual understanding of partners by executing separate agreement regarding dissolution of consortium (ii) the unanimous agreement of the partners (iii) the order of a court of competent jurisdiction (iv) Competition of the above mention tender

5. PERCENTAGE OF PARTICIPATION -

CONSORTIUM PARTNER	PARTNER	PERCENTAGE
1) M/S	Lead Partner (Partner 1)
2) M/s	Other Partner (Partner 2)
TOTAL -		

6. PARTICIPATION -

Both the partners have decided to perform the above mention work of CREDA in their above proportionate work.

7. The Lead Member is hereby authorized by the all Member of the Consortium to bind the Consortium and receive instructions for and on their behalf.
8. The Lead Member shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the Consortium in discharging all of their respective obligations. Each Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this Agreement.
9. Subject to the terms of this Agreement, the all member shall be responsible for providing technical and financial support and responsible equally for execution of project as per agreement to be signed.
10. Both the Partners shall be jointly responsible for Project Management of works.
11. In case of any breach of the said Contract by any of the partners of the CONSORTIUM, we hereby agree to be fully responsible for the successful execution/performance of the Contract in accordance with the terms of the Contract.
12. Further, if the Owner suffered any loss or damage on account of any breach of the Contract or any shortfall in the completed equipment/ plant, meeting the guaranteed performance parameters as per the technical specifications/ contract documents, the Lead Partner and Second Partner of these presents undertake to promptly make good such loss or damage caused to the Owner, on the Owner’s demand without any demure.
13. The financial liability of the partners to this Consortium Agreement, to the Owner with respect to the any or all claims arising out of the performance or non-performance of the Contract shall, however be not limited in any way so as to restrict or limit the liabilities of either of the partner.
14. This Consortium Agreement shall be governed, construed and interpreted in accordance with Laws of India. Courts of Raipur (C.G.) shall have exclusive jurisdiction in all matters arising there under.
15. It is further agreed that this CONSORTIUM Agreement shall be irrevocable and shall form an integral part of the Contract and shall continue to be enforceable till the Owner discharges the same. It shall be effective on the date first above mentioned for all purposes and intents.

IN WITNESS WHEREOF, the partners to this Consortium agreement have, through their respective authorized representatives, have executed these presents and affixed their hands and common seal of their respective companies on the day, month and year first above mentioned.

FOR, M/s

FOR, M/s

(MR.)
Lead Partner/Partner-1

(MR.)
Other Partner/Partner-2

WITNESS -
1.....
2.....

WITNESS -
1.....
2.....

Indicative Technical Specifications of Shallow Well (Surface) Solar Pumping Systems with D.C. Motor Pump Set with Brushes or Brushless D.C. (B.L.D.C.).

Description	Model-III	Model-IV	Model-V	Model-VI	Model-VII
PV array (Wp)	2700	2700	4800	4800	4800
Motor Pump-set capacity (HP)	3	3	5	5	5
Shut Off Dynamic Head (meters)	12	25	12	25	45
Water output * (Liters per day)	297000 (from a total head of 10 meters)	148500 (from a total head of 20 meters)	528000 (from a total head of 10 meters)	264000 (from a total head of 20 meters)	182400 (from a total head of 30 meters)

* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the "Average Daily Solar Radiation" condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

Notes -

1. Suction head, if applicable, maximum 7meters.
2. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause 4 (i.e. Performance Requirements) specified earlier.
3. If submersible pumps are used in lieu of surface pumps, the water output must match that of the surface pumps as specified in this table.

ANNEXURE – IV (CONTD.)

Indicative Technical Specifications of Solar Deep well (submersible) Pumping Systems with D.C. Motor Pump Set with Brushes or Brushless D.C. (B.L.D.C.)

Description	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII
PV array (Wp)	3000	3000	3000	4800	4800	4800
Motor Pump-set capacity (HP)	3	3	3	5	5	5
Shut Off Dynamic Head (meters)	45	70	100	70	100	150
Water output * (Liters per day)	114000 (from a total head of 30 meters)	69000 (from a total head of 50 meters)	45000 (from a total head of 70 meters)	110400 (from a total head of 50 meters)	72000 (from a total head of 70 meters)	50400 (from a total head of 100 meters)

* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

Notes -

1. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause 4 (i.e. Performance Requirements) specified earlier.
2. If surface pumps are used in lieu of submersible pumps, the water output must match that of the submersible pumps as specified in this table.

Indicative Technical Specifications of Shallow Well (Surface) Solar Pumping Systems with A.C. Induction Motor Pump Set

Description	Model-III	Model-IV	Model-V	Model-VI	Model-VII
PV array (Wp)	2700	2700	4800	4800	4800
Motor Pump-set capacity (HP)	3	3	5	5	5
Shut Off Dynamic Head (meters)	12	25	12	25	45
Water output * (Liters per day)	267300 (from a total head of 10 meters)	132300 (from a total head of 20 meters)	475200 (from a total head of 10 meters)	235200 (from a total head of 20 meters)	168000 (from a total head of 30 meters)

* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the "Average Daily Solar Radiation" condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

Notes -

1. Suction head, if applicable, maximum 7meters.
2. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause 4. (i.e. Performance Requirements) specified earlier.
3. If submersible pumps are used in lieu of surface pumps, the water output must match that of the surface pumps as specified in this table.

ANNEXURE – V (CONTD.)

Indicative Technical Specifications of Solar Deep well (submersible) Pumping Systems with A.C. Induction Motor Pump Set

Description	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII
PV array (Wp)	3000	3000	3000	4800	4800	4800
Motor Pump-set capacity (HP)	3	3	3	5	5	5
Shut Off Dynamic Head (meters)	45	70	100	70	100	150
Water output * (Liters per day)	105000 (from a total head of 30 meters)	63000 (from a total head of 50 meters)	42000 (from a total head of 70 meters)	100800 (from a total head of 50 meters)	67200 (from a total head of 70 meters)	43200 (from a total head of 100 meters)

* Water output figures are on a clear sunny day with three times tracking of SPV panel, under the “Average Daily Solar Radiation” condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

Notes -

1. For higher or lower head / PV capacity, or in between various models; water output could be decided as per the clause 4 (i.e. Performance Requirements) specified earlier.
2. If surface pumps are used in lieu of submersible pumps, the water output must match that of the submersible pumps as specified in this table.

**(EXPERIENCE CERTIFICATE ON THE OFFICIAL LETTER HEAD OF CONCERNED GOVERNMENT
DEPARTMENT WITH SEAL AND SIGN BY AUTHORIZED SIGNATORY)**

Ref. No.....

Date.....

CERTIFICATE OF COMPLETION - OFF GRID SPV PUMPS

This is to certify that **Name of Bidder, Address of Registered Office** has successfully completed the work of design supply, installation & commissioned ofNos. Off grid SPV Pumps (.....Scheme) against various Sanction of Name of Agency at various locations in.....State, as per following details –

Capacity & Type of SPV Pumps (HP / AC / DC / Submersible / Surface)	Year & Scheme	Total no. of Pumps	Remarks
Total -			

This workmanship and performance of the above installed systems are found satisfactory and are in successful operation.

**Seal & Sign
(Authorised Signatory)**

No. 318/38/2018-GCRT
 Government of India
 Ministry of New & Renewable Energy

Block No. 14, CGO Complex
 Lodhi Road, New Delhi
 Date: 25 July 2019

OFFICE MEMORANDUM

Subject: Benchmark costs for Off-grid Solar PV Systems and Solarisation of Grid Connected Agricultural Pumps for the Year 2019-20 –reg.

I am directed to convey the approval of competent authority for issuing of the benchmark costs for Off-grid Solar PV Systems and Solarisation of Grid Connected Agricultural Pumps for the Year 2019-20. System-wise benchmark costs are as under:

(i) **Standalone Solar Pumps**

Pump Capacity	Pump Type	Benchmark Cost (Rs. / HP)	
		General Category States	NER/ Hill States/ Island UTs
0.5 HP	AC/DC Surface	53000*	58300*
	AC/DC Submersible	68000*	74800*
1 HP	AC Surface	102000	112200
	AC Submersible	113000	124300
	DC Surface	108000	118800
	DC Submersible	119000	130900
2 HP	AC Surface	65000	71500
	AC Submersible	76000	83600
	DC Surface	73000	80300
	DC Submersible	86000	94600
3 HP	AC Surface/ Submersible	67000	73700
	DC Surface/ Submersible	74000	81400
5 HP	AC Surface/ Submersible	56000	61600
	DC Surface/ Submersible	66000	72600
7.5 HP	AC/DC Surface/ Submersible	56000	61600
10 HP	AC/DC Surface/ Submersible	51000	56100

* Benchmark cost *per system* instead of per HP shown for 0.5 HP solar pumps

(ii) **Solar Lighting Systems**

System	Benchmark Costs (Rs./Wp)	
	General Category States	North Eastern States/Hill States/ Island UTs
Solar Study Lamps	160	176
Solar Street Lights (with Li batteries)	299	328

(iii) **Standalone Solar Power Plants/Packs**

Capacity	Battery back-up (hrs)	Benchmark Costs (Rs./Wp)	
		General Category States	North Eastern States/Hill States/ Island UTs
Up to 10 kW	6	94	103
	3	74	81
	1	62	68
Above 10 kW and up to 25 kW	6	84	92
	3	66	72
	1	55	60

(iv) **Solarization of Grid-connected Agriculture Pumps**

Capacity	Benchmark Costs (Rs./Wp)	
	General Category States	North Eastern States/Hill States/ Island UTs
Up to 10 kW	54	59
Above 10 kW	48	52

2. The above benchmark costs are inclusive of total system cost and its installation, commissioning, transportation, insurance, five year AMC/CMC, and applicable fees and taxes.


 (Shobhit Srivastava)
 Scientist-C

To

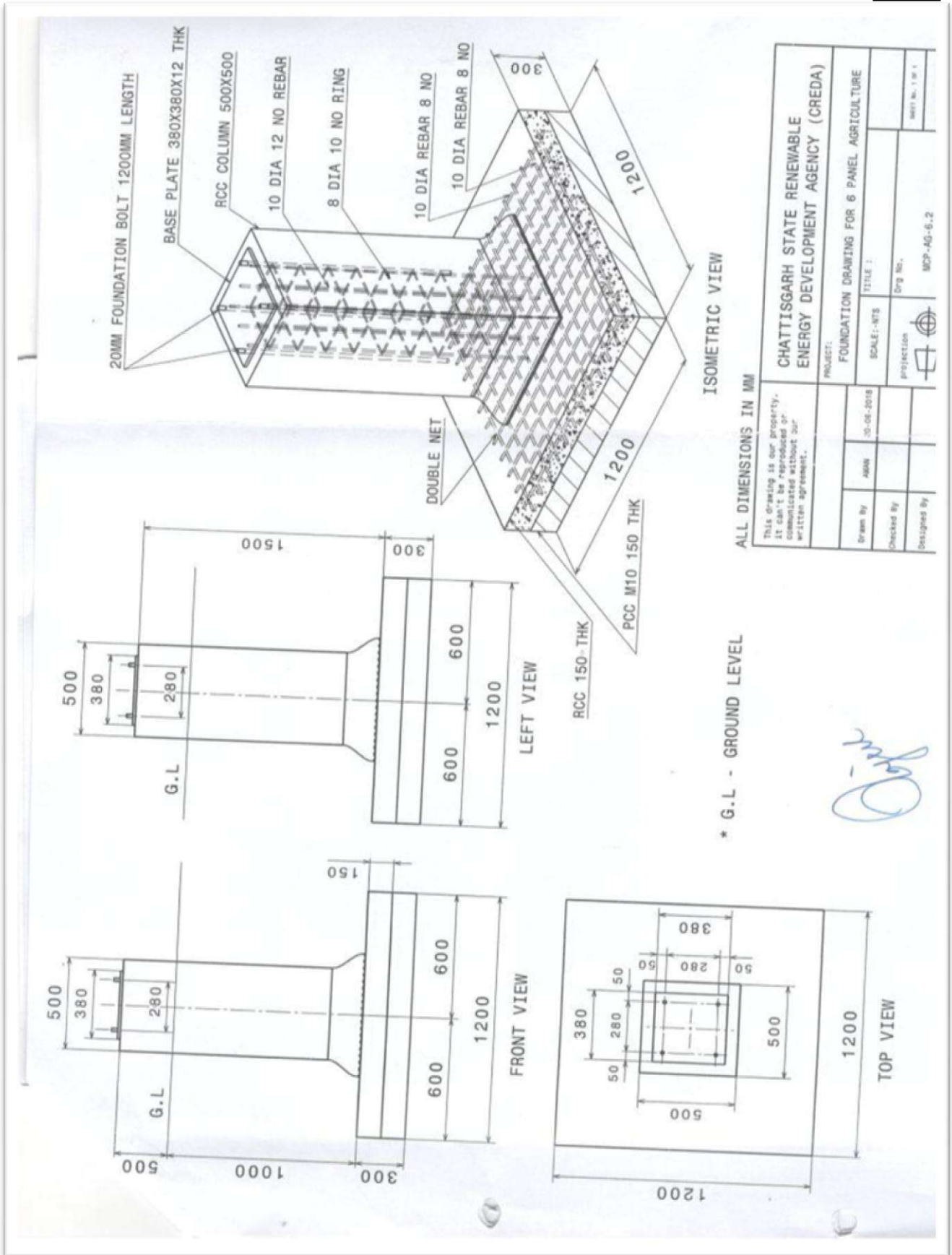
All Concerned

Copy to Dir. (NIC) to upload this on the Ministry's website

Complete Drawing of Module Mounting Structure & Civil Works

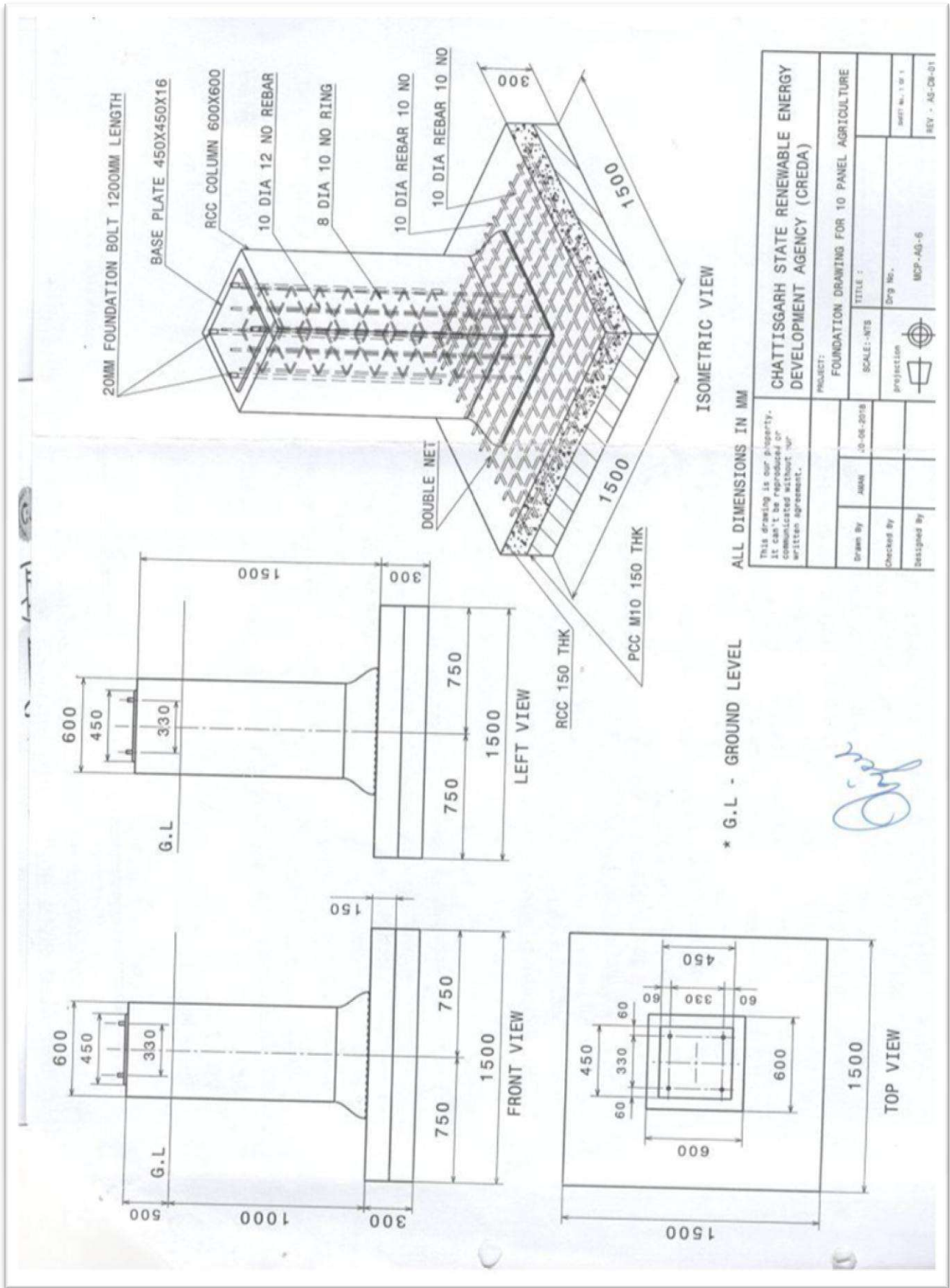
Foundation drawing for 6 & 8 nos. of SPV

A-1



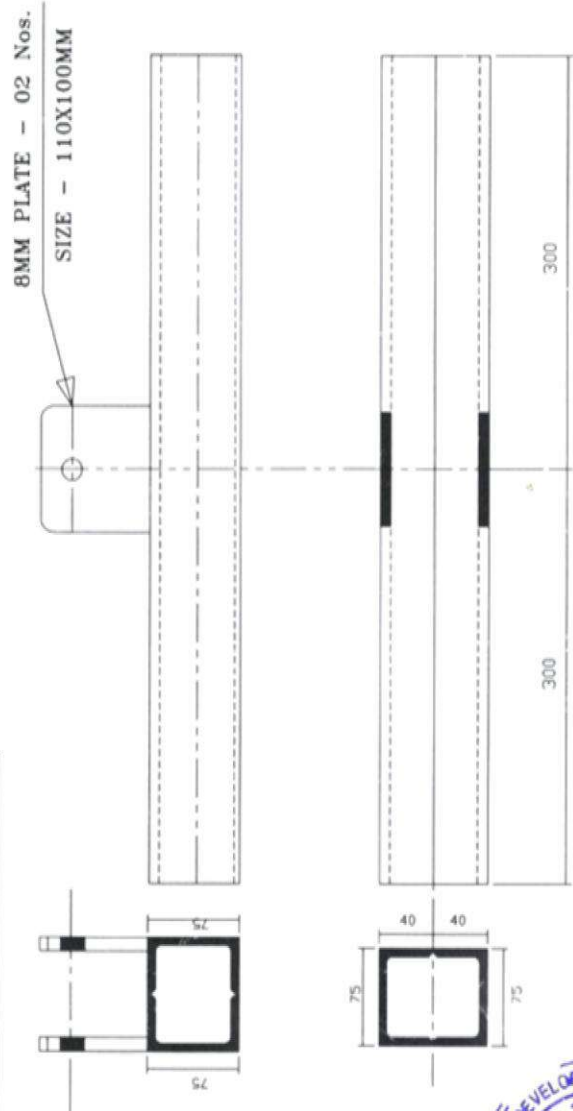
Foundation drawing for 9 & 10 nos. of SPV Modules

A-2



CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - LADDER SUPPORT



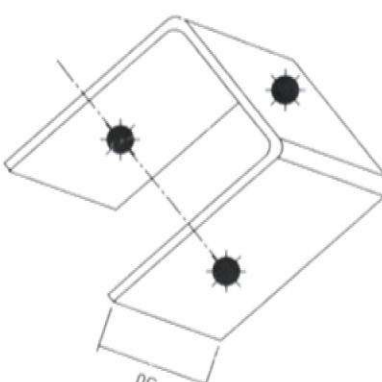
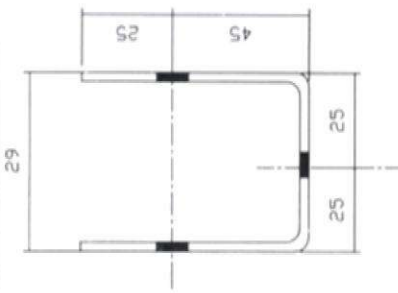
CHANNEL 75 X 40 - 600MM LENGTH

MARK NO. - > S5-1
QTY./STR. - > 01 No



NOTE: ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA						
APPROVED BY						
REF. DRG. NUMBER: SH.						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	17/17

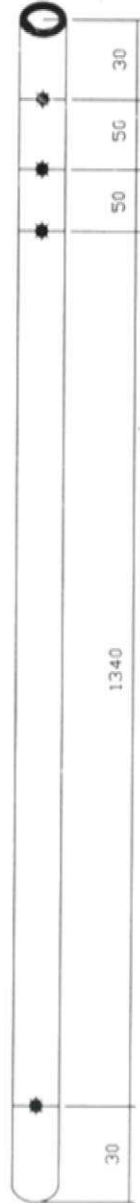
<p><u>CONTRACT/ SUBMITTED TO</u> CREDA HEAD OFFICE , RAIPUR (C.G.)</p>	<p><u>TYPE OF STRUCTURE</u> SPV PUMP 10NOS. OF 300WP MODULE</p>
<div style="border: 1px solid black; padding: 5px; display: inline-block;">NAME OF MEMBER - " U " CLAMP</div>	
	
<p>PLATE 6MM - 50 X 190MM LENGTH</p>	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">MARK NO. -> S4-6 QTY./STR. -> 04 Nos</div>	
<p>NOTE :- ALL DIMENSION IN MM</p>	



PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE			SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	16/17
SKETCH CORRECTED AS PER MODEL. - QA		13.5mm ϕ 17.5mm ϕ 18 mm ϕ 24mm ϕ 28 mm				
APPROVED BY						
REF. DRG. NUMBER: SH.						

CONTRACT/ SUBMITTED TO
 CREDA HEAD OFFICE , RAIPUR (C.G.)
 TYPE OF STRUCTURE
 SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - SUPPORTING PIPE



32 NB PIPE - 1500 MM LENGTH

MARK NO. -> S4-5
 QTY./STR. -> 04 Nos

NOTE :- ALL DIMENSION IN MM

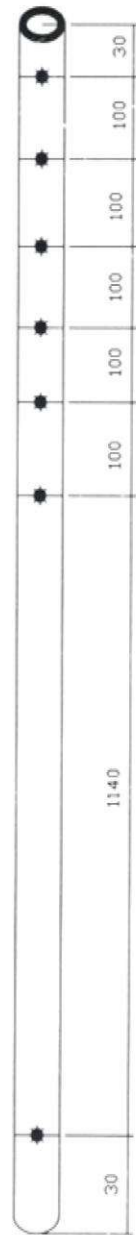


REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
0	FIRST ISSUE			SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	15/17
	13.5mm ϕ 17.5mm ϕ 18 mm ϕ 24mm ϕ 28 mm				

PREPARED BY
 CHECKED BY
 SKETCH CORRECTED AS PER MODEL. - QA
 APPROVED BY
 REF. DRG. NUMBER: SH.

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MAMBER - SUPPORTING PIPE



25 NB PIPE - 1700 MM LENGTH



MARK NO. -> S4-4
QTY./STR. -> 04 Nos

NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA	13.5mm	17.5mm	18 mm	24mm	28 mm	
APPROVED BY						
REF. DRG. NUMBER: SH.						
SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE						14/17

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 10NOS. OF 300WP MODULE
---------------------------------------------------------------	------------------------------------------------------

NAME OF MAMBER - RAFTER

CHANNEL 75 X 40 - 4100MM LENGTH

MARK NO. -> S4-3A
 QTY./STR. -> 01 No

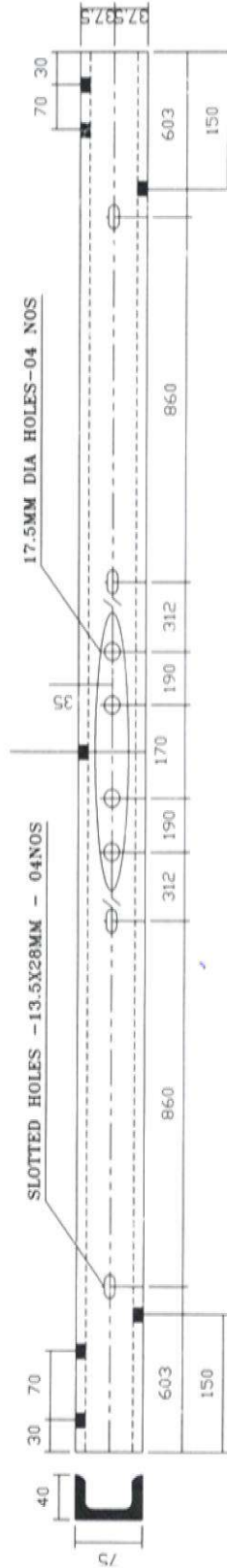
NOTE :- ALL DIMENSION IN MM



PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
	0	FIRST ISSUE			SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	13A/17
CHECKED BY						
SKETCH CORRECTED AS PER MODEL. - QA		13.5mm ϕ 17.5mm ϕ 18 mm ϕ 24mm ϕ 28 mm				
APPROVED BY						
REF. DRG. NUMBER: SH.						

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MAMBER - RAFTER



CHANNEL 75 X 40 - 4100MM LENGTH

MARK NO. -> S4-3
QTY./STR. -> 02 Nos

NOTE :- ALL DIMENSION IN MM



PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA						
APPROVED BY						
REF. DRG. NUMBER: SH.						
SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE						13/17

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - MAIN BEAM PLATE

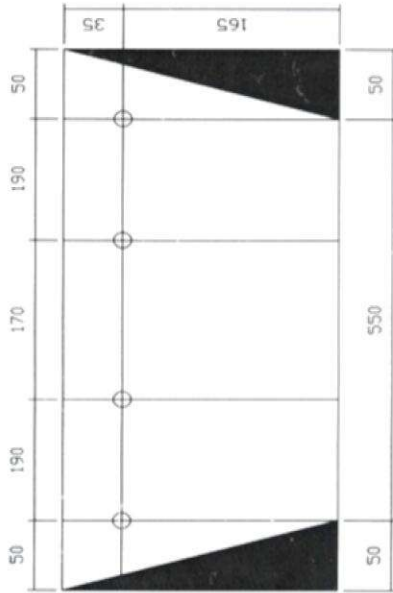


PLATE 10MM - 200 X 650MM LENGTH

MARK NO. -> S4-2
QTY./STR. -> 02 Nos

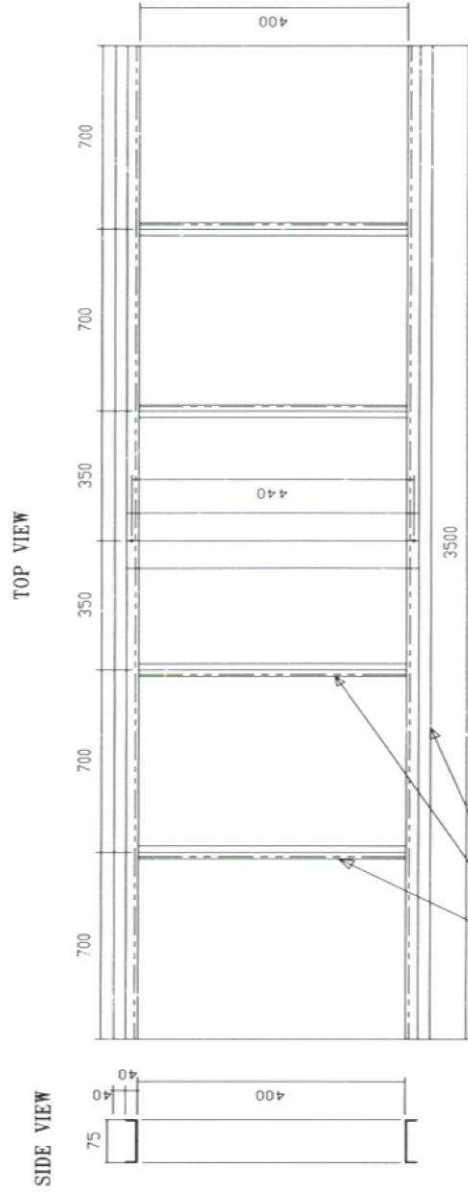


NOTE :- ALL DIMENSION IN MM

REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
0	FIRST ISSUE				
	SKETCH CORRECTED AS PER MODEL. - QA APPROVED BY	13.5mm 17.5mm 18 mm 24mm 28 mm		SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	12/17
REF. DRG. NUMBER: SH.					

CONTRACT/ SUBMITTED TO TYPE OF STRUCTURE
 CREDA HEAD OFFICE , RAIPUR (C.G.) SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - MAIN BEAM ASSEMBLY



CHANNEL - 75X40 (TYP) CHANNEL 75 X 40 - 3500MM LENGTH

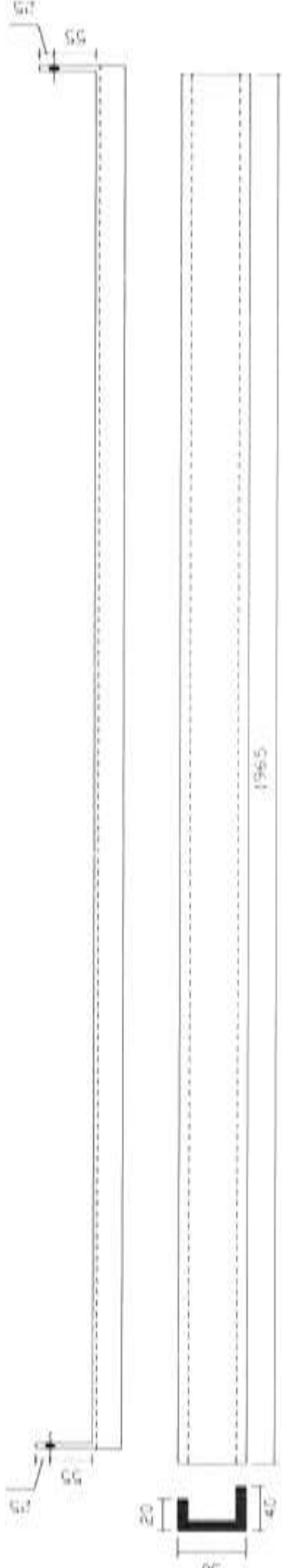
MARK NO. -> S4-1
 QTY./STR. -> 01 No



NOTE :- ALL DIMENSION IN MM.

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA						
APPROVED BY						
REF. DRG. NUMBER: SH.						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	11/17


CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP IONOS. OF 300WP MODULE	NAME OF MEMBER - SIDE LOCKING CHANNEL	
---------------------------------------------------------------	------------------------------------------------------	---------------------------------------	--



1965 +80+80 - 2130 MM LG

C-CHANNEL 40X50X20X2.5 - 2130 MM LG

MARK NO. -> S3-3
 QTY./STR. -> 04 Nos



NOTE :- ALL DIMENSION IN MM

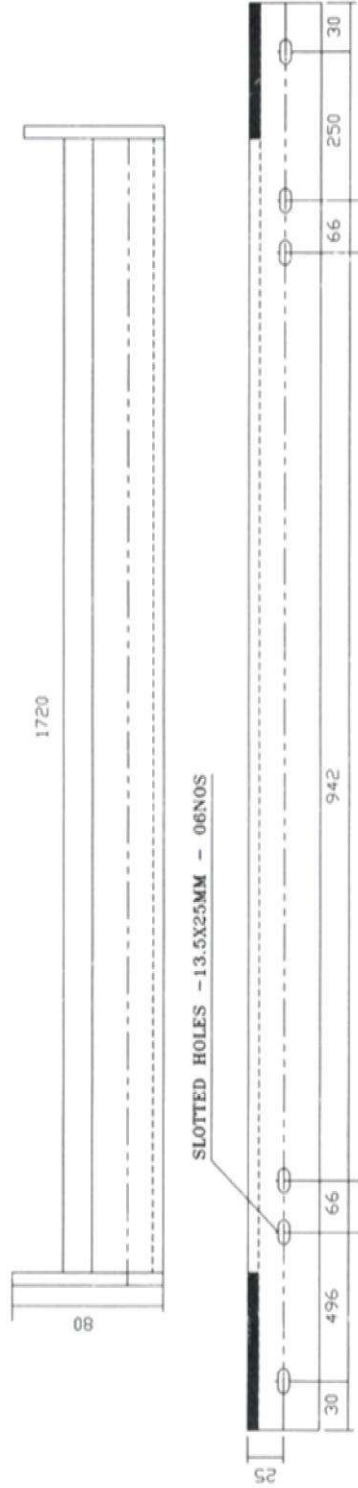
PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - Q8						
APPROVED BY		13.5mm ± 17.5mm ± 18 mm ± 24mm ± 26 mm				
REF. DRG. NUMBER: SH.						

SHOP DRAWING FOR SPV PUMP
10 NOS. OF 300WP MODULE

10/17

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 10NOS. OF 300WP MODULE
---------------------------------------------------------------	------------------------------------------------------

NAME OF MAMBER - INNER PERLIN



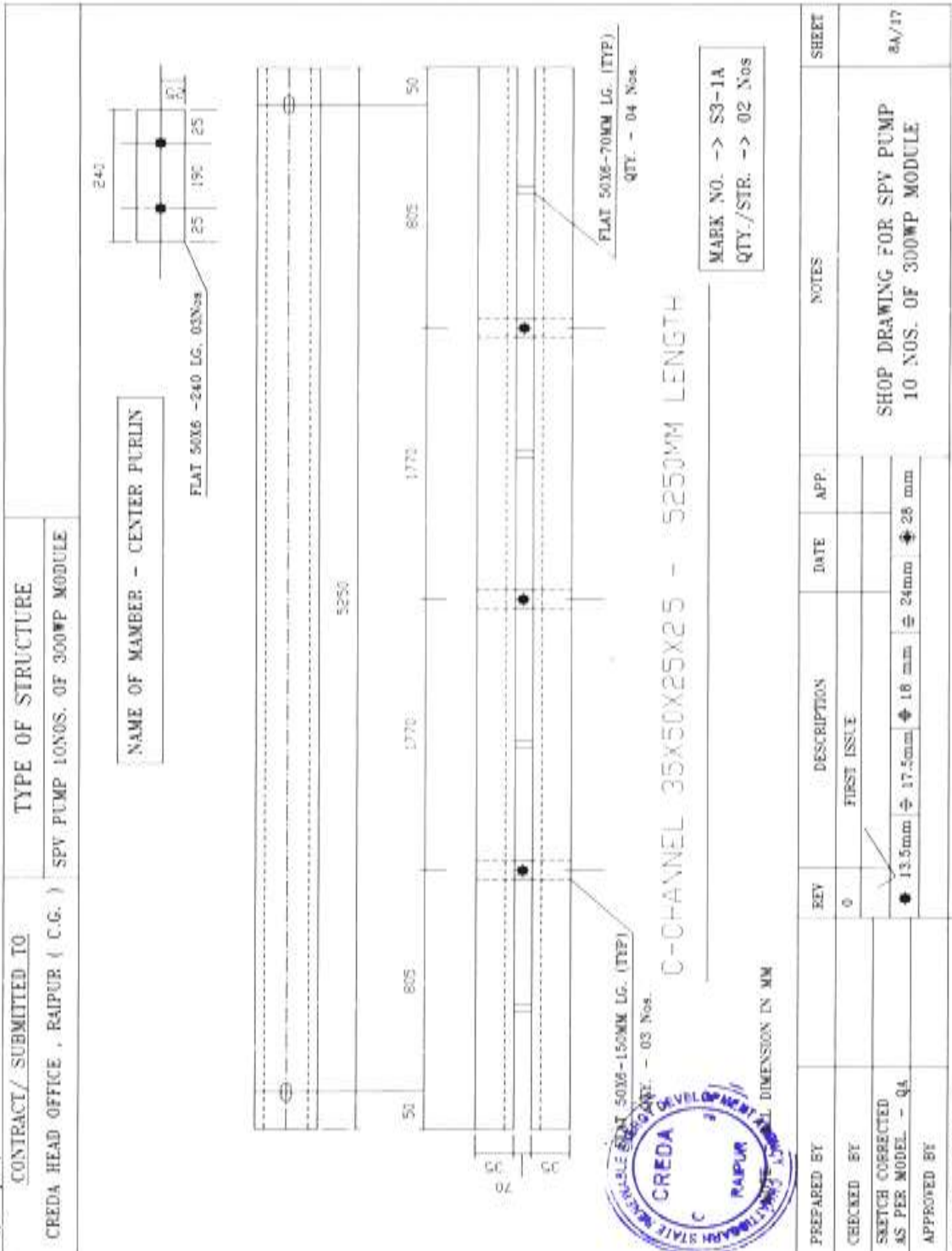
MARK NO. -> S3-2
QTY./STR. -> 04 Nos

MARK NO. -> S3-2A (OPP. FAB.)
QTY./STR. -> 04 Nos

L 45X45X5 - 1880MM LENGTH

NOTE :- ALL DIMENSION IN MM

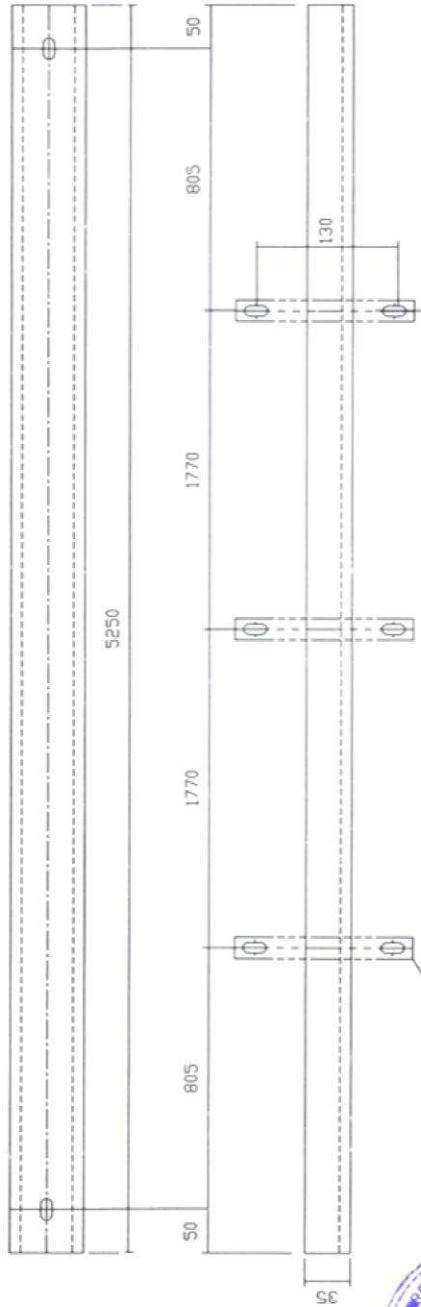
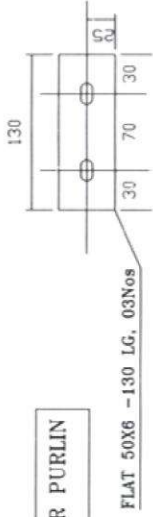
PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET	
CHECKED BY	0	FIRST ISSUE			SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	9/17	
SKETCH CORRECTED AS PER MODEL. - QA	● 13.5mm	● 17.5mm	● 18 mm	● 24mm			● 28 mm
APPROVED BY							
REF. DRG. NUMBER: SH.							



CONTRACT/ SUBMITTED TO: TYPE OF STRUCTURE: SPV PUMP 10NOS. OF 300WP MODULE

CREDA HEAD OFFICE , RAIPUR (C.G.)

NAME OF MEMBER - OUTER PURLIN



FLAT 50X6-130MM LG. (TYP)
QTY. - 03 Nos.



C-CHANNEL 35X50X25X2.5 - 5250MM LENGTH

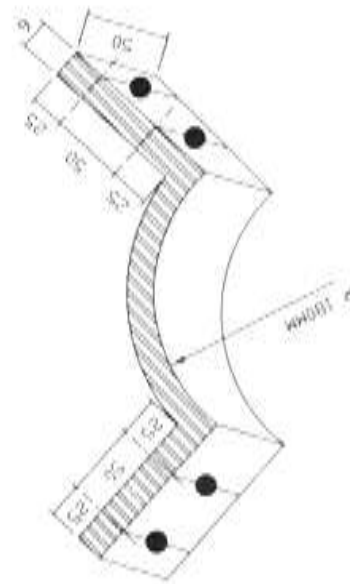
MARK NO. -> S3-1
QTY./STR. -> 02 Nos

NOTE :- ALL DIMENSION IN MM

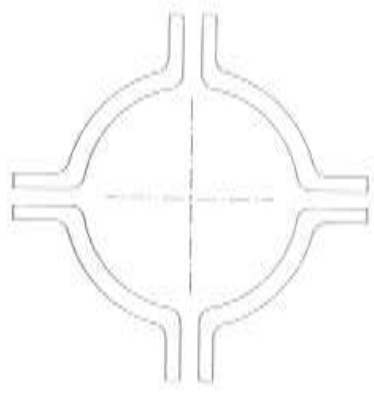
PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA						
APPROVED BY						
REF. DRG. NUMBER: SH.						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	8/17

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE, RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 10NOS. OF 300WP MODULE
--------------------------------------------------------------	------------------------------------------------------

NAME OF MEMBER - LOWER ' U ' CLAMP



SIDE VIEW OF "U" CLAMP



TOP VIEW OF "U" CLAMP

PLATE 6MM THK. - 50 X 310MM LENGTH

MARK NO. -> S2-8
QTY./STR. -> 04 Nos

NOTE :- ALL DIMENSION EN MM



PREPARED BY	KEY	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY						
REF. DRG. NUMBER: SE						
SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE						7/17

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE, RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 10 NOS. OF 300WP MODULE
--------------------------------------------------------------	-------------------------------------------------------

NAME OF MEMBER - UPPER BASE PLATE

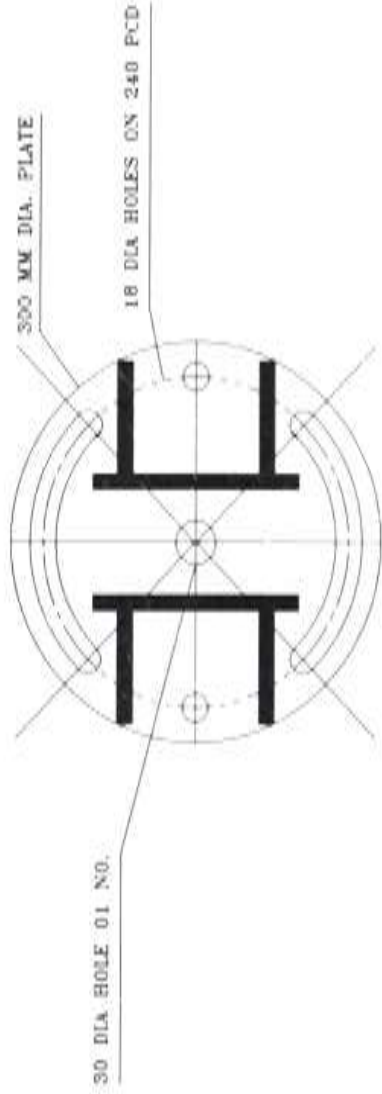


PLATE 10MM THK. - 300 X 300MM LENGTH

MARK NO. -> S2-7
QTY./STR. -> 01 No



NOTE - ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SMETCH CORRECTED AS PER MODEL. - SA	1	13.5mm \pm 17.5mm \pm 18 mm \pm 24mm. \pm 28 mm				
APPROVED BY						
REF. DRG. NUMBER: SSI						
SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE						6/17

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE . RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - UPPER SUPPORT PLATE

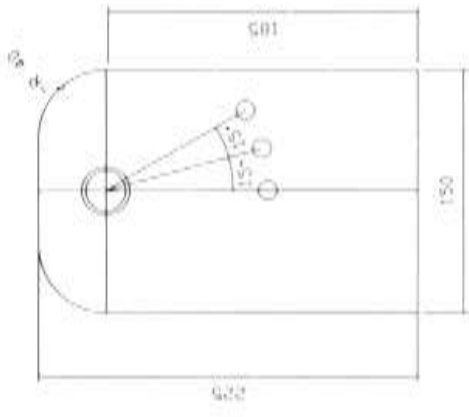


PLATE 10MM THK - 150 X 225MM LENGTH

MARK NO. -> S2-6
QTY./STR. -> 02 Nos



NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY						
REF. Dwg. NUMBER: SH.						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	5/17

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE, RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 10NOS. OF 300WP MODULE
--------------------------------------------------------------	------------------------------------------------------

NAME OF MEMBER - UPPER BASE PLATE

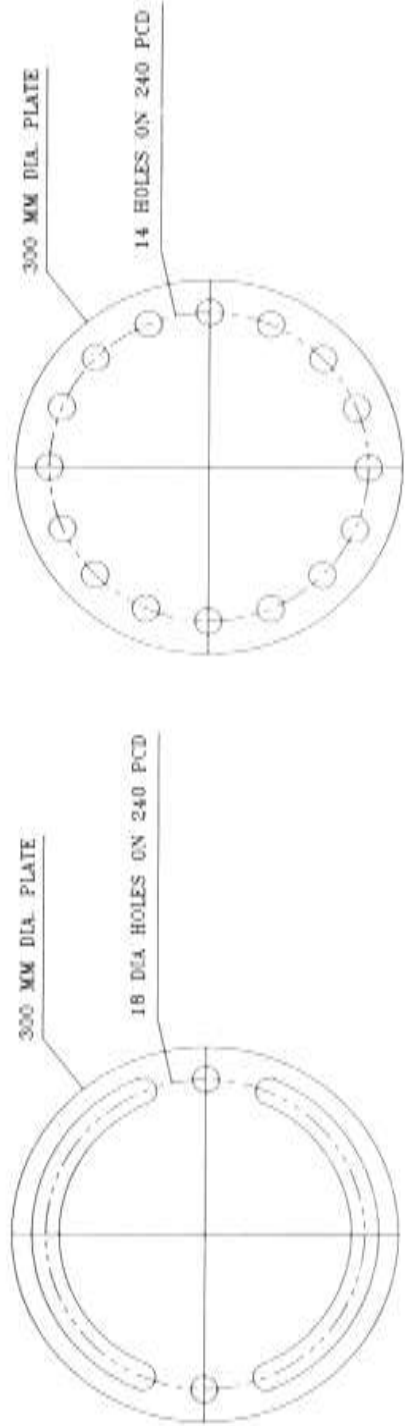


PLATE 10MM THK - 300 X 300MM LENGTH

MARK NO. -> S2-4
QTY./STR. -> 01 No



NOTE: ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	4/17
REF. DRG. NUMBER: SB						

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 10X05 OF 300WP MODULE
---------------------------------------------------------------	-----------------------------------------------------

NAME OF MEMBER - STIFFENER PLATES

LOWER STIFFENER PLATES



PLATE 10MM THK. - 125 X 250MM LENGTH



UPPER STIFFENER PLATES

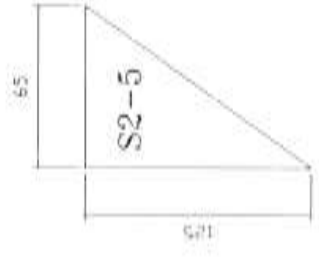


PLATE 8MM THK - 65 X 125MM LENGTH

MARK NO. -> S2-3
QTY./STR. -> 04 Nos

MARK NO. -> S2-5
QTY./STR. -> 08 Nos

NOTE -> ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY						
REF. DRG. NUMBER: SBL						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	3/17

CONTRACT/ SUBMITTED TO: TYPE OF STRUCTURE
 CREDA HEAD OFFICE, RAIPUR (C.G.) SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - LOWER BASE PLATE

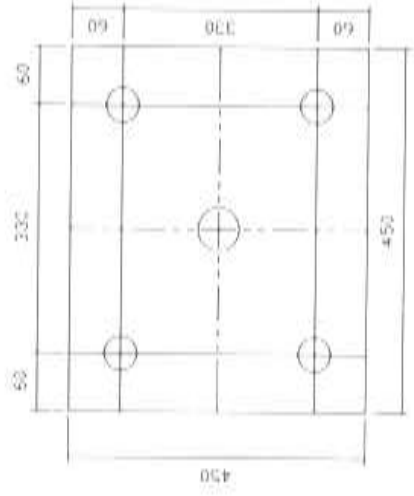


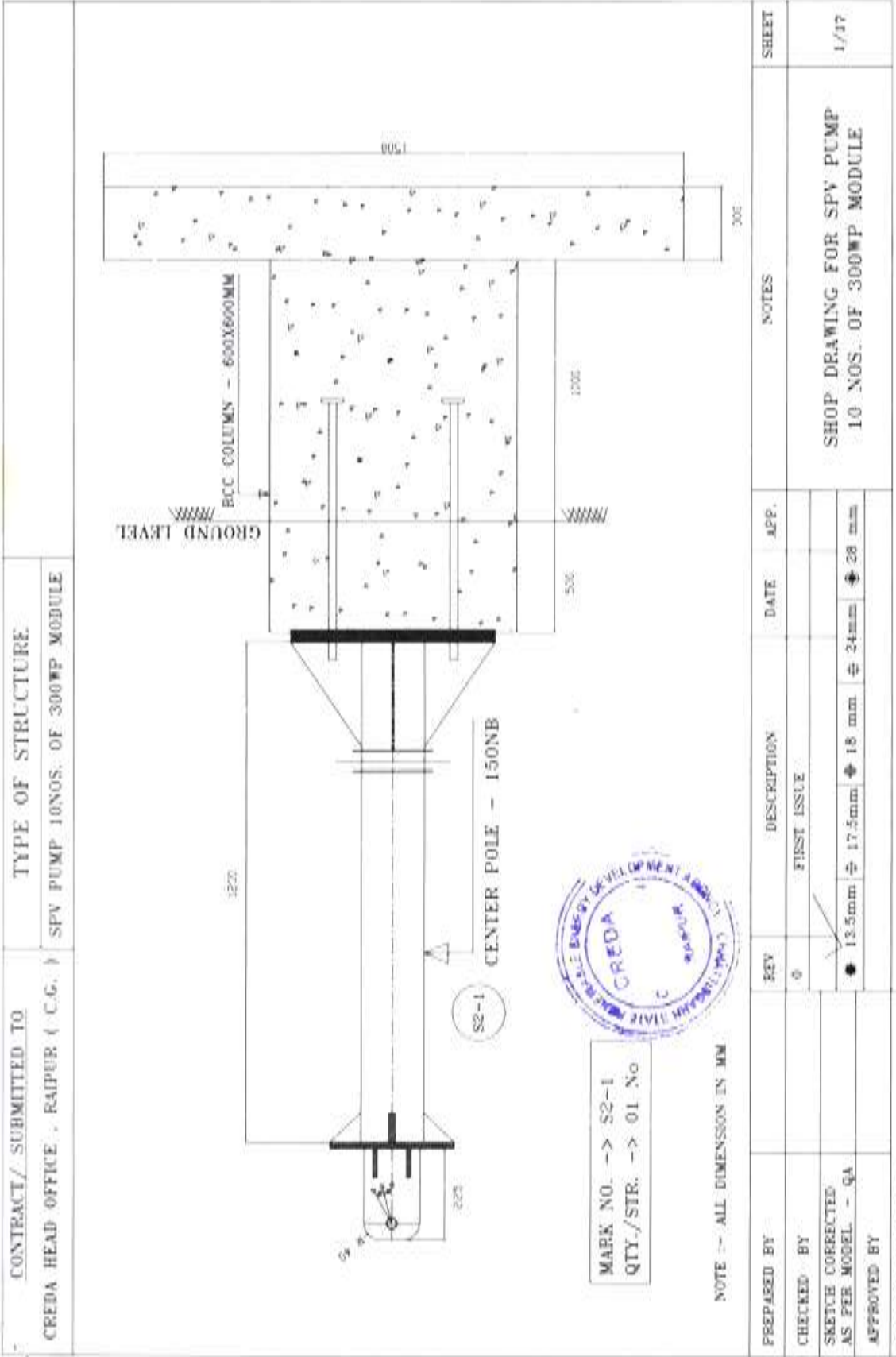
PLATE 16MM THK. - 450 X 450MM LENGTH

MARK NO. -> S2-2
 QTY./STR. -> 01 No



NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY						
REF. Dwg. NUMBER: SH.						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	2/17



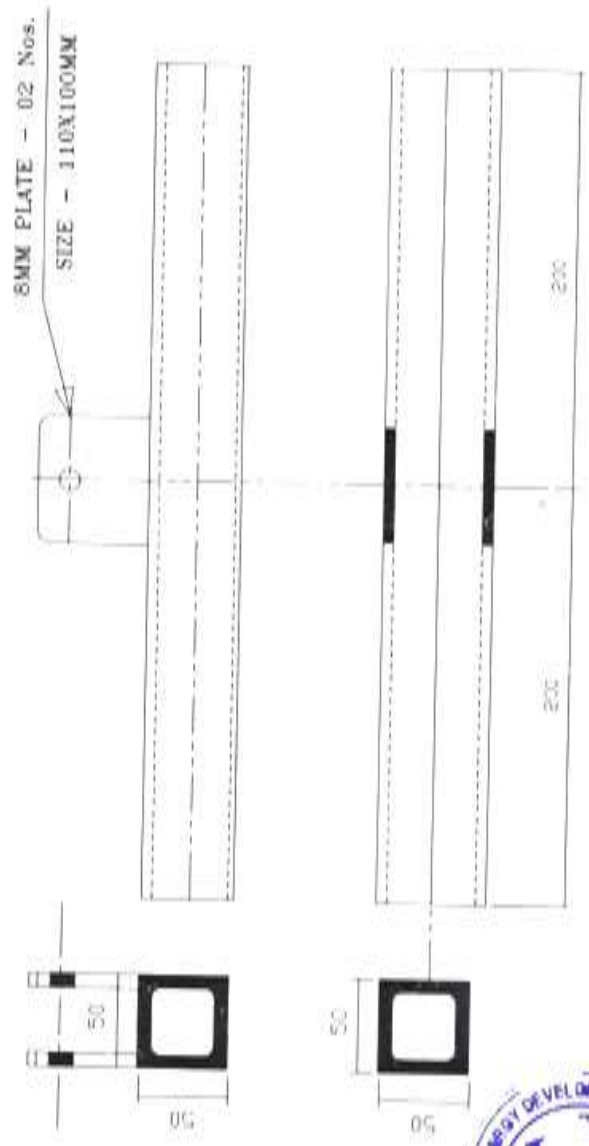
MARK NO. -> S2-1
 QTY./STR. -> 01 No

NOTE -> ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET		
CHECKED BY	0	FIRST ISSUE			SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	1/17		
SKETCH CORRECTED AS PER MODEL - QA	●	13.5mm	17.5mm	18 mm			24mm	28 mm
APPROVED BY								
REF. DRG. NUMBER: SR								

CONTRACT/ SUBMITTED TO: TYPE OF STRUCTURE
 CREDA HEAD OFFICE, RAIPUR (C.G.) SPV PUMP 6 NOS. OF 300WP MODULE

NAME OF MEMBER - LADDER SUPPORT



CHANNEL 75X40 - 400MM LENGTH

MARK NO. -> S5-1
 QTY./STR. -> 01 No



NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY		13.5mm ϕ 17.5mm ϕ 18 mm ϕ 24mm ϕ 26 mm				
REF. Dwg. NUMBER-SH.						
SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE						17/17

CONTRACT/ SUBMITTED TO: CRED A HEAD OFFICE , RAIPUR (C.G.)
 TYPE OF STRUCTURE: SPV PUMP 6 NOS. OF 300WP MODULE

NAME OF MEMBER - " U " CLAMP

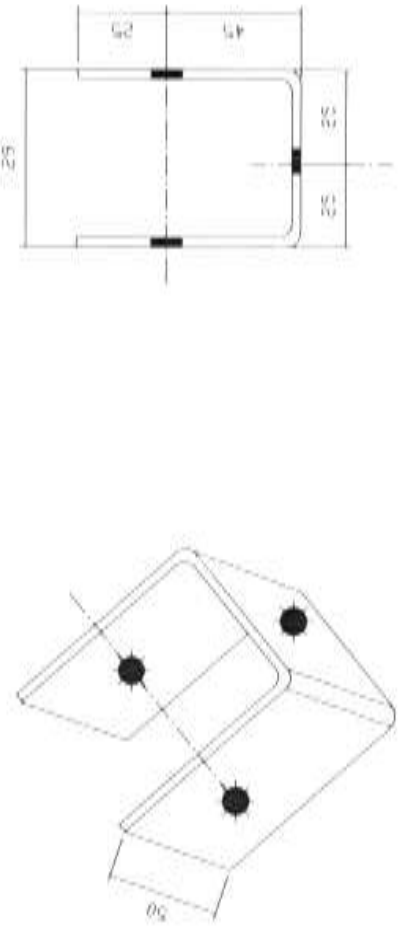


PLATE 6MM - 50 X 190MM LENGTH

MARK NO. -> S4-6
 QTY./STR. -> 04 Nos



NOTE -> ALL DIMENSION IN MM

REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
0	FIRST ISSUE				16/17
1	13.5mm ϕ 17.5mm ϕ 18 mm ϕ 24mm ϕ 28 mm			SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	
PREPARED BY					
CHECKED BY					
SKETCH CORRECTED AS PER MODEL - QA					
APPROVED BY					
REF. DRG. NUMBER: SE					

CONTRACT/ SUBMITTED TO: **TYPE OF STRUCTURE**
 CREDA HEAD OFFICE, RAIPUR (C.G.) **SPV PUMP 10NOS. OF 300WP MODULE**

NAME OF MEMBER - SUPPORTING PIPE



32 NB PIPE - 1500 MM LENGTH

MARK NO. -> S4-5
 QTY./STR. -> 04 Nos

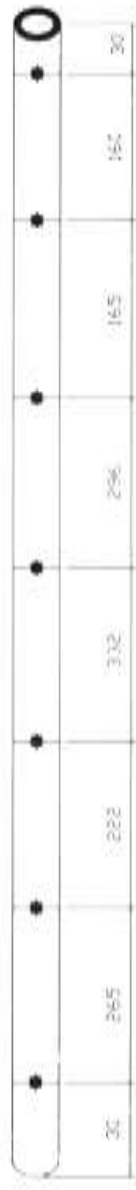


NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	15/17
APPROVED BY		13.5mm ± 17.5mm ± 18 mm ± 24mm ± 28 mm				
REF. DRG. NUMBER: SH.						

CONTRACT/ SUBMITTED TO		TYPE OF STRUCTURE	
CREDA HEAD OFFICE , RAIPUR (C.G.)		SPV PUMP 6 NOS. OF 300WP MODULE	

NAME OF MEMBER - SUPPORTING PIPE



25 NB PIPE - 1500 MM LENGTH

MARK NO. -> S4-4
QTY./STR. -> 04 Nos

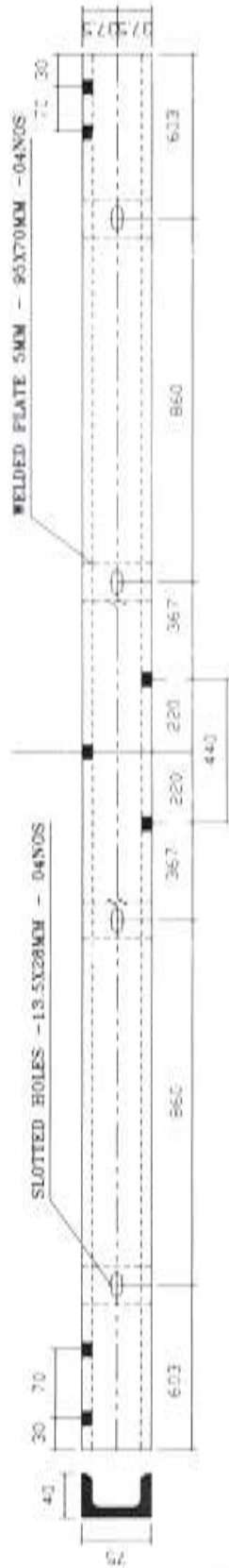


NOTE - ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA						
APPROVED BY						
REF. DRG. NUMBER: SB						
					SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	14/17

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - RAFTER



MARK NO. -> S4-3A
QTY./STR. -> 01 No

CHANNEL 75 X 40 - 4100MM LENGTH

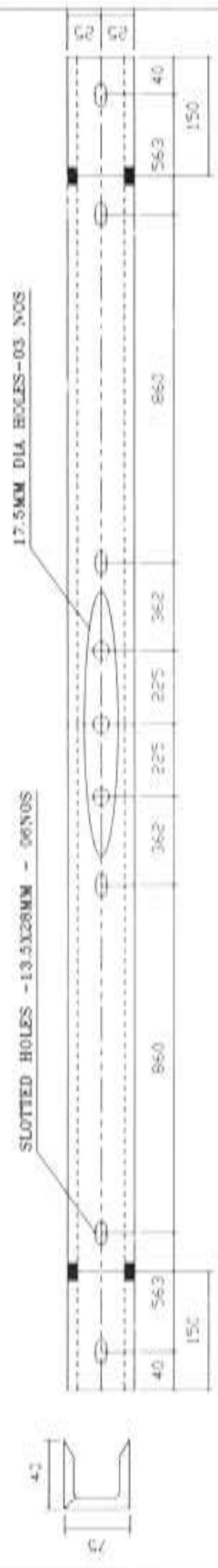


NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - GA	● 13.5mm	17.5mm	18 mm	24mm	28 mm	
APPROVED BY						
REF. Dwg. NUMBER: SH						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	134/17

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 6 NOS. OF 300WP MODULE

NAME OF MEMBER - RAFTER



CHANNEL 75X40 - 4100MM LENGTH

MARK NO. -> S4-3
QTY./STR. -> 03 Nos

NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA APPROVED BY REF. EGG. NUMBER: SH						
					SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	13/17

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 6 NOS. OF 300WP MODULE

NAME OF MEMBER - MAIN BEAM PLATE

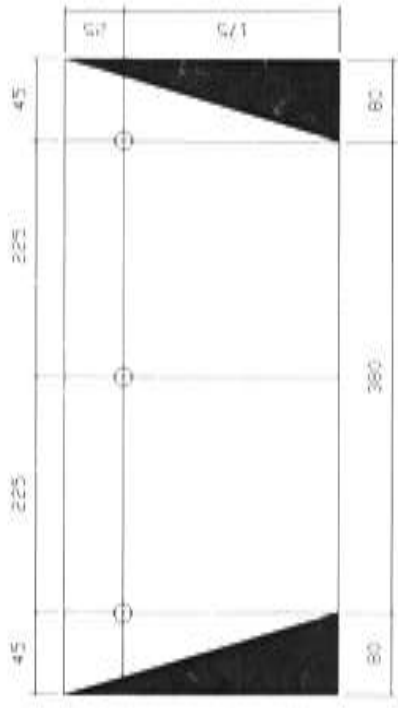


PLATE 8MM - 200 X 540MM LENGTH

MARK NO. -> S4-2
QTY./STR. -> 02 Nos

NOTE -> ALL DIMENSION IN MM




PREPARED BY	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA					
APPROVED BY	13.5mm ϕ 17.5mm ϕ 18 mm ϕ 24mm ϕ 28 mm				
REF. DRG. NUMBER: SB.					
				SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	12/17

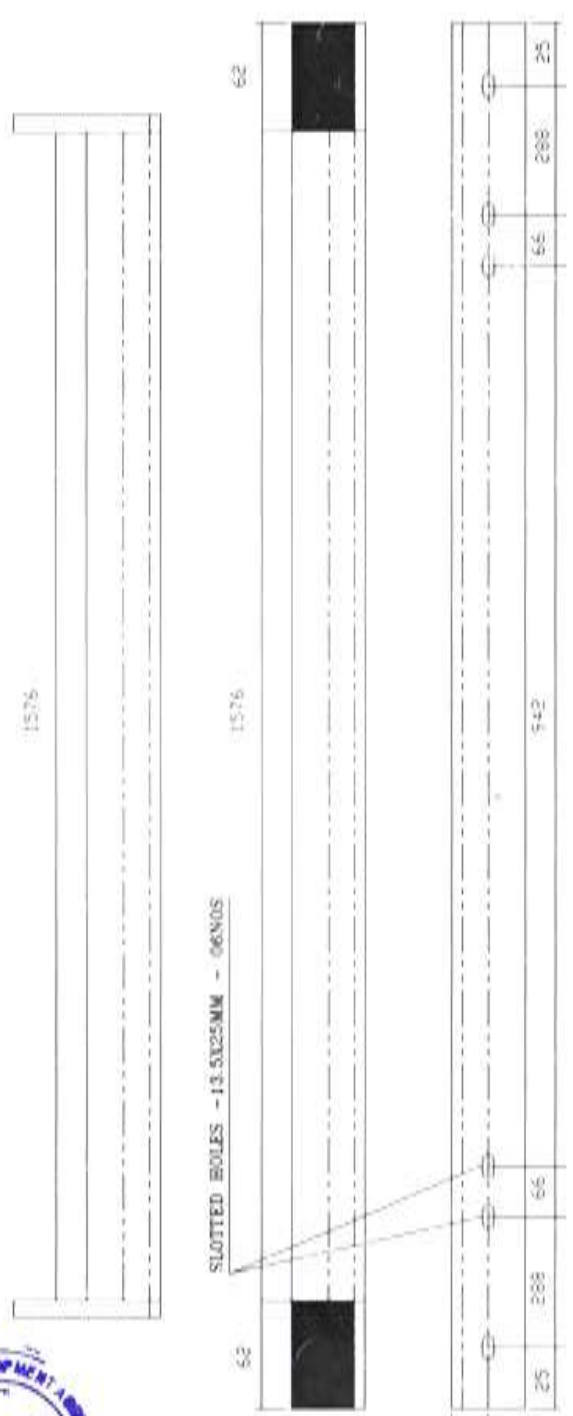


CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE, RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 6 NOS. OF 300WP MODULE	NAME OF MEMBER - SIDE LOCKING CHANNEL	
C-CHANNEL 40X50X20X2.5 - 2130 MM LG			
NOTE :- ALL DIMENSION IN MM			
MARK NO. -> S3-3 QTY./STR. -> 04 Nos			

REV	DESCRIPTION	DATE	APP.	SHEET
0	FIRST ISSUE			10/17
	● 13.5mm ϕ 17.5mm ϕ 18 mm ϕ 24mm ϕ 26 mm			
SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE				
PREPARED BY				REF. DRG. NUMBER: SE
CHECKED BY				
SKETCH CORRECTED AS PER MODEL - QA				
APPROVED BY				

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE, RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 6 NOS. OF 300WP MODULE	NAME OF MEMBER - INNER PERLIN
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L 45X45X5 - 1700MM LENGTH


MARK NO. -> S3-2
 QTY./STR. -> 08 Nos

NOTE :- ALL DIMENSION IN MM

REV.	DESCRIPTION	DATE	APP.
0	FIRST ISSUE		

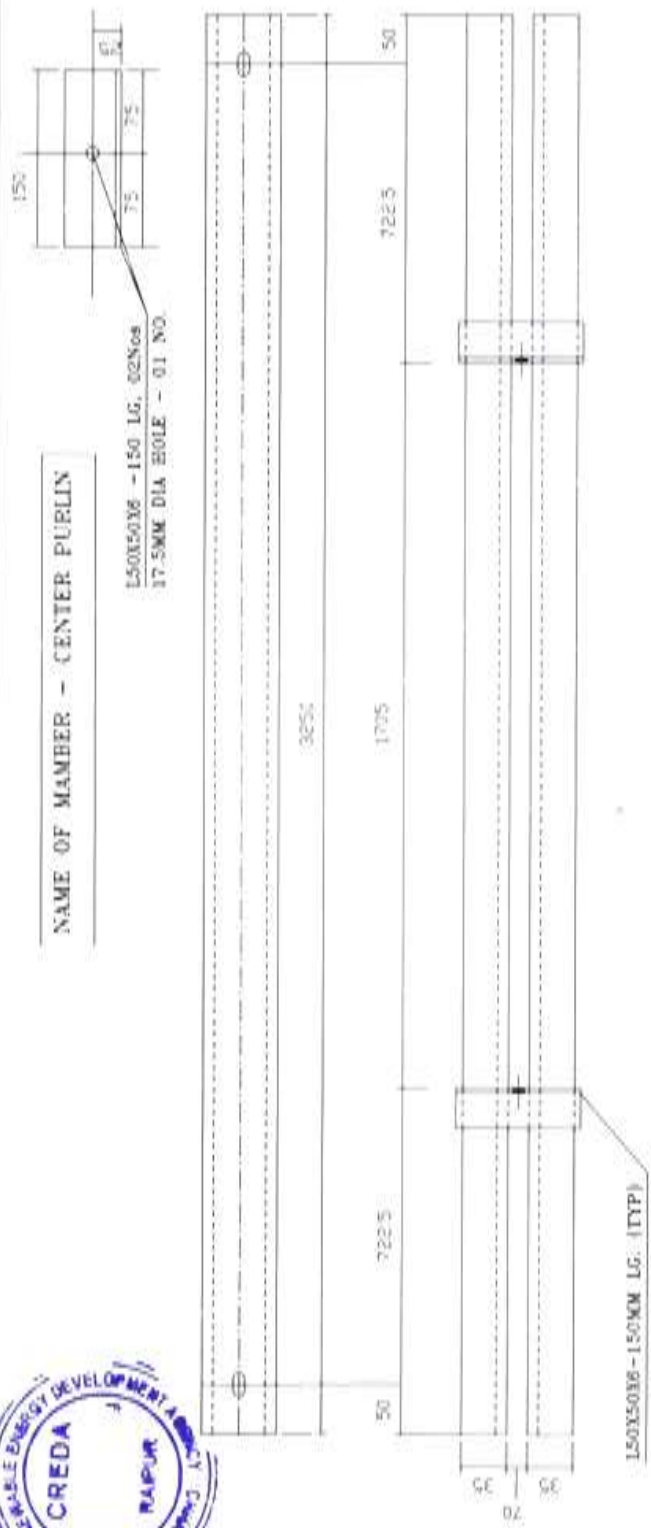
PREPARED BY CHECKED BY SKETCH CORRECTED AS PER MODEL - QA APPROVED BY	SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	NOTES SHEET 9/17
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CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 6 NOS. OF 300WP MODULE
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NAME OF MEMBER - CENTER PURLIN

L50X50X6 -150 LG. 02Nos
17.5MM DIA HOLE - 01 NO.



C-CHANNEL 35X50X25X2.5 - 3250MM LENGTH

L50X50X6 -150MM LG. (TYP)
QTY. - 02 Nos.

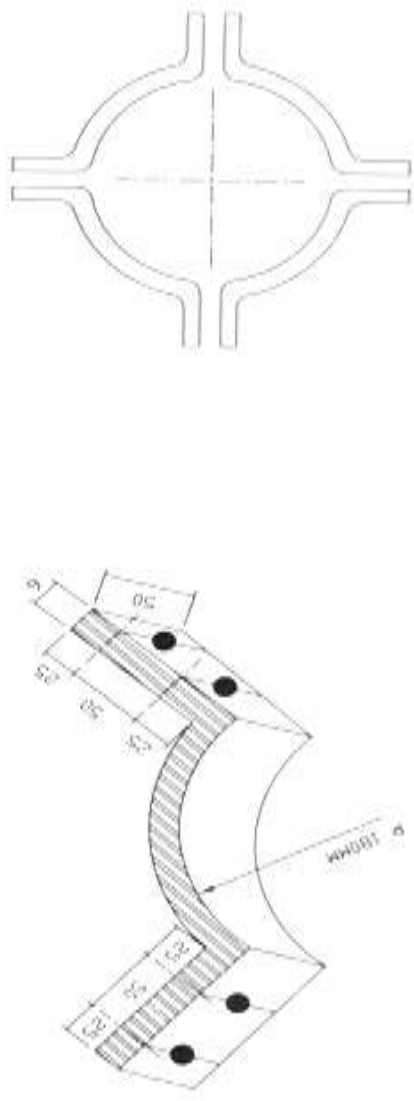
MARK NO. -> S3-1A
QTY./STR. -> 02 Nos

NOTE - ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES
	0	FIRST ISSUE			
	●	13.5mm ± 17.5mm ± 15 mm ± 24mm ± 28 mm			
SKETCH CORRECTED AS PER MODEL - QA					SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE 8A/17
APPROVED BY					
REF. DRG. NUMBER: SH					

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE , RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE

NAME OF MEMBER - LOWER ' U ' CLAMP



TOP VIEW OF "U" CLAMP

SIDE VIEW OF "U" CLAMP

PLATE 6MM THK. - 50 X 310MM LENGTH

MARK NO. -> S2-8
QTY./STR. -> 04 Nos

NOTE :- ALL DIMENSION IN MM

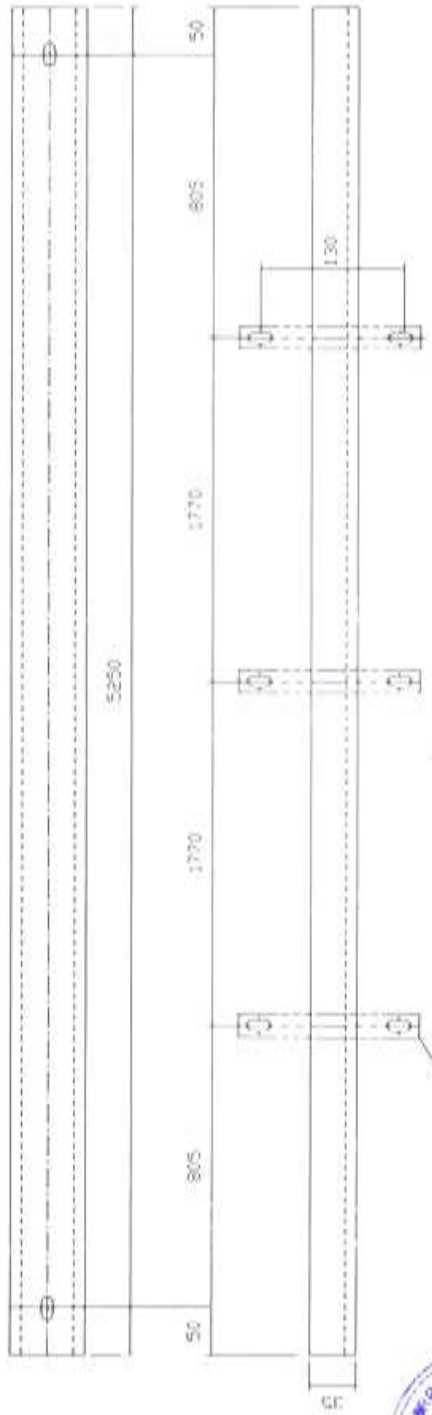


PREPARED BY	REV	DESCRIPTION	DATE	APP	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY						
REF. DRG. NUMBER: SE						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	7/17

CONTRACT/ SUBMITTED TO	TYPE OF STRUCTURE
CREDA HEAD OFFICE . RAIPUR (C.G.)	SPV PUMP 10NOS. OF 300WP MODULE



NAME OF MEMBER - OUTER PURLIN



C-CHANNEL 35X50X25X2.5 - 5250MM LENGTH

MARK NO. -> S3-1
QTY./STR. -> 02 Nos



NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY						
REF. Dwg. NUMBER-SR						
					SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	8/17

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 6 NOS. OF 300WP MODULE
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NAME OF MEMBER - UPPER BASE PLATE

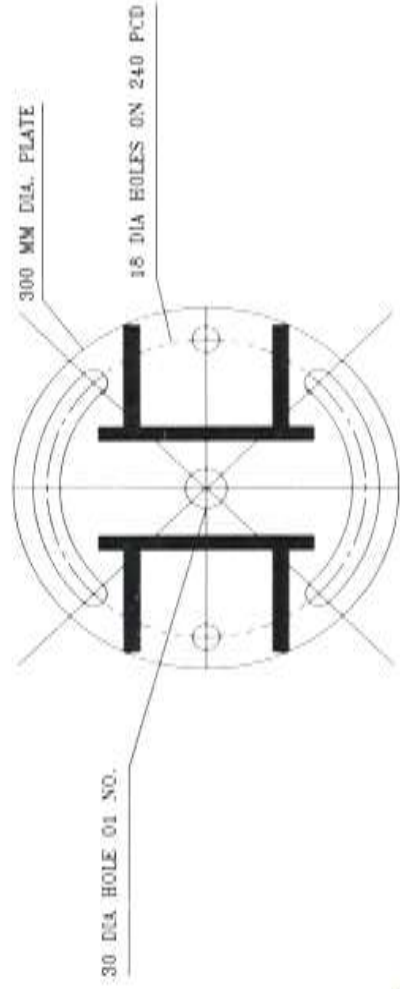


PLATE 10MM THK. - 300 X 300MM LENGTH

MARK NO. -> S2-7
QTY./STR. -> 01 No



NOTE :- ALL DIMENSION IN MM

REV	DESCRIPTION	DATE	APP.	NOTES	SHEET	
0	FIRST ISSUE			SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	6/17	
• 13.5mm	• 17.5mm	• 18 mm	• 24mm			• 28 mm
PREPARED BY						
CHECKED BY						
SKETCH CORRECTED AS PER MODEL. - QA						
APPROVED BY						
REF. DRG. NUMBER: SH.						

A-36

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 6 NOS. OF 300WP MODULE
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NAME OF MEMBER - UPPER SUPPORT PLATE

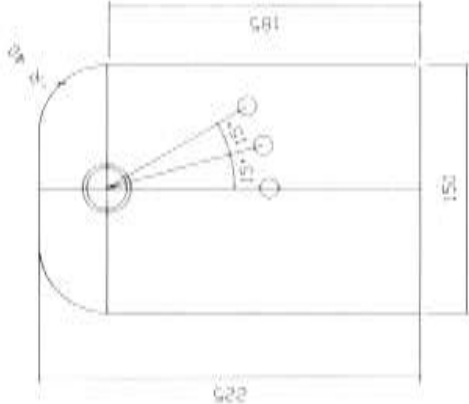


PLATE 10MM THK - 150 X 225MM LENGTH

MARK NO. -> S2-6
QTY./STR. -> 02 Nos



NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY		13.5mm \pm 17.5mm \pm 18 mm \pm 24mm \pm 28 mm			SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	5/17
REF. DRG. NUMBER: SH						

CONTRACT/ SUBMITTED TO: **TYPE OF STRUCTURE**
 CREDA HEAD OFFICE , RAIPUR (C.G.) **SPV PUMP 10NOS. OF 300WP MODULE**

NAME OF MEMBER - UPPER BASE PLATE

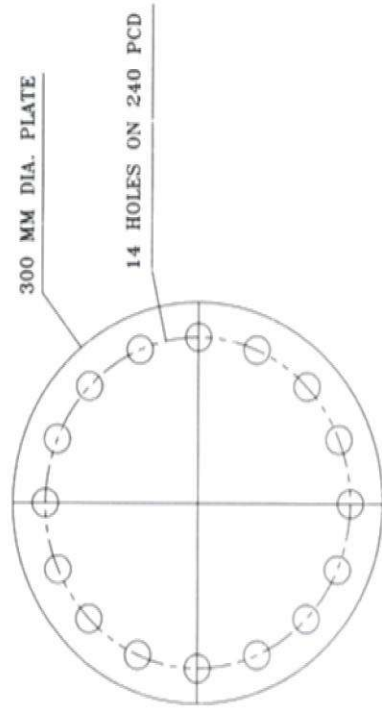
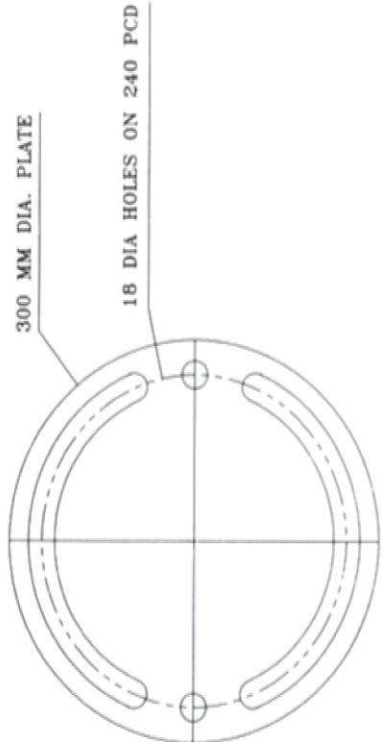


PLATE 10MM THK. - 300 X 300MM LENGTH

MARK NO. -> S2-4
 QTY./STR. -> 01 No



PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET	
CHECKED BY	0	FIRST ISSUE			SHOP DRAWING FOR SPV PUMP 10 NOS. OF 300WP MODULE	4/17	
SKETCH CORRECTED AS PER MODEL. - QA	★ 13.5mm	17.5mm	18 mm	24mm			28 mm
APPROVED BY							
REF. DRG. NUMBER: SH.							

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 6 NOS. OF 300WP MODULE
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NAME OF MEMBER - STIFFENER PLATES

LOWER STIFFENER PLATES



UPPER STIFFENER PLATES

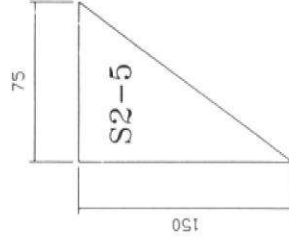


PLATE 8MM THK. - 75 X 150MM LENGTH

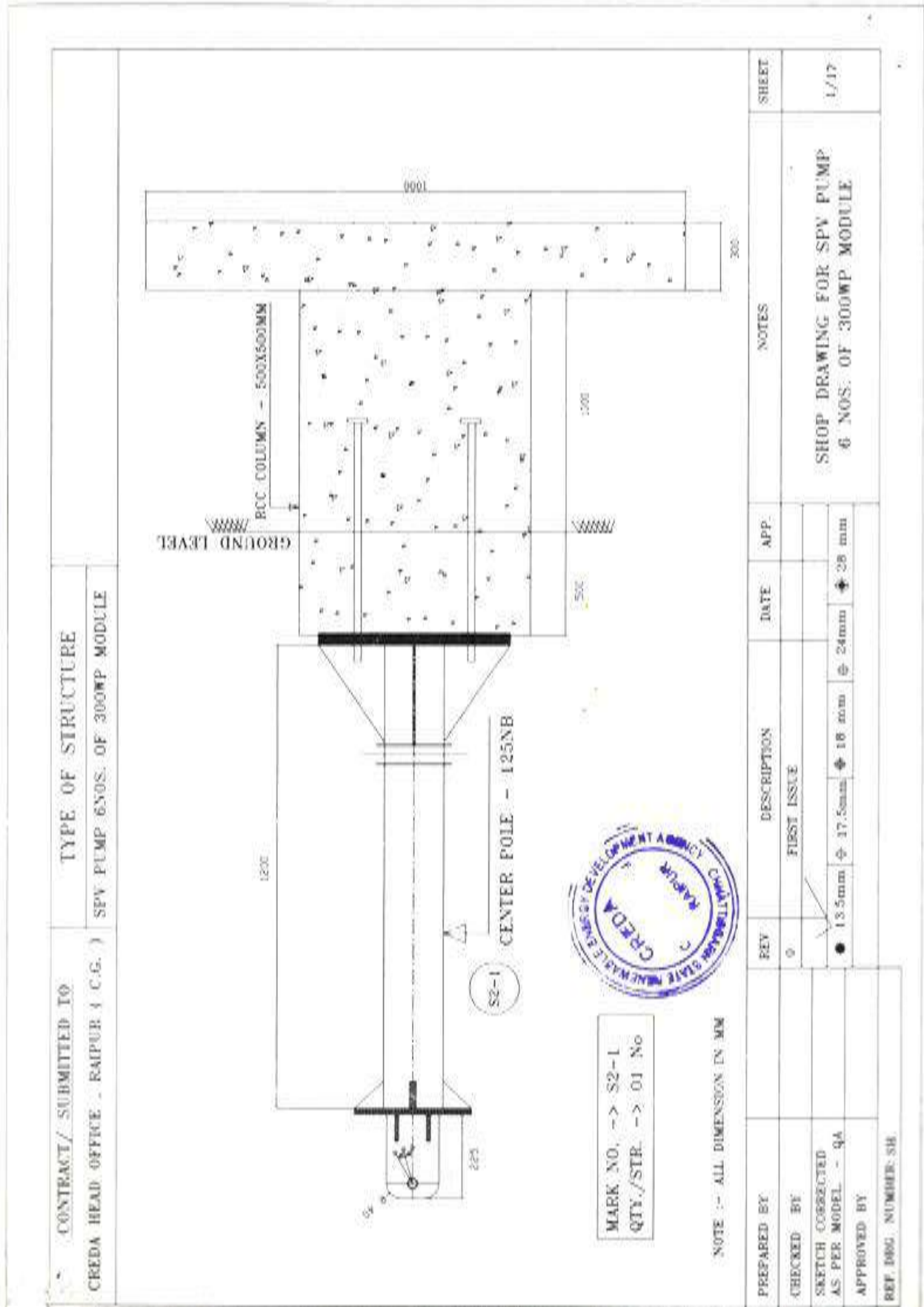
MARK NO. -> S2-3
QTY./STR. -> 04 Nos

MARK NO. -> S2-5
QTY./STR. -> 08 Nos

PLATE 8MM THK. - 100 X 200MM LENGTH

NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL. - QA						
APPROVED BY						
REF. DRG. NUMBER: SH.						
					SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	3/17

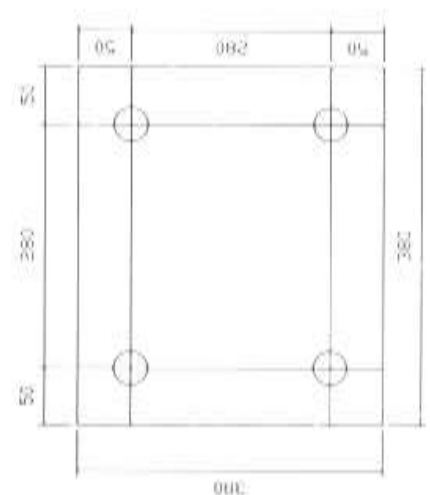



MARK NO. -> S2-1
QTY./STR. -> 01 No

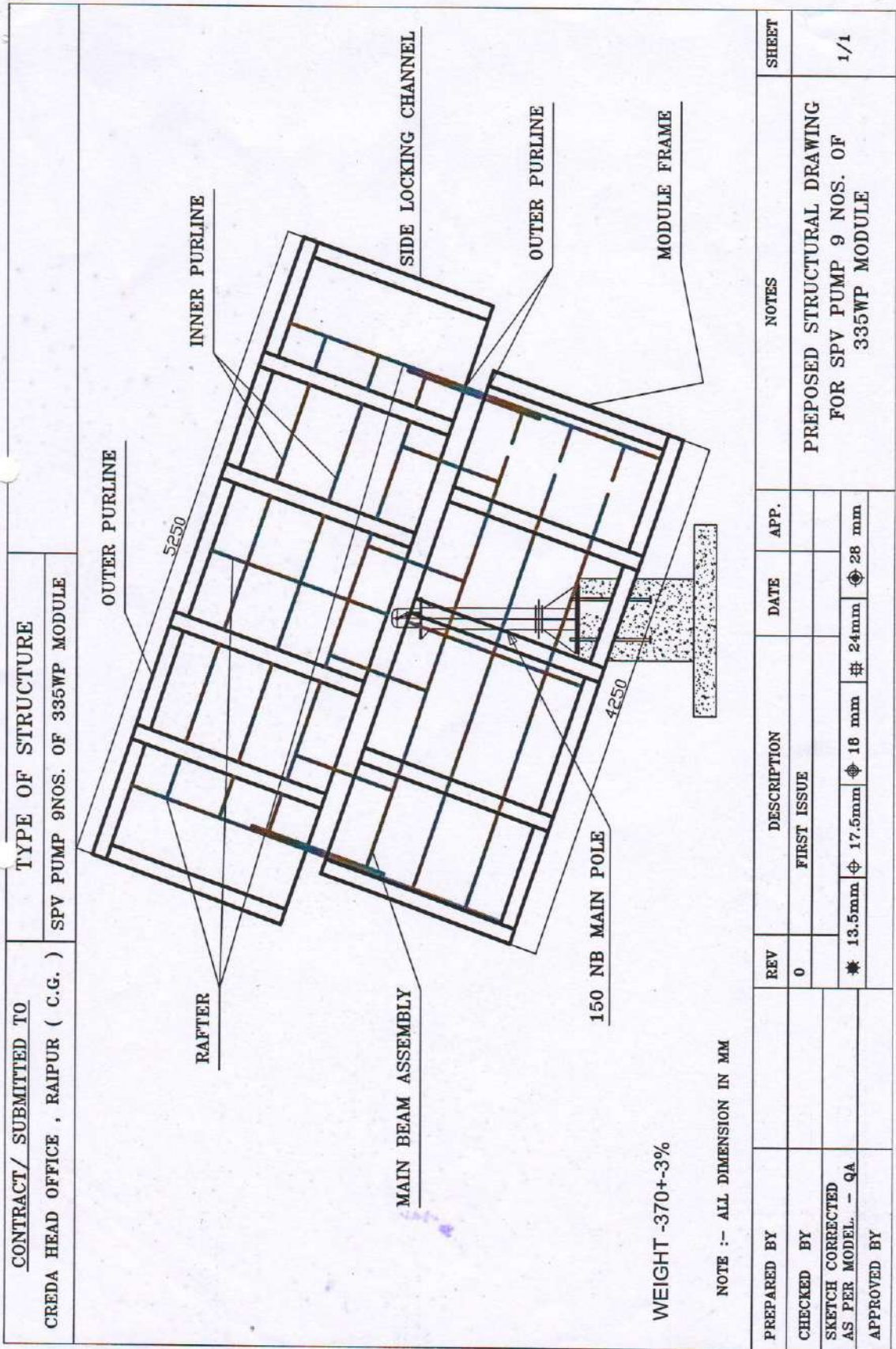


NOTE :- ALL DIMENSION IN MM

PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET
CHECKED BY	0	FIRST ISSUE				
SKETCH CORRECTED AS PER MODEL - QA						
APPROVED BY						
REF. DRWG. NUMBER: SH						
					SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	1/17

CONTRACT/ SUBMITTED TO CREDA HEAD OFFICE , RAIPUR (C.G.)	TYPE OF STRUCTURE SPV PUMP 6 NOS. OF 300WP MODULE				
NAME OF MEMBER - LOWER BASE PLATE					
		MARK NO. -> S2-2 QTY./STR. -> 01 No			
NOTE :- ALL DIMENSION IN MM PLATE 12MM THK - 380 X 380MM LENGTH					
					
PREPARED BY	REV 0	DESCRIPTION FIRST ISSUE	DATE APP.	NOTES SHOP DRAWING FOR SPV PUMP 6 NOS. OF 300WP MODULE	SHEET 2/17
CHECKED BY	13.5mm ϕ 22mm ϕ 18 mm ϕ 24mm ϕ 28 mm				
SKETCH CORRECTED AS PER MODEL - QA					
APPROVED BY					
REF. Dwg. NUMBER: SE					

A-41



PREPARED BY	REV	DESCRIPTION	DATE	APP.	NOTES	SHEET	
CHECKED BY	0	FIRST ISSUE			PREPOSED STRUCTURAL DRAWING FOR SPV PUMP 9 NOS. OF 335WP MODULE	1/1	
SKETCH CORRECTED AS PER MODEL. - QA	* 13.5mm	17.5mm	10 mm	# 24mm			28 mm
APPROVED BY							

