Bharat Heavy Electricals Limited
ELECTRONICS DIVISION
Mysore Road, Bangalore – 560026

Ph. 080-26998639
SC&PV – PVSS- DEPT.

NOTICE INVITING TENDERS

1	TENDER NUMBER(RFQ)	:	EDN/ PVSS/ NTPC/ SIMHADRI/ FSPV/ 25 MW/ CR&PS/02; Dt: 03.03.2020
2	NAME OF WORK	:	Construction of RCC control room, RCC Equipment Rooms, RCC Oil Pits and civil works for Pooling station includes Inverter Transformer foundations, platforms for PCU, HT Panels and other electrical equipment's and other associated works for 25 MWp (AC) Floating Solar PV power plant for NTPC at Simhadri, A.P. (All listed works shall be Undertaken and executed)
3	ESTIMATED COST	:	**Rs.194.98 lakhs (Approx.) Plus applicable GST.**
4	EARNEST MONEY DEPOSIT	:	**Rs.3.90 Lakhs (Mandatory for MSME also)** **(a) Bidders can submit Rs.3.90 Lakhs EMD through DD/SBI Collect (Please refer point no.: 21 of "Instructions to tenderer" for guideline for payment through SBI Collect)** **(b) Alternatively bidders can submit Rs.2.0 Lakhs EMD through DD/SBI collect and balance Rs.1.90 Lakhs in the form of Bank Guarantee from the scheduled bank.**
5	SECURITY DEPOSIT	:	50% of SD shall be submitted before start of work; Balance will be recovered from running Bills at a rate of 10%. (SD= 5% of the work order amount); 50% of SD will be released after completion of all the works and remaining 50% after 6 months from the date of completion of all the works.
6	COMPLETION TIME	:	4 Months (From the date of placement of Order/handing over of the site.)
7	LAST DATE AND TIME FOR THE SUBMISSION OF DULY FILLED IN TENDER DOCUMENT	:	18.03.2020 Before 01:00 P.M
8	PLACE OF SUBMISSION OF TENDER DOCUMENT	:	Shri. C. SAMPANGI, Sr. Manager (SC&PV- PVSS) 5th Floor, New Engineering Building, BHEL- Electronics Division Mysore Road, Bangalore -560 026.
9	ADDRESS TO BE SUPERSCRIBED ON TENDER ENVELOPE	:	Shri. C. SAMPANGI, Sr. Manager (SC&PV- PVSS) 5th Floor, New Engineering Building, BHEL- Electronics Division Mysore Road, Bangalore -560 026.
10	DATE AND TIME OF TECHNICAL BID OPENING	:	18.03.2020 Before 01:30 P.M

NOTE: The tenderer shall return the dully filled in tender document after affixing signature on all pages and submit.

NIT Issued By
Sampangi C,
Sr. Manager, BHEL-EDN

CONTACTOR (SIGN & SEAL)

Bharat Heavy Electricals Ltd
Electronics Division
Mysore Road, Bangalore – 560026

Tender Document for

Construction of RCC control room, RCC Equipment Rooms, RCC Oil Pits and civil works for Pooling station includes Inverter Transformer foundations, platforms for PCU, HT Panels and other electrical equipment's and other associated works for 25 MWp (AC) Floating Solar PV power plant for NTPC at Simhadri, A.P.

TENDER NUMBER RFQ: EDN/ PVSS/ NTPC/ SIMHADRI/ FSPV/ 25 MW/ CR&PS/02; Dt.: 03.03.2020

TECHNICAL BID DATE OF OPENING: 18-03-2020 (Price bid opening date intimation will be given separately)

Part – I	Technical cum Commercial Bid	.....	38 Pages
	Unpriced Price Bid	.....	12 Pages
	Technical and General Specification	.....	19 Pages
	BHEL General Conditions of Contract 2019	.....	33 Pages
	Tentative Tender Drawing	.....	04 Pages
	Tentative Field Quality Plan	.....	06 Pages
	Bank Guarantee format for EMD	.....	02 Pages
Part – II	Price Bid	.....	12 Pages

Note:

1. Part – I: To be submitted in a separate sealed cover.
2. Part – II: To be submitted in a separate sealed cover.
3. Earnest Money Deposit of Rupees 3.90 Lakhs shall be submitted as per point No. 4 of page No. 1 of this tender document.
4. Tenders will be liable for rejection if the above mentioned EMD is not submitted along with the tender.
5. Part-I, Part-II, Tender EMD sealed covers should be put in outer envelope and super scribing the Name of work and Name & Address of the Tenderer.
6. **Firms banned by BHEL are not eligible to participate in the tender. The tender envelope submitted by such a firms will not be opened for evaluation and no communication in this regard will be entertained.**

NIT Issued By
Sampangi C,
Sr. Manager, BHEL-EDN

CONTACTOR (SIGN & SEAL)

BHARAT HEAVY ELECTRICALS LTD, ELECTRONICS DIVISION, BANGALORE-26

TENDER NUMBER RFQ: EDN/ PVSS/ NTPC/ SIMHADRI/ FSPV/ 25 MW/ CR&PS/02; Dt.: 03.03.2020

PART-I TECHNICAL-CUM-COMMERCIAL BID

(To be furnished by the Bidders)

01. NAME OF THE WORK : **Construction of RCC control room, RCC Equipment Rooms, RCC Oil Pits and civil works for Pooling station includes Inverter Transformer foundations, platforms for PCU, HT Panels and other electrical equipment's and other associated works for 25 MWp (AC) Floating Solar PV power plant for NTPC at Simhadri, A.P.**
(All listed works shall be Undertaken and executed)

02. APPROXIMATE ESTT.COST RS. : Rs.194.98 Lakhs (APPROX.) plus applicable GST.

03. COMPLETION PERIOD : 4 Months (From the date of placement of Order/handing over of site.)

04. NAME OF THE CONTRACTOR :
(WITH CONTACT PERSON)

05. ADDRESS
(A) OFFICE :

E-mail :
TEL. PH. NO. :

(B)RESIDENCE :

TEL.PH NO :

06. PAN NO :

07. GST NO :

08. STAFF STRENGTH :

09. PLANT/EQUIPMENTS : List enclosed/not enclosed

10. a) SCOPE OF WORK : UNDERSTOOD/ NOT UNDERSTOOD
(As per schedule of items)
b) Accept to execute in total : YES/ NO

c) Bar chart to be submitted : YES/ NO
Individually for each work for L1 Scope

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CONTACTOR (SIGN & SEAL)

d) In order to complete the project in the specified months schedule, vendor to deploy separate Five gangs/teams (or) more as per site requirement for each individual activities along with tools and machineries, Undertaking should be submitted along with offer : YES/ NO

11. a) EMD PARTICULARS (DEMAND DRAFT/ SBI COLLECT REF NO. / BG DETAIL) :

b) Electronic Funds Transfer (EFT) form enclosed : Please fill up the form in ANNEXURE-II

12. Penalty as per BHEL General conditions of contract 2019 clause No. 2.7.9 : Accepted / Not accepted

13. Constitution of Firm : Individual / Sole Proprietorship Concern / Partnership Firm / Public Ltd. Company/ Private Ltd. Company.

14. BHEL reserves right to conduct reverse auction : Accepted / Not accepted

15. Accept to pay statutory payments like ESI, PF, BOCW, etc., as per terms and conditions of BHEL and Govt. guideline's : Accepted / Not accepted

16. Accept for "Splitting of Contract", As per page no. 6 of this NIT : Accepted / Not accepted

17. BHEL Payment terms acceptance (Cl. no. 21, 22.1 & 22.2 of "Special Conditions of Contract") : Accepted / Not accepted

18. The bidder should encourage to use local labor that has the necessary skills as per the requirement of work. : Accepted / Not accepted

Note:

1. Bidders are advised to quote their best prices (% above/below the total estimate +/_ (or) at par) as no further price bids will be accepted in case BHEL decides to open price bids instead of reverse auction.

2. Reverse auction seal bid opening price should not be more than the manual quoted (hand written) price bid

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Sr. Manager, BHEL-EDN

CONTACTOR (SIGN & SEAL)

PRE QUALIFICATION CRETERIA

1 Experience of having successfully completed RCC building works (such as Industrial and commercial) during last 7 years from the date of tender notice.

a) Three similar completed RCC building works each costing not less than an amount equal to Rs.45.1 lakhs.

OR

b) Two similar completed RCC building works each costing not less than an amount equal to Rs.56.5 lakhs.

OR

c) One similar completed RCC building works each costing not less than an amount equal to Rs.90.2 lakhs.

2. Average annual financial turn over during the last 3 years, ending 31st March of the previous financial year, should be Rs.33.81 lakhs.

Note: Offers of the Tenderers not meeting the above requirements are liable to be rejected.

Documents required to be submitted

1. Registration Certificate with ESI and PF Authority/Declaration.
2. Income Tax Returns for last Three years
3. Balance Sheet and Profit & Loss Account for the last 03 years by auditor.
4. Availability of Technical personnel in letter head.
5. Registration with BHEL/CPWD/other Govt. organization/PSU if any.
6. Declaration for full filling the BOCW requirements.
7. List of equipment to be mobilized at site.
8. GST Registration details or Declaration.

All the supporting documents to be signed and sealed by the bidder (BHEL have the rights to verify the original documents if required)

NIT Issued By

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CONTACTOR (SIGN & SEAL)

SPLITTING OF SCOPE OF WORK/CONTRACT:

In view of large quantum of work and restricted period for completion of project and project location, proposed to split the contract/scope of work in three parts as per site requirement and as per below,

(a) L1, and L2 bidder's with scope of work as below,
L1 bidder scope: 5 No.'s of pooling station including 05 No.'s PCU platform, 05 No.'s Inverter transformer foundation, 05 No.'s platform for HT panel, fencing and other associated works.

L2 bidder scope: (a) 01 No. RCC Control room building
(b) 05 Nos. RCC Equipment rooms
(c) 05 Nos. RCC Oil sump pit

In such case L2 bidder has to match the price of L1 bidder.

(b) In case of denial of the same by L2, it shall be countered offer subsequently to all other bidders till BHEL get one vendor to accept the L1 price and then scope of work shall be allotted as mentioned in point (a).

(c) However in case no bidder agrees to match L1 price, then L1 bidder is bound to execute full scope of work.

(d) BHEL may award the contract based on the number of qualified bidders (N). If the number of qualified bidders are three or more, the splitting as proposed above may be limited to (N-1) qualified bidders.

(e) In any of the case, BHEL reserves the right to change the splitting of the scope of work (or) BHEL may take a decision to re-float the part/full scope of work.

INFORMATION TO THE TENDERER:

(i) Successful Bidder should establish their Site office at Construction site, including common facilities such as toilet, water, electricity etc. in consultation with BHEL. Contractor has to arrange water and power as required for completing the job in the stipulated time frame at their own cost.

(ii) The bidders should furnish "Site Inspection Certificate" in Annexure-III enclosed herewith.

(iii) Bidders should study the prevailing Market trend of Construction materials/laborers/other relevant requirement before quote and submit the competitive price.

(iv) The bidder should encourage to use local labor that has the necessary skills as per the requirement of work.

(v) Before engaging the labour in to work, Contractor should get the NOC from labours' native police station as well as NOC from local police station (If applicable).

(vi) The bidders should carry out preliminary survey at proposed construction site before submission of offer to ensure that the rate quoted for the relevant schedule of items are correct.

(vii) Contractor to note BHEL reserves the right to get any part of the work done through other agency or deploy BHEL's own/hired/otherwise arranged resources, at the risk and cost of the contractor after due notice of a period of two weeks by BHEL, in the event of:-

a) Contractors continued poor progress
b) Withdrawal from or abandonment of the work before completion of the work.
c) Contractor's inability to progress the work for completion as stipulated in the contract
d) Poor quality of work
e) Corrupt act of Contractor
f) Insolvency of the contractor
g) Persistent disregard to the instructions of BHEL
h) Assignment, transfer, sub-letting of contract without BHEL's written permission
i) Non fulfillment of any contractual obligations
j) In the opinion of BHEL, the contractor is overloaded and is not in a position to execute job as per required schedule.

(viii) The liquidated damages/penalties arising out of Risk and Cost as explained under Sl.no (vii). BHEL shall recover the amount from any money due from Contractor, or from any money due to the contractor including security deposit, or by forfeiting any T & P or material of the contractor under this contract or any other contract of BHEL or by any other means or any combination thereof.

(ix) **Documents to be submitted on award of work (as applicable):**

a) Security deposit in the form of Cash/DD/ NSC's / Kisan Vikas Patra / FDR / Bank Guarantee in favour of BHEL

(b)Electronic Fund Transfer Form duly signed & sealed by banker along with cancelled cheque copy

(c) Labour license of the workmen engaged valid for contract period (If applicable)

(d) Workmen Compensation Insurance Policy for the workmen engaged valid for contract period

(e) Deduction of statutory taxes (as applicable) at source would be enforced from the running bills at the rates prescribed unless exemption certificate is produced from the concerned authorities.

The following documents are to be submitted along with the Running Account Bills for process of payment

a) Tax Invoice with details of GST number of BHEL and contractor.
b) Measurement books duly filled and signed by officials of BHEL and contractor
c) Provident PF Remittance challan for the bill duration.
d) ESI Remittance challan for the bill duration.
e) Invoice submitted along with running bills to indicate the GST amount charged and bear GST NUMBER etc. as per prevailing taxes.

Bill submitted subsequently to be accompanied with a declaration that GST liability on the earlier bill has been discharged.

i) by paying money to the Government (along with Tax paid Challan Copy)
ii) by utilization of Input GST Credit

f) BOCW Registration and payment proof.
g) Field quality assurance documents (as applicable) as per instruction of Engineer In-charge.
h) List of supplier/supplier's (material and manpower).
i) After completion of work, bidders should mandatorily furnish NOC from all declared suppliers along with the running/Final Bill.

Mobilization at site:

1) Requisite Material (all construction materials like cement, sand, coarse aggregate, reinforcement steel, etc.,), men (mason, carpenter, bar binder, fabricator, etc.,) and machinery (DTH, Concrete mixer machine/RMC/AJAX with printing facility, Power chain saw, JCB/excavator/dozer, grader, tipper, etc., Total station & other equipment required for building works and levelling, grading works, and other associated works as listed in BOQ) should be arranged in order to complete the project within stipulated time period.
2) The contractor shall carry the work as per the approved Field Quality Plan issued by BHEL (Field quality plan enclosed with this tender for reference)
3) Calibration of equipment's should be done by NABL accredited laboratories.
4) Contractor shall submit the design mix report (from NABL/Govt. approved labs) and shall carry the work as per the approved design mix report, approved by BHEL/NTPC.
5) Contractor shall conduct the pile load test (Initial and routine test) (OR) any test (as applicable) and shall submit the report (from NABL/Govt. approved labs) as approved by BHEL/NTPC.

Bharat Heavy Electricals Limited
ELECTRONICS DIVISION
MYSORE ROAD- BANGALORE-26
INSTRUCTIONS TO TENDERER

1. Sealed Tender for the above noted work is hereby invited from Contractors experienced in similar civil works like RCC building works (such as Industrial, commercial and Residential).
2. Scope of work for, "**Construction of RCC control room, RCC Equipment Rooms, RCC Oil Pits and civil works for Pooling station includes Inverter Transformer foundations, platforms for PCU, HT Panels and other electrical equipment's and other associated works for 25 MWp (AC) Floating Solar PV power plant for NTPC at Simhadri, A.P.**" at location as specified under Sl. No. 3 "Project scope, detail and location" as per Tender/approved construction drawing, works as per instruction of Engineer in charge, terms and condition of contract. However Depending on site conditions minor modification in works may be necessary.
3. Project Scope, detail and Location:

Site Detail	**Project detail**	**Location**
Project Site	25MWp (AC) FSPV Power plant for NTPC, Simhadri	Simhadri, (Visakhapatnam) Andra Pradesh.

4. **Tenders should be addressed to: Shri. C. SAMPANGI, Sr. Manager (SC&PV- PVSS), NEB 5th Floor, Electronics Division, Bharat Heavy Electricals Limited, Mysore road, Bangalore – 560 026. In three separate sealed cover for "Technical cum Commercial Bid", Price Bid and DD for Tender document Cost (if applicable) & EMD duly super scribed and put in an outer envelope, super scribing the Name of work, Tender no. and Name and address of the Tenderer.**
5. The local address of the Contractors, the name of the person to whom all the Correspondence are to be addressed should be indicated, with telephone number (both office and residence).
6. All entries in tender documents should be in one ink (preferably blue ink). Erasing and overwriting is not permitted. All corrections should be duly signed by tenderer concerned.
7. Tenderers shall fill in all the required particular in the blank space provided for this purpose in the tender documents and also sign in each and every page of the tender document including the drawings attached there to before submitting tender.

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CONTACTOR (SIGN & SEAL)

8. Unit rate/percentage above or below estimate should be quoted in figures as well as in words in Indian Currency only i.e. Rupees and Paisa with reference to each item and for the items shown in the attached schedule. These rates shall be for the finished work at site. The rate shall include all taxes and duties payable on account of Octroi, Sales Tax, tax on work contract etc., and also expenses towards PF and ESI contributions (see clauses 8, 40 and Enclosure 'C') but excluding

9. In case the rate quoted in figures differs from those quoted in words, the lower of the rates quoted will be taken as the tendered rate and shall be binding on the tenderer.

10. The rate to be quoted by the tenderer shall be firm and shall cover and include all statutory levies such as "Octroi, sales tax, excise duty etc., arising from Act passed by Parliament or State Legislature and rules framed there under. The rates shall further be deemed to include statutory levies arising from such Acts, Central or State, which may come into force, subsequent to submission of tenders.

11. (a) The rate quoted in the tender shall remain valid for a period of 'THREE MONTHS' from the date of opening tender.

(b) Tenderer shall not increase quoted rates, once the tenderer has submitted offers/quotation/price and during execution of contract in case tender is accepted.

(c) Successful bidder should execute the work strictly in accordance with Tender schedule quoted rates as accepted by BHEL.

(d) **PRICE VARIATION clause not applicable**.

12. The rates quoted should be inclusive of all taxes arising on the transaction. If BHEL is required to discharge the liability of any taxes on the transaction like TDS(IT), TDS(WCT), TDS(GST) (as applicable) under reverse charge mechanism or any other similar taxes, which is or becomes payable by BHEL, the same shall be deducted from the bills of the contractor. **The rate/Percentage quoted by bidder shall be including all taxes but excluding GST which shall be shown separately in price bid.**

13. Quantities shown in the schedule are only approximate and are liable to variation without entitling the Contractors to any compensation.

14. Before tendering, the tenderer are advised to inspect the site of work and its environments and be well acquainted with the actual working and other prevailing conditions, position of material and labour. They should be well versed with BHEL General Conditions of Contract instruction to the tenderers, drawing and specification and all other documents which form part of the agreement to be entered into subsequent to award of work. The tenderer should be specially note that it is tenderers responsibility to provide any items which is not specifically mentioned in the specifications and drawing, but which is necessary to complete the work.

15. Details and quantities of each item of work shown in the bill of quantities attached here to only approximate. They are given as a guide for the purpose of tendering only and are liable for variation and alteration at the discretion of the competent authority. The work under each item as executed shall be measured and price at the corresponding rates to be quoted by the Contractor in the bill of quantities attached hereto.

16. Should a tenderer find discrepancies or omission in the drawing attached to the tender documents or should be in doubt as to their meaning he should at once address to the authority inviting the tender for clarifications. Every endeavor is made to avoid any error which can materially affect the basis of the tender but successful tenderer shall take upon himself to provide for the risk of any error which may be subsequently discovered and shall make no subsequent claim on account thereof.

17. In the event of the tender being submitted by a firm the tender must be signed separately and legibly by each partner or member of the firm or in their absence, by the person holding the power of Attorney on behalf of firm concerned. In the latter case, a copy of the power of Attorney duly attested by a Gazette Officer must accompany the tender.

18. If in any case, the date of Tender Opening falls on holiday, the Tender will be opened on the next working day.

19. Every tender must be accompanied by Earnest Money Deposit. This earnest money will be refunded to the unsuccessful tenderer after finalization of the award of work. In the case of successful tenderer, the earnest money will be retained as a part of Security Deposit for satisfactory completion of the work in accordance with Clause-16 of BHEL General Conditions of the Contract. Tenders without Earnest Money Deposit receipt are liable to reject. No interest will be paid on the earnest money deposit.

20. The Earnest money deposit may be furnished

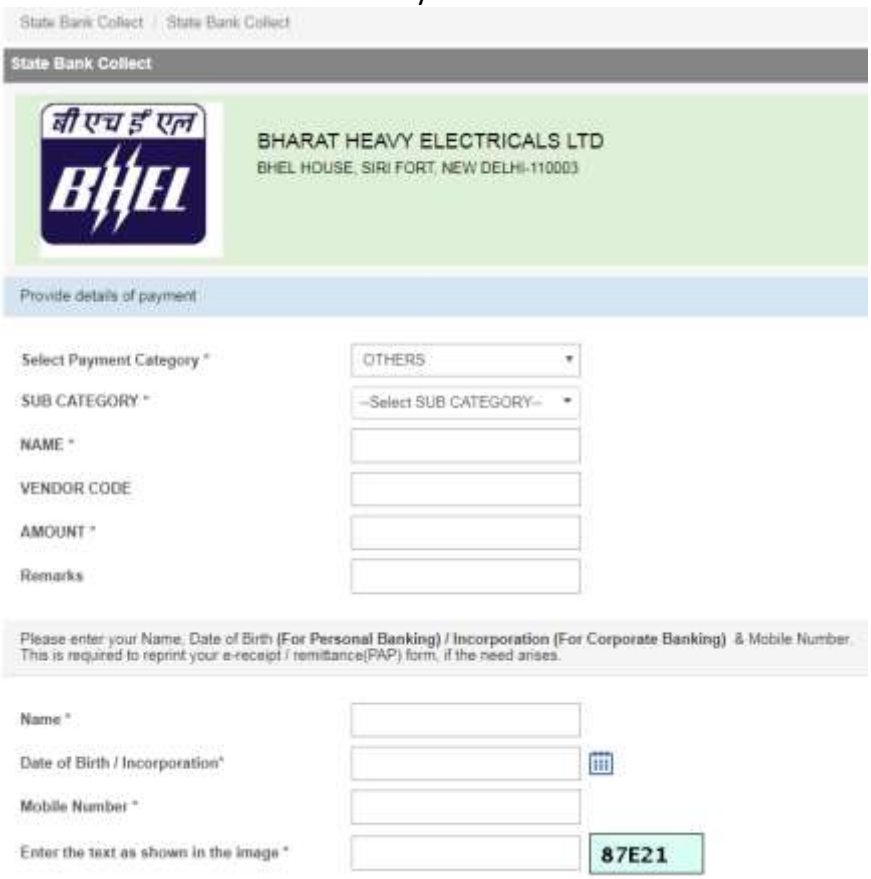
a) Demand Draft in favour of BHEL EDN, Bangalore – 560026.

b) The Earnest money deposit may be furnished through online from SBI Collect.

c) Bank Guarantee as per Sl. No. 4 (b), page No. 1.

Guidelines for payment of EMD Fee

Step-1: Please enter the following link in your internet address browser or click on the following link.
https://www.onlinesbi.com/sbicollect/icollecthome.htm
Please click on ”proceed” after Clicking “Check Box” to proceed for payment
Step-2: Now the SBI’s SB-Collect site gets opened. Please select State of Corporation as “Karnataka” and type of Corporation as “PSU-PUBLIC SECTOR UNDERTAKING” and then click on “Go” appearing on the screen.
Step-3: Now select “Bharat Heavy Electricals LTD” from the dropdown table appearing against “Industry Name” and click Submit
Step-4: Now select “Others ” from the dropdown table appearing against “Category” and click Submit
Step-5: The below screen (similar) will appear. Please select sub category “EMD” and fill up other details and transfer money.



21. For reimbursement of Earnest Money Deposit, the tenderer should fill the enclosed EFT form, obtain the Banker’s signature and also enclose a photocopy of cancelled cheque leaf.

22. EMD may be submitted in Bank guarantee as per Sl. No. 4 (b), page No. 1, in BHEL format in Non-judicial stamp paper amounting Rs.200 (or) applicable rate at bidder’s state, whichever is higher. **Bank guarantee from any Co-operative banks are not acceptable in any circumstances.**

23. Unless the bidder whose tender is accepted signs contract agreement (If applicable) within fifteen days (15 days) of the date of the order directing to do so, the amount of Earnest Money already deposited by bidder will be forfeited and acceptance of the tender withdrawn as per discretion of BHEL.

NIT Issued By
Sampangi C,
Sr. Manager, BHEL-EDN

CONTACTOR (SIGN & SEAL)

24. If after opening of tenders a tenderer revokes the tender or increase of earlier quoted rates or after acceptance of his tender does not commence the work in accordance with the instruction of Engineer-in-charge, the Earnest Money Deposited by bidder will be forfeited and acceptance of bidder's tender withdrawn.

If only a part of work included in the tender had been awarded to the tenderer, the amount of Earnest Money to be retained will be based on value of the contract so awarded.

25. The BHARAT HEAVY ELECTRICALS LIMITED reserve the right to reject any or all the tenders received or accept any tender or part thereof without assigning reason thereof. In the case of acceptance of a part of tender, the time for completion may also be reduced to the extent considered necessary by the accepting authority.

26. Conditional and Unsigned tenders, tenders which are incomplete or otherwise considered defective, tenders which are not in accordance with the tender conditions laid down by the accepting officer and tenders not submitted in the prescribed forms are liable to be rejected.

27. Tenderer shall submit Solvency Certificate for the value specified from a Bank of standing regarding the tenderer's financial position (as applicable).

28. The tenderers should enclose relevant documents regarding constitution of firm i.e. Individual / Sole Proprietorship Concern / Partnership Firm / Public Limited Company / Private Limited.

29. The tenders should be enclosed with a list of contracts already held by the tenderer at the time of submitting the tender and giving the following particulars:

a) Name of the work, value and address.

b) The balance work remaining to be done on the same.

30. a) The filled in tender sealed cover shall be handed over/couriered/speed post to at office of "**Shri. Sampangi C., Sr. Manager (SC&PV- PVSS), NEB 5th Floor, Electronics Division, Bharat Heavy Electricals Limited, Mysore road, Bangalore – 560 026)"** before the time fixed for submission of tender.

b) Tenders received after the due date & time of opening of tenders will be rejected.

31. The Contractors responsibility under this contract shall commence from date of receipt of the order or acceptance of tender.

32. Tenders submitted by speed post or courier service shall be posted with due consideration of any delay in postal delivery. Tenders received after the due date of opening tenders are liable to be rejected.

33. If proprietor or partner of a firm expires after the submission of tender or after the acceptance of tender, BHEL reserves the right to cancel the contract if the character of the firm undergoes a substantial change.

34. THE BHARAT HEAVY ELECTRICALS LIMITED will not be bound by any power of Attorney granted by the tenderer or changes in the composition of firm made subsequent to signing of the contract. They may however recognize such power of Attorney and changes after obtaining proper legal advice.

35. If the tenderer deliberately gives wrong information on tender regarding past unsatisfactory performance with BHEL sister units, BHEL reserves the right to reject such tender at any stage including contract execution period.

36. Words imparting the singular number shall also be deemed to include the plural number and vice-versa where the context so require.

37. The General and Special Conditions are complementary to each other and where they are in conflict, the special condition shall prevail.

38. The expenses for completing the stamping agreement shall be paid by the contractor.

39. Unless or otherwise stated above tendered work includes men, material, machine and commissioning of equipment as agreed to in the contract.

40. After completing of the job, the contractor has to furnish actual drawings of work done in consultation with Engineer-in-charge.

41. Any covering letter and comments of the tenderer should be submitted along with the offer.

42. Cement and steel for carrying out Civil Works will have to be procured by the Contractor. Materials shall be accompanied with Test certificates and connected dispatch documents for proof of source from approved manufacturer's works or stockyard. The Contractor shall provide all the materials needed for trial run, testing including chemicals, consumables etc. In quoting their rates, the Contractors are advised to take into account the cost of the above materials. All the construction materials should be approved by BHEL before commencement of work.

43. Contractor are required to follow Field Quality Plan (FQP) for Civil construction as approved by BHEL/customer in respect of Tests to be carried out and reports and documents to be furnished.

44. Should a tenderer or a contractor has a relative or in the case of firm or company, any of its shareholders relative is employed in Bharat Heavy Electricals Limited, the authority inviting tenders shall be informed of this fact at the time of submission of the tender, failing which tender may be disqualified or if such fact subsequently comes to light.

45. These 'INSTRUCTIONS TO TENDERER' & GENERAL CONDITIONS OF CONTRACT OF BHEL' shall be deemed to form an integral part of the Contract agreement for the work to be entered into. The

Contractor has to scrutinize the same, and when submitting his tender, indicate his acceptance of both. In cases of variation between the two in any matter, the conditions in the 'THE INSTRUCTIONS TO TENDERER' shall prevail. (Extracts of important clauses of BHEL GCC are enclosed).

46. All operations to be carried out by the Contractor during the execution of the contract such as drilling, welding etc., shall be done with proper equipment to be brought by the tenderer. Contractor shall make his own power and water supply.

47. The Contractor shall comply with the provision of Employees Provident Fund's and miscellaneous Provisions Act 1952 and rules, regulations and other orders issued there under. He as an employer shall be liable to pay employer's contribution/deductions towards PF under the PF Act in respect of all labour employed by him for the execution of the contract in accordance with the provisions of the Employees' Provident Funds and Miscellaneous Provisions Act, 1952 as amended from time to time. For this purpose he shall indicate the code number obtained from the Regional Provident Fund Commissioner or he should obtain a code number if he has not and produce the Photostat copy of the challan receipt of monthly remittance of the contribution made by him to the Commissioner. He shall also furnish such returns such returns as are due, under the Act, to be sent to the appropriate authorities through the Principal Employer".

48. The Contractor should get himself registered with the E.S.I Authorities as an independent Employer, obtain a separate code number and remit the dues in respect of the Labour employed by him for the work and produce the challan/Receipts of remittance of the ESI contributions due under the E.S.I Act to the Company authorities. He shall also furnish such returns, as are due, under the Act, to be sent to the appropriate authorities' through the Principal Employer. The contractor can remit their ESI & PF through a sub-agent who processes the ESI & PF code and agrees to enter an MOU with the contractor.

45. If any action is brought in by P.F. Commissioner/ESI authorities on BHEL for the work done by the Contractor for his labourers regarding PF/ESI amount due, short remittances, non-remittances etc., the Contractor shall defend the case on behalf of BHEL and / or reimburse BHEL the expenses so incurred.

46. The Contractor shall apply and obtain license under Contract labour (R&A) Act 1970 and comply the relevant provisions of this Act in respect of the labour employed by him for executing this contract. The contractor shall furnish necessary returns to the authority through the Principal Employer.

47. Contractor shall insure all his labourers and material. Any claim by his Employees for damages shall be settled by the Contractor even if action is against BHEL or to reimburse the legal expenses incurred by BHEL.

48. Any action brought in by anybody on BHEL regarding patent, right etc., used by Contractor in execution of work shall be defended by the Contractor and / or reimburse BHEL the cost of the same.

49. Contractor shall produce necessary records, documents; explanation whenever he is called upon to do by any Government Agencies.

50. Contractor should obtain “Workmen Compensation Policy” for their Employees.

51. LEAD, LIFT, DEWATERING ETC.,

a) Unless otherwise specified in the tender schedule, the rates for all items will be deemed to include all leads, lifts and descents involved in the work.

b) No separate payment will be made for dewatering (including seepage, surface drainage and monsoon water) desludging and allied operations at any stage of the work, and the cost of such operations will be deemed to be included in the contract rates.

c) No separate payment will be made for curing including pumping of curing water where ever necessary.

52. EXTRA ITEMS

No extra items of work shall be carried out by the contractor other than those authorized to do so in writing by the Engineer-in-charge. For any such items of work executed as per instructions of Engineer-in-charge, the rates will be fixed on the basis indicated under clause 50 of BHEL GCC/as per terms and conditions of BHEL. The schedule of rates to be followed in this case will be CPWD schedule of rates.

BHARAT HEAVY ELECTICALS LIMITED

(ELECTRONICS DIVISION)

MYSORE ROAD- BANGALORE-26

GENERAL CONDITIONS OF CONTRACT/TECHNICAL SPECIFIC ATION

It is hereby agreed by me/us that the BHEL General Conditions of Contract including subsequent amendments/ additions/deletions to clauses if any, and conditions pertaining the settlement of disputes by Arbitration form an integral part of the tender documents and that the tender submitted by me/ us is subject to the aforesaid BHEL General Conditions of Contract/ Technical Specification for scope of tender works which has been read and accepted by me/us.

NIT Issued By

Sampangi C,
Sr. Manager, BHEL-EDN

CONTACTOR (SIGN & SEAL)

SAFETY CODE

RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF SAFETY OF MEN, EQUIPMENT, MATERIAL AND ENVIRONMENT

1. Before commencing the work, contractor shall submits a "SAFETY PLAN" to the authorized BHEL Official. The 'SAFETY PLAN' shall indicate in detail the measure that would be taken by the contractor to ensure safety of men, equipment, material and environment during execution of the work. The plan shall take care to satisfy all requirements specified hereunder. The contractor shall submit Safety Plan along with his offer. During negotiations before placing of work order and during execution of the contract BHEL shall have right to review and suggest modification in the Safety Plan. Contractor shall abide by BHEL decision in this respect.
2. The contractor shall take all necessary safety precautions and arrange for appropriate appliances as per direction of BHEL or its authorized officials to prevent loss of human lives, injuries to personnel engaged, and damage to property and environment.
3. The contractor shall provide to its work force and ensure the use of the following personal protective equipment as found necessary and as directed by the authorized BHEL Officer:-Safety Helmets conforming to IS-2925: 1984.
   (i) Safety Belts conforming to IS-3521: 1983.
   (ii) Safety Shoes conforming to IS-1989: 1978.
   (iii) Eye and Face protection devices conforming to IS-8520: 1977 and IS-8940: 1978.
   (iv) Hand and body protection devices conforming to:
   IS-2573: 1975
   IS-6994: 1973
   IS-8807: 1978
   IS-8519: 1977

All tools, tackles, lifting appliances, material handling equipment scaffolds, cradles, safety nets, ladders, equipment's etc. used by the contractor shall be of safe design and construction. These shall be tested and certificate of fitness obtained before putting them to use and from time to time as instructed by authorized BHEL Official who shall have the right to ban the use of any item.

All electrical equipment's, connections and wiring for constructions power, its distribution and use shall conform to the requirement of the Indian Electricity Act and Rules. Only electricians licensed by the appropriate statutory authority shall be employed by the contractor to carry out all types of electrical works.

All electrical appliances including portable electric tools used by the contractor shall have safe plugging system to source of power and be appropriately earthed. The contractor shall not use any hand lamp energized by electric power with supply voltage of more than 24 volts. For work in confined space lighting shall be arranged with power sources of not more than 24 volts.

The Contractor shall adopt all fire safety measures as laid down in the "Code for fire Safety at Construction Sites" issued by the Safety Department of the Construction Management (HQ) of BHEL and as per directions of the authorized BHEL Official. A copy of the above referred "Code of Fire Safety at the Construction Sites" shall be made available by BHEL to the contractor for reference, on demand by the contractor, during tendering stage itself.

Where it becomes necessary to provide and/or store petroleum products, explosives, chemicals and liquid or gaseous fuel or any other substance that may cause fire or explosion, the contractor shall be responsible for carrying out such provisions and/or storage in accordance with the rules and regulations laid down in the relevant government acts, such as Petroleum Act, Explosives Act, Petroleum and Carbides of Calcium Manual of the Chief Controller of Explosives, Govt. of India. etc., prior approval to the authorized BHEL Official at the site shall also be taken by the contractor in all such matters.

The contractor shall arrange at his cost (wherever not specified) appropriate illumination at all work spots for safe working when natural daylight may not be adequate for clear visibility.

The contractor shall be held responsible for any violation of statutory regulations local, state or central and BHEL instructions that may endanger safety of men, equipment, material and environment in his scope of work or another contractor or agencies. Cost of damages if any, to life and property arising out of such violation of statutory regulations and BHEL instructions shall be borne by the contractor.

In case of a fatal or disabling injury accident to any person at construction sites due to the lapses by the contractor, the victim and/or his/her dependents shall be compensated by the contractor as per statutory requirements. However, if considered necessary, BHEL shall have the right to impose appropriate financial penalty on the contractor and recover the same from payments due to the contractor for suitably compensating the victim and/or his/her dependents. Before imposing any such penalty, appropriate enquiry shall be held by BHEL giving opportunity to the contractor to present his case.

In case of any damage to property by the contractor, BHEL shall have the right to recover cost of such damages from payments from payments due to the contractor after holding an appropriate enquiry.

In case of any delay in the completion of a job due to mishaps attributable to lapses buy the contractor; BHEL shall have to recover cost of such delay from payments due to the contractor, after notifying suitably and giving him opportunity to present his case.

If the contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given a reasonable opportunity to do so; and/or if the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions regarding safety issued by the authorized BHEL Official, BHEL shall have the right to take corrective steps at the risk and cost of the contractor after giving a notice of not less than seven days indicating the steps that would be taken by BHEL.

The contractor shall submit report of all accidents, fires and property damage, dangerous occurrence to the authorized BHEL Official immediately after such occurrence, but in any case not later than twelve hours of the occurrence. Such reports shall be furnished in the manner prescribed by BHEL. In addition, the contractor to the authorized BHEL Official shall also submit periodic reports on safety from time to time as prescribed.

Before commencing the work, the contractor shall appoint/nominate a responsible officer to supervise implementation of all safety measures and liaison with his counterpart of BHEL.

If safety record of the contractor in execution of the awarded job is to the satisfaction of Safety Department of BHEL, issue of an appropriate certificate to recognize the safety performance of the contractor may be considered by BHEL after completion the job

SPECIAL CONDITONS OF CONTRACT

1. GENERAL

The special conditions of contract and other contract documents are complimentary to each other and shall be read in conjunction with each other. In case of any conflict of meanings between the special conditions of contract and the BHEL General Conditions of Contract the provisions of the special conditions of contract shall override the corresponding provisions of the BHEL General Conditions of Contract.

2. SCOPE OF WORK

The scope of work includes for the full, final and entire completion **Construction of RCC control room, RCC Equipment Rooms, RCC Oil Pits and civil works for Pooling station includes Inverter Transformer foundations, platforms for PCU, HT Panels and other electrical equipment's and other associated works for 25 MWp (AC) Floating Solar PV power plant for NTPC at Simhadri, A.P.** as detailed in specifications and drawings, which forms part of this Contract. The scope of work also includes cleaning/removing all debris in line with bill of quantity as directed by Engineer In-charge. The scope of work under this contract shall cover supply of all materials, labour, tools, and plants etc., unless otherwise specified in the specifications, descriptions of items or in foregoing clauses.

3. SITE CONDITIONS

a) Before tendering the Contractor shall get themselves acquainted with site conditions such as the nature of soil likely to be encountered during the course of the work etc,. The rates quoted by the contractor shall be deemed to have been quoted after getting acquainted with the prevailing site conditions. Initial jungle clearance, stripping of top soil etc., shall also be included in the quoted rates. No claims on the pretext of ignorance of site conditions shall be entertained.

b) The site of work is as mentioned in the Tender document.

4. SITE FACILITES

A. LAND

The Employer will allot land as available free of cost to the contractor for his office stores. He must maintain the areas allotted to him in a neat and clean conditions as required by the Employer. The contractor shall provide adequate storage and office facilities with approval from the Engineer. The rate quoted by the contractor shall be deemed to include for these and no separate payment will be made towards these. On completion of work, the site shall be cleaned by the contractor of all materials, temporary debris, rubbish plants and equipment's, belonging to the contractor at no extra cost. The site and surroundings shall be handed over in a neat and clean condition. In case of any failure by the contractor, the employer will get inside cleared at risk and cost of the Contractor.

B. POWER AND WATER SUPPLY

Facilities for drawing Power and water required at site for execution of the works shall be arranged by the contractor at his expense and risk. The necessary source for power & water supply has to be organized by vendor. Necessary distribution box, extension board points duly earthed, and with armoured safe power cables to be laid across the field provided point shall be in the scope of the tenderer. Further, laying of water intake and distribution pipes across the Site to various points of work from Electricity source provided water source point shall be in the scope of the tenderer. If required D.G generation sets shall be provided for Power arrangement by the contractor at his own cost. The tenderer shall make provision for temporary storage of water at suitable locations with pump if required to reach the water supply to work areas. The contractor will have to make his own arrangements for the same, without claiming any extra charge for the power and water drawal and distribution equipment.

5. MACHINERY

The Contractor shall at his own expense, supply all tools, plant and equipment (hereinafter referred to as T & P) required for execution of contract, as specified in the tender documents. whole of the works shall be executed in perfect conformity with the specifications and drawings. If contractor perform any works in a manner contrary to the specifications and drawings and without reference to the Engineer-in-charge, he shall bear all the costs arising or ensuring there from.

a) All technical documents regarding the construction of works are given in the metric system and work should be carried out according to metric system.

b) The work shall be carried out as per detailed drawings supplied by the employer. The working drawings shall be emailed progressively to the contractor free of cost. The contractor shall keep one set of drawings (duly protected from dust and wear and tear) at his own expenses always available at site for reference of Engineer-in-charge and other representatives.

d) The works shall be carried out as per detailed specifications enclosed with the tender. For items for which there is no mention in the drawings, detailed specification relevant IS specification (latest edition) shall be followed.

e) The contractor shall submit to the Employer for their approval complete drawings, of all temporary works and staging which he may require for carrying out the works shown in the drawings.

He shall at the same time if so required by the Employer submit his calculations relating to strength and anticipated deflection in respect of any aforesaid temporary works. He shall also submit for the

approval of Employer drawings showing the methods he proposes to adopt for the erection of the various parts of the temporary works. Any modification to the drawings that may be required by the Employer shall be made by the contractor at his own cost. However, notwithstanding the approval of modification required for temporary works, the contractor shall be fully responsible for their efficiency, security and maintenance and for all obligations and risks in regard to such works, specified or implied in this contract and be shall reinstate the same at his own cost, should any mishap or accident occur causing damage or injury there from, subject however, to such clauses of the General conditions as may be applicable in such cases.

6. BENCH MARKS AND REFERENCE POINTS

The contractor shall construct and maintain proper benchmarks and reference points of the inter section of all main walls, no separate payment shall be made for this and rates quoted deemed to include this cost. Surveying where ever required is in contractor scope.

7. SAFETY PRECAUTIONS

The contractor shall at times observe the safety code and make necessary action as required in the tender. In default thereof, the employer may get this done departmentally or through other agencies and recover the cost from the contractor.

The Contractors shall also abide by all the security regulations promulgated from time to time by employer.

8. RATES

The rates to be quoted are intended to provide for works duly and properly completed in accordance with the general and special conditions of contract and specifications and drawings together with such alteration and/or conditions as may be required / ordered without prejudice to the generality thereof shall include for detail of construction which are obviously and fairly intended and which

may not have been specifically referred in these documents and working drawings and but are essential for execution and satisfactory completion of work including those of minor nature and shall be deemed to include and cover internal the followings.

a) Arrangements for obtaining the clearance wherever required from statutory bodies, regarding license for construction, permanent electricity, water supply, and sanitary connections including payment of necessary fees, inspection charges and obtaining financial certificates for using these services.

The various items rates quoted in the schedule as applicable shall be deemed to include the above services and no separate payments shall be made towards these.

b) The cost of all superintendence and labour materials, tools, plants, equipment's, mobilizing and demobilizing equipment fuel lubricants, fixture, transport charges, temporary and permanent works and quarrying charges, testing, screening, washing, handling of materials, stacking and removal charges, of any rejected materials and water and power arrangements and satisfactory maintenance of the same satisfactory completion of the work intended.

c) All fees, duties, royalties, rent and compensation to owner for surface damage or taxes and impositions payable to local authorities, in respect of land an structure, for all materials supplied for the work or any other duties/expenses for which the contractor may become liable or may be put to under any provision of the law for the purpose of in connection with the execution of the contract including levies payable on the transactions.

d) Settings out of works profiles etc., and of construction repair and up-keep of all centre lines, bench marks and levels and page there of including provisions of masonry/concrete pillars showing the centre line of structure/gridlines and levels and maintenance and protection of the some including providing fencing etc., throughout the period of contract.

e) Breaking, maintenance and removal of temporary works and buildings.

f) Supply of complete, Moulds, cost of testing of materials etc.

g) Working in all conditions including in/under water liquid, conditions etc., and shall also include bailing or pumping out water from the foundations, basements or any other sources of whatsoever de-sludging and allied operation at any stage of work including all suspension period and delays whatsoever. Cost of curing including pumping and cost of water whatever necessary.

h) In the interest of completion of work within the stipulated time, certain works are to be carried out during the monsoon period also. No separate payment will be made to the contractor for such works and it will be deemed to be included in the contract rates.

i) Diversion and draining works, protection works, temporary facilities, bridges, gangway.

j) Work at all depth in foundation below the ground level and in superstructure up to all height above ground level including all lifts and distances involved at any other place of work and disposed/barrow areas.

k) Unless otherwise specified in the specification schedule cost of all leads/lifts etc.

l) Provision of centering, scaffolding, strutting props etc.,

m) All materials and labour required for fencing in a protection against risk of accidents and for providing necessary/planking strutting with hand rails, gumboots, helmets, safety belts etc., during the progress of work.

n) Prevention on trespassing by providing barrier arrangements for the safety of the public or employees during the provision of works.

o) Works in all shapes include and curved all sizes as shown are as required.

p) Cleaning the site after the completion of work all debris, left out construction materials machine equipment's, temporary offices, stores, works shop etc., including dressing the area neat and clean shape.

q) Such other incidental charges or contingencies as may have been provided for in the specifications.

9. LABOUR COLONIES

Labour camp will not permitted within the project premises.

10. ESCALATION

The rates to be quoted by the tenderer shall be firm and shall cover and include all statutory levies, arising from, acts passed by parliament or by state legislature, the rates shall further be deemed to include statutory levies arising from such Acts, Central or State, which may come in to force subsequent to submission of tenders. The tenderer shall note that no claim for enhancement of rates, on the ground that existing statutory levies have been increased, or that new statutory levies have come in to effect after tender, or on any other ground, will be entertained on any account.

11. QUANTITY

The probable quantities of the several items of work are furnished in the schedule of quantities. It must be clearly understood that neither the probable quantities nor the value of individual items nor the aggregate value of the entire work shall be binding on the Employer/Engineer does not in any way assure the contractor or Guarantee that the said probable quantities are correct or that the work will correspond to these. The Employer/Engineer reserve the right to omit, vary or add to the item/work described in the schedule, of quantities and no claim for compensation will be entertaining on this account.

12. VARIATION/DEVIATION IN QUANTITIES

The contractor shall not make any alteration in addition to or omission from the work as described in the tender document except in pursuance of the written instructions of the Engineer-in-charge. No such deviation from the work described in the tender documents shall be valid unless the same has been specifically confirmed and accepted by the accepting officer in writing and incorporated in the contract. The rates quoted are firm.

13. MATERIALS

BHEL will not supply any materials unless otherwise specified.

14. SUPPLY OF CEMENT, STEEL , PAINT AND OTHER CONSTRUCTION MATERIALS, IS TO BE MADE BY CONTRACTOR

Makes / Source of supply of cement, steel, paint and other construction materials shall be as per approval of BHEL/NTPC.

15. SUPPLY BY CONTRACTOR

The work is for a completed job including labour and supply of all materials except those otherwise specified in the bid document.
The material and works shall be subject to inspection and test as per field quality plan (FQP) duly approved by BHEL/NTPC.

All materials supplied by the contractor according to the contract conditions shall be subject to inspection and passing by the Engineer-in-charge or his representatives from time to time, the contractor providing all facilities for such instruction free of cost.

BHEL officers connected with the contract shall have the power at any time to inspect and examine any stores or materials intended to be used in or on the work, whether on the site or at any factory or workshop or other place where such stores or materials are being fabricated or manufactured or at any place the same are lying and the contractor shall give necessary facilities for such inspection and examination.

The Engineer-in-charge shall be entitled to have tests made of any stores or materials supplied by the contractor shall provide at his own expense all facilities which the Engineer-in-charge may require for this purpose. If at the discretion of the Engineer-in-charge an independent expert is employed to make any such tests his charges shall be borne by the contractor only if the tests disclosed that the said stores or materials are not in accordance with the provision of the contract.
Should the Engineer-in-charge/Civil Engineer consider at any time during the construction or reconstruction on prior to the expiry of the Maintenance Period that the stores or materials provided by the contractor are unsound or of quality inferior to that contracted for, or otherwise not in accordance with the contract (in respect where the decision of the Engineer-in-charge/Civil Engineer shall be final and conclusive) the contractor shall on demand, in writing from the Engineer-in-charge specifying the stores or materials complained of, not with-standing that the same may have been inadvertently passed, certified that and paid forth with remove the stores or materials so specified and provide other and suitable stores or materials at his own expense, to the entire satisfaction of the Engineer-in-charge/Civil Engineer and in the event of his failing to do so within a period to be specified by the Engineer-in-charge/Civil Engineer, in his demand aforesaid, the Engineer-in-charge/Civil Engineer may replace within the other stores or materials complained of at the risk and expense in all respect of the contractor.

The liability of the contractor under this conditions, shall not extend beyond the maintenance period aforesaid except as regards stores or materials which the Engineer-in-charge/Civil Engineer shall have previously given notice to the contractor to replace (Maintenance period for any work under this organization will be six months from the date of actual completion of the particular work and handing over to BHEL).

16. INTERRUPTION TO THE WORKS

While quoting the rates/prices the Contractor should take in to account the fact that due to the design or other stipulations at site, or the necessity to follow a particular sequence of overall construction operation, or non-supply of particular drawings, or the connected work or other reasons, interruptions are likely to be encountered in a work of this nature and magnitude. No claims for such interruptions will be entertained on any account.

17. EXTENSION OF TIME OR PENALTY/LIQUIDATED DAMAGES

Extension of time or penalty/liquidated damages as the case may be will be determined as stipulated in clause No. 2.7.9 of BHEL General Conditions of Contract 2019.

18. COMPLETION OF WORK AND MEASUREMENT

a) All work shall be carried out according to authorized dimensions and measurement will be restricted to those authorized dimension even though the Contractor may for convenience of this work exceed the authorized dimensions.
b) All work shall be measured in accordance with the applicable standard method of measurements prescribed by the Indian Standard Institution (1200 latest edition) unless otherwise specified.
c) The Contractor shall admit for technical inspection, works which are likely to be embedded or covered by other works and have the necessary measurement books and certificates to this effect duly signed by the Engineer before the works are covered.
d) On completion of the work, the Contractor must submit to the Engineer the following documents for passing of works.
   i) A copy of the working drawing showing there on all addition and alterations in the process of execution.
   ii) A certificate for embedded and covered up works as in sub-para (C) above
e) The authorized Contractors representative and a representative of the Employer shall jointly sign a certificate of handing over any completed work and date of signature of that certificate will be that the date from which the maintenance period of that unit will reckoned.
f) Notwithstanding the above, insurance cover has to be taken by the contractor for the full value of work as also for the duration of the contract period. 50% of the Security Deposit shall be released only on the total completion of the building and handing over to BHEL to their satisfaction. Remaining 50% of Security Deposit shall be released subject to the stipulation in BHEL's GCC after 6 months from the date of completion of the building.

19. MAINTENANCE OF WORK

The contractor will be responsible for the maintenance of works during the period of construction until the various items are taken over, and for a further period of six months, from the date of taking over.

If the contractor fails to maintain the building satisfactorily, it will be got done by other agency and cost towards such maintenance together with departmental charges will be recovered from his bills/dues.

20. SECURITY DEPOSIT

Upon acceptance of the tender, the successful tenderer shall remit the security deposit with Bharat Heavy Electricals Ltd within the time as specified in the Letter of Intent.
The rate of Security Deposit will be 5% of work order value.

The contractor should submit the Security Deposit before the start of the work by

i) Cash (as permissible under the income Tax Act).

ii) Pay order, demand draft in favour of BHEL.

iii) Local cheques of scheduled banks, subject to realization.

iv) Securities available from Post Offices such as National Saving Certificates, Kisan Vikas Patras etc.,(Certificate should be held in the name of contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back).

v) Bank Guarantee from scheduled Banks/Public financial Institutions as defined in the companies Act subject to a maximum of 50% of the total security deposit value. The balance 50% has to be remitted either by cash or in the other form of security. The Bank Guarantee format should have the approval of BHEL.

vi) Fixed Deposit Receipt issued by scheduled Banks/Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the contractor, A/C BHEL, duly discharged on the back.

vii) Security Deposit can also be recovered at the rate of 10% from the running bills. However in such cases at least 50% of the Security Deposit should be collected before start of the work and balance 50% may be recovered from the running bills.

viii) EMD of the successful tenderer shall be converted and adjusted against the Security Deposit. The Security Deposit shall not carry any interest.

NOTE: Accepting of Security Deposit against Sl. No. (iv) and (vi) above will be subject to hypothecation or endorsement on the documents in favour on BHEL. However, BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith.
For extra items of work and deviated quantities, security deposit will be recovered at 10% of the value of deviated amount. The security deposit will be released as stipulated under relevant clause of GCC 2019.

21. RUNNING ACCOUNT PAYMENTS

During execution of work, monthly payments of all works in place will be made on the basic measurements recorded in measurement sheet/book in respect of items executed but no claim on the account will be entertained, if for any reason payments are not so made. PRICE VARIATION clause not applicable.

22.1 MOBILIZATION ADVANCE/ADVANCE PAYMENT - NOT APPLICABLE

22.2 INTEREST & RECOVERY - NOT APPLICABLE

23. Statutory Deduction towards Income Tax will be made as per rules.

24. In respect of all labour directly or indirectly employed on the work by the Contractor, the Contractor shall comply with the provisions of the contract labour (Regulation and Abolition) Act 1970 or any amendment thereof and all legislations and rules of the State and or Central Government or other Authority, framed from time to time governing the protection of health, sanitary arrangements, wages, welfare and safety for labour employed on building and construction works. The rules and other statutory obligations with regard to fair wages, welfare and safety measures, maintenance of the register etc., will be deemed to be part of the contract.

25. The Contractor is required to take insurance for all workers employed on works towards payment for workmen compensation. The insurance has to be taken out within 15 days of the award of work and has to be produced at the time of signing agreement. Half (1/2%) shall be deducted for every bill if the contractor fails to produce a proof of having taken such an insurance to cover his workmen. However the contractor shall be fully responsible for all the consequences arising out of such default. This may also be read with relevant clauses of BHEL GCC 2019.

25. TIME OF COMPLETION

The date of commencement of work shall be counted from the date of handing over the site to the contractor. It may be clearly understood that time is the essence of the contract and the entire work should be completed within the time imposed in the tender document letter of intent.

26. The Contractor has to pay the Works Contract Tax (Under relevant section of the State Government Act) of their own on Monthly basis.

27. The management of BHEL shall be at liberty to terminate the contract by issuing a month's notice to the contractor without assigning any reason what so ever. As regards unsatisfactory performance or noncompliance with any of the terms & conditions of the contract by the contractor. The management of BHEL shall have the right to terminate the contractor forthwith without notice & rearrange the balance work through other agencies at the risk & cost of the contractor & under such circumstances, the Earnest Money Deposit/Security Deposit paid by the contractor shall stand forfeited.

28. SPECIAL CONDITIONS OF TENDER

i) The successful bidder should open local office for Technical staff/Administrative group at Bangalore City for easy interactions/ monitoring of work at site./ Attend meetings at Bangalore city/site as and when instructed by BHEL.

ii) Tenderers should not disclose any price bid details/discounts in the technical bids.

iii) The successful bidder should construct site office / toilets for their workmen at site in consultation with Engineer-in-charge.

29. WORKMEN COMPENSATION POLICY

The contractor is required to take Insurance for all the workers employed on the works towards payments for workmen compensation. The Insurance has to be taken out within 15 days of the award of work and has to be provided at the time of signing the agreement. Half percent (0.5%) of the amount shall be deducted from every bill if the contractor fails to produce a proof of having taken such an insurance to cover his workmen. However the contractor shall be fully responsible for the consequences arising out of such default.

LIST OF INDIAN STANDARD

Following is the list of various Indian Standards,
Relevant to the Civil Engg., work

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1. EARTH WORK

i) IS 1200-1992, Method Part I Earthwork, Measurement of Building, and Civil Engineering works, and chapter No.2 of CPWD/specification 1977.

2. MORTAR (PLASTERING)

1) IS 2394-1984: Code of practice for application of lime plasters finish.
2) IS 1661-1972: Code of practice for application of cement lime plasters finish.
3) IS 2402-1963: Code of practice for external rendered finishes.

3. CONCRETE WORK & RCC WORK

1) IS 456-2000: Code of practice for plain and reinforced concrete.
2) IS 432(part 1) –1982(Third Revision): Mild steel and medium tensile steel bars
3) IS 1766-1998: Cold twisted steel bars for concrete reinforcement.

4. BRICK WORK

1) IS 2212-1991: Code of practice for brick work.

5. STONE WORK

1) IS 1597-1992 (Part – I & II): Code of practice for construction of stone masonry.

6 MARBLE WORK

1) IS 1124-1974: Methods of test for water absorption of natural building works.

7. STEEL WORK

1) IS 800-2007(Third Revision): Code of practice for use of structural steel in general building construction.
2) IS 1308-1984: Steels doors, windows and ventilators
3) IS 1081-1960: Code of practice for fixing glazing of metal (steel & aluminium doors, windows & ventilators)
4) IS 1161-1998: Steel tubes for structural purposes.
5) IS 4351-2003: Steel doorframes.
6) IS-6245-5245-1971: Metal rolling shutters and rolling grills.

8. FLOORING

1) IS 2114-1984: Code of practice for laying in situ terrazzo floor finish.
2) IS 2571-1970: Code of practice for in situ cement concrete flooring.
3) IS 5318-1969: Code of practice of lying of flexible P.V.C. sheet & tiles flooring.

9. ROOFING

1) IS 3007(pt-I)-1999: Code of practice of lying of corrugated cement sheets.

10. FINISHING

1) IS 133-2004: Enamel, Interior (a) under coating (b) Finishing colour as required.
2) IS 348-1968: French Polish.
3) IS 427-2005: Distemper, dry colour as required.
4) IS 425-1969: Distemper, oil emulsion as required.
5) IS 5410-1992: Cement paint, Colour as required.
6) IS 5411 (pt.1)-1974: Plastic emulsion paint for interior use.
7) IS 6278-1971: Code of practice for white washing & color washing.

11. DEMOLISION AND DISMANTILING

1) IS 1200 (pt. 18)-1974: Method of measurements of demolition and dismantling.

12. SAFETY CODE

1) IS 5916-1970: Safety code for construction including use of hot bituminous materials.
2) IS 4130-1991: Safety code for demolition of building.
3) IS 3754-1966: Safety code for excavation works.
4) IS 3696(Pt-1)-1987: Safety code for Scaffolds.

A) DISTEMPERING ON NEW SURFACE. (OILBOUND)

1. COAT OF PRIMER	….	0.07 Litre/Sq.m (one coat)
2. COAT OF DISTEMPER	…..	0.10 Kg/Sq.m (2 coats)

DISTEMPERING WITHOUT PRIMER

FOR 1 COAT	……	0.10 Kg/Sq.m (For 1 coat)
FOR 2 COATS	…….	0.15 Kg/Sq.m (For 2 coats)

B) SYNTHETIC ENAMEL PAINT.

a) ON NEW SURFACE	… PRIMER	….	0.09 Litre/Sq.m (For1 coat)
ENAMEL PAINT	(2 COATS)	….	0.15 Litre/Sq.m (For 2 coats)

b) ON OLD SURFACE

2 COATS WITHOUT PRIMER	…	0.20 Litre/Sq.m
1 COAT	…	0.10 Litre/Sq.m

c) WATER PROOF CEMENT PAINT

1 COAT	…	0.18 Kg/Sq.m
2 COAT	…	0.30 Kg/Sq.m

d) PLASTING EMULSION PAINT:

2 COATS OF PLASTIC EMULSION	….	0.09 Litre/Sq.m
1 COAT OF PLASTIC EMULSION	….	0.073 Litre/Sq.m

ON NEW SURFACE

1 COAT PLASTIC FIX PRIMER	…	0.081 Litre/Sq.m
2 COATS PLASTIC EMULSION	…	0.09 Litre/Sq.m

These standards are indicative, any additional IS standard/specification required to be followed shall be adhered to by the contractor/bidder.

FORM OF TENDER

Having examined the invitation to bid, Instructions to Bidder, General conditions of contract, Special conditions, Specifications tender schedule, Contract drawings and other documents for the above work, we the undersigned, offer to construct, erect complete and maintain the whole of the said in conformity with the said bid documents on the terms and conditions and under the provisions set out or called for in the contract documents at the rates listed in the schedule of unit prices or elsewhere in the contract documents.

We undertake if our bid is accepted, to commence the works within 7 days from the date of issue of award and to complete and delivery the whole of the works comprised in the contract as per the time schedule agreed to the contract document.

We agree to abide by this bid for the period of three months from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before expiry of the period.

Until and unless a formal agreement is prepared and executed this bid, together with your award thereof shall constitute a binding contract between us.

NIT Issued By

Sampangi C,
Sr. Manager, BHEL-EDN

CONTACTOR (SIGN & SEAL)

Annexure - I

Certificate by Chartered Accountant on letter head

This is to Certify that M/S ....., (hereinafter referred to as 'company') having its registered office at ..... is registered under MSMED Act 2006, (Entrepreneur Memorandum No (Part–II) ..... dtd:....., Category: ..... (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest audited financial year ..... as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006 :
   Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:
   Rs.....Lacs

(Strike off whichever is not applicable)

The above investment of Rs.....Lacs is within permissible limit of Rs.....Lacs for .....Micro / Small **(Strike off which is not applicable)** Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/ Small) **(Strike off which is not applicable)** and the date of graduation of such enterprise from its original category is ..... (dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O. No. 3322(E) dated 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant

ANNEXURE II

Electronic Funds Transfer (EFT) OR
Paylink Direct Credit Form

Please Fill up the form in **CAPITAL LETTERS** only.
TYPE OF REQUEST(Tick one): _____ CREATE _____ CHANGE

BHEL Vendor / Supplier Code:	
Company Name :	
Permanent Account Number(PAN):	
Address	

City: _____ PINCODE _____ STATE _____

Contact Person(s)	
Telephone No:	
Fax No:	
e-mail id:	

1 Bank Name:	
2 Bank Address:	
3 Bank Telephone No:	
4 Bank Account No:	
5 Account Type: Savings/Cash Credit	
6 9 Digit Code Number of Bank and branch appearing on MICR cheque issued by Bank	
7 Bank swift Code(applicable for EFT only)	
8 Bank IFSC code(applicable for RTGS)	
9 Bank IFSC code(applicable for NEFT)	

A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.

B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transfering Bank responsible.

C This authority remains in full force until BHEL, EDN,Bangalore receives written notification requesting a change or cancellation.

D I have read the contents of the covering letter and agree to discharge the resposibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:
Designation: Telephone NO. with STD Code

Company Seal

Bank Certificate

We certify that_____has an Account No_____ with us and we confirm that the bank details given above are correct as per our records.

Date: (.....)
Place: Signature

Please return completed form along with a blank cancelled cheque or photocopy thereof to:
Bharath Heavy Electricals Ltd,
Attn:
Electronics Division, Mysore Road,
BANGALORE - 560 026
In case of any Querry, please call : 080-26998xxx / 2674xxxx or fax no. 080-2674xxxx

ANNEXURE-III

NIT Issued By CONTACTOR (SIGN & SEAL)

Sampangi C,
Sr. Manager, BHEL-EDN

Ref.
Date:

SITE INSPECTION CERTIFICATE

This is to Certify that, I / We……..

……. had inspected the proposed

Construction site thoroughly and understood the scope of works to be carried out in line with construction drawings/designs/data/Bill of quantities/schedule of items / Specifications as brought out in the Tender as desired by BHEL.

Agreeable to all Terms & Conditions of Contract and assure to complete the work Within the stipulation time frame.

Signature of the contractor

Name:
Seal

NIT Issued By
Sampangi C,
Sr. Manager, BHEL-EDN

CONTACTOR (SIGN & SEAL)

Additional Clauses for GST:

1. BHEL GST Number of Nodal Agency:

   Nodal Unit Registered as Supplier of Goods/Services in GST: Andhra Pradesh
   GSTIN of Nodal Unit: Will be intimated later after award of work.

2. HSN (Harmonized System of Nomenclature) / SAC (Services Accounting Code) to be mandatorily mentioned in all quotations & invoices submitted.

3. Invoice submitted should be in the format as specified under GST Laws viz. all details as mentioned in Invoice Rules like GSTN registration number, invoice number, quantity, rate, value, taxes with nomenclature – CGST, SGST, IGST mentioned separately, HSN Code / SAC Code etc.

4. Payment of GST to vendors as applicable will be made only if it is matching with data uploaded by Vendors

5. Vendors to give undertaking that GST as mentioned in the Invoice has been paid/will be paid either through cash or admissible input credit and also file the returns

6. For invoices paid on Reverse charge basis – that it is “payable on reverse charge basis” to be mentioned on the invoice.

7. With respect to supplies, vendor should intimate BHEL immediately on dispatch for parallel billing on customer

8. Vendor should get GST registration, if not available, in the state of Andhra Pradesh immediately after placement of order.

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
(A) Civil Works for RCC Control Room, RCC Equipment Rooms, RCC Oil Pit					
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.all type of soil as per direction of Engineer in charge.	Cum	1147.00	119.29	136830.00
2	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in soft rock complete as per direction of Engineer in charge.	Cum	64.00	231.21	14798.00
3	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in Hard rock complete as per direction of Engineer in charge.	Cum	64.00	666.63	42665.00
4	Filling available excavated earth/murram (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 2 km and lift upto 1.5 m complete as per direction of Engineer in charge.	Cum	1063.00	144.09	153169.00
5	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size).	Cum	113.00	4105.97	463975.00
6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	Cum	19.00	4453.32	84614.00
7	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All works above plinth level and up to floor five level, excluding the cost of centering, shuttering and finishing: 1:2:4 (1 Cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	Cum	19.00	5611.75	106624.00
8	Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. All works upto plinth level	Cum	139.00	5291.98	735586.00
9	Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. All works above plinth level upto floor V level	Cum	109.00	6212.71	677186.00
10	Centering and shuttering including strutting, propping etc. and removal of form for :Foundations, footings, bases of columns etc. for mass complete as per direction of Engineer in charge.	sqm	341.00	186.86	63720.00
11	Centering and shuttering including strutting, propping etc. and removal of form for Columns, Pillars, Piers, Abutments, Posts and Struts complete as per direction of Engineer in charge. FOR ANY HEIGHT	sqm	255.00	481.31	122734.00
12	Centering and shuttering including strutting, propping etc. and removal of form for all heights : Lintels, beams, plinth beams, girders, bressumers and cantilevers FOR ANY HEIGHT	sqm	444.00	362.14	160793.00
13	Centering and shuttering including strutting, propping etc. and removal of form for Suspended floors, roofs, landings, balconies and access platform complete as per direction of Engineer in charge. FOR ANY HEIGHT	sqm	362.00	454.64	164580.00
14	Centering and shuttering including strutting, propping etc. and removal of form for all heights : Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	sqm	127.00	399.70	50763.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
15	Supplying and filling in plinth with sand/murrum under floors, including watering,ramming, consolidating and dressing complete.	Cum	37.00	1281.20	47405.00
16	Dry stone SOLING AVERAGE 22.5 cm thick including supply of stones, ramming with sand and preparing surface complete.	sqm	185.00	479.01	88618.00
17	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure upto plinth level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	62.00	3478.51	215668.00
18	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	116.00	4979.34	577603.00
19	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	sqm	10.00	611.46	6115.00
20	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and finishing with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 coarse sand) finished rough with sponge. EXTERNAL PLASTER	sqm	551.00	273.26	150565.00
21	12 mm cement plaster of mix : 1:6 (1 cement: 6 coarse sand): INTERNAL PLASTER	sqm	434.00	172.89	75034.00
22	12 mm cement plaster of mix : 1:4 (1 cement: 4 coarse sand) DRAIN PLASTER	sqm	365.00	181.15	66122.00
23	6 mm cement plaster of mix : 1:3 (1 cement : 3 fine sand) CEILING PLASTER	sqm	275.00	149.14	41014.00
24	Providing and laying heavy duty vitrified ceramic floor tiles as approved by BHEL/NTPC in different sizes (thickness shall be 9mm) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 30mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3kg/sqm including grouting the joints with white cement and matching pigments etc., complete. Size of Tile 600x600 mm	Sqm	64.00	984.36	63000.00
25	Providing and laying heavy duty anti skid vertrified Ceramic floor tiles of size 300x300 mm or more (thickness shall be 9mm), of 1st quality conforming to IS : 15622, of approved make, in colours as approved by Engineer In-charge, laid on 30 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	sqm	16.00	713.99	11424.00
26	Providing and fixing Ist quality ceramic glazed wall tiles conforming to IS: 15622, of approved make, in all colours, shades in skirting, dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm,including pointing in white cement mixed with pigment of matching shade complete.	Sqm	67.00	675.88	45284.00
27	Providing & fixing Acid and alkali resistant tile in flooring on a bed of 30 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand). Tile thickness should be 20mm.	Sqm	80.00	980.72	78458.00
28	Providing & fixing dado/skirting Acid and alkali resistant tile on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand). Tile thickness should be 12mm.	Sqm	168.00	1054.65	177182.00
29	Cement concrete flooring (with ironite hardener) 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, etc. complete. 50 mm thick with 10 mm nominal size stone aggregate IS 2571	sqm	20.00	516.60	10332.00
30	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement. 18 mm thick	sqm	15.00	341.87	5129.00
31	Finishing with acid and or alkali resistant Epoxy paint/COATING, 2mm thk heavy duty industrial grade (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work	sqm	35.00	124.25	4349.00
32	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	36.00	1187.39	42747.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
33	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. Polished Granite stone slab, colour as approved by Engineer In-charge.	sqm	5.00	2313.45	11568.00
34	Providing and fixing 20 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels. Granite of any colour and shade.	sqm	3.00	2629.02	7888.00
35	Providing and fixing stone slab with table rubbed, edges rounded and polished, of size 75x50 cm deep and 1.8 cm thick, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth. Granite Stone of approved shade	sqm	1.00	2110.29	2111.00
36	Providing and applying plaster of paris putty of 2 mm thickness of approved brandover plastered surface to prepare the surface even and smooth complete. Plaster of Paris (Gypsum Anhydrous) conforming to IS: 2547 shall be used for plaster of paris punning.	sqm	709.00	129.04	91486.00
37	Finishing walls with Acrylic Smooth exterior emulsion weather proof paint of required shade : New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior weather proof primer applied @ 2.20 kg/10 sqm) EXTERNAL	sqm	551.00	108.04	59532.00
38	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre (for Internal walls and ceiling), of approved manufacturer, of required shade and colour complete, as per manufacturer's specification: Two or more coats on new work INTERNAL WALLS AND CEILING (EXCEPT SCADA ROOM)	sqm	669.00	57.17	38247.00
39	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work SCADA ROOM	sqm	20.00	84.39	1688.00
40	Painting with acid alkali resistant paint of approved brand and manufacture of required colour to give an even shade: Two or more coats on new work BATTERY ROOM	sqm	84.00	85.31	7167.00
41	White washing with lime to give an even shade : New work (three or more coats) CEILING	sqm	10.00	18.73	188.00
42	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface : Water thinnable cement primer CEILING	sqm	10.00	39.36	394.00
43	Supplying and fixing rolling shutters (Mechanical gear operated) of approved make, made of required size M.S. laths, interlocked together through their entire length with effective bridge depth of 12mm lath sections, interlocked with each other and ends lock arrangements for inside and outside locking with malleable cast iron clips confirming to IS: 2108 and with mechanical device chain and crank operation for operating rolling shutters complete, including the cost of providing and fixing necessary fittings and fixtures of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters. 75x1.02 mm (18-gauge steel) M.S. laths with 1.20 mm thick top cover	sqm	9.00	2565.09	23086.00
44	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 mm thickness, including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25 mm, or base ties of 1.60 mm, pressed mild steel welded or rigidly fixed together by mechanical means, including M.S. pressed butt hinges 2.5 mm thick with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge: Profile C: Fixing with adjustable lugs with split end tail to each jamb	meter	20.00	291.49	5830.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
45	Providing and fixing ISI marked flush door (MDF) shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters. 35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqm	6.00	1983.71	11903.00
46	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, galvanized light gauge rolled form supporting system in double web construction pre painted with steel capping, of approved shade and color to give grid of maximum size of 1200x600 mm as per manufacturers details including supporting grid system, expansion fastners for suspension arrangement from RCC, providing opening for AC ducts (if required), return air grills (if required), light fixtures, etc., all complete: 15 mm thick MINERAL FIBER BOARD, in tile form of size 600mm x 600mm.	Sqm	20.00	1355.20	27104.00
47	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : For Fixed portion, Powder coated aluminium (minimum thickness of powder coating 50 micron)	kg	473.00	299.33	141585.00
48	Providing and fixing, for shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately). Powder coated aluminium (minimum thickness of powder coating 50 micron)	kg	401.00	358.41	143721.00
49	Providing and fixing 12 mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type ll, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of Engineer-in-charge. Pre-laminated particle board with decorative lamination on both sides	sqm	21.00	686.77	14423.00
50	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With tinted glass panes of 4.0 mm thickness float glass for windows	sqm	49.00	655.74	32132.00
51	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With toughened glass panes of 10.00 mm thickness for Partition and doors	sqm	46.00	2917.82	134220.00
52	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	kg	349.00	341.02	119017.00
53	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 300x10 mm	each	5.00	76.62	384.00
54	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 250x10 mm	each	2.00	67.93	136.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
55	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 125 mm	each	52.00	39.13	2035.00
56	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete : 300x16	each	13.00	168.69	2193.00
57	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete. Single rubber stopper	each	21.00	22.27	468.00
58	Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles of approved quality with necessary screws etc. complete.	each	16.00	491.11	7858.00
59	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	each	21.00	558.65	11732.00
60	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete as per direction of Engineer In-Charge.	Each	13.00	300.81	3911.00
61	18 mm thick moulded cement mortar band in two coats under layer 12 mm thick with cement mortar 1:5 (1 cement : 5 coarse sand) top layer 6 mm thick with cement mortar 1:4 (1 cement : 4 fine sand).	cm per m	10.00	10.63	107.00
62	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design : In 75x75 mm deep chase	meter	10.00	155.64	1557.00
63	Diluting and injecting chemical emulsion for POST- CONSTRUCTIONAL anti-termite treatment (including the cost of chemical emulsion) :Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor: With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	sqm	10.00	675.98	6760.00
64	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes. 110 mm diameter	meter	97.00	200.11	19411.00
65	Providing and fixing on wall face unplasticised - PVC moulded fittings/accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion. Shoe (Plain) 110 mm Shoe	each	48.00	74.65	3584.00
66	Providing and laying in situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd & 4th courses of bonding material @ 1.20 kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd layer of roofing membrane APP modified Polymeric membrane 2.0 mm thick of 3.00 Kg/ sqm weight consisting of five layers prefabricated with centre core as 100 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 5th, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).	sqm	285.00	268.14	76420.00
67	Providing and laying brick tiles over mumty roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat: With common burnt clay F.P.S. (non modular) brick tiles of class designation 10	sqm	285.00	337.45	96173.00
68	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto all level. High strength deformed Thermo-Mechanically Treated bars with corrosion inhibitors corrosion resistant steel CRS re-bars with fusion bonded Epoxy coated (FBEC) re-bars or Zinc Coated re-bars of grade minimum Fe-500 or more and shall conform to IS: 1786.	kg	24306.00	64.00	1555584.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
69	Making plinth protection 75mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.	sqm	110.00	402.82	44310.00
70	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	kg	1711.00	66.75	114206.00
71	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	kg	165.00	61.43	10137.00
72	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work	sqm	150.00	79.74	11961.00
73	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	5.00	4015.24	20077.00
74	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 using 6mm down stone chips, providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification. Providing & applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	sqm	36.00	337.48	12150.00
75	Providing and fixing PVC pipes for cable entry conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 150mm dia complete as per direction of Engineer In-Charge.	RM	50.00	81.68	4084.00
76	Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required :W.C. pan with ISI marked white solid plastic seat and 390 mm high with lid complete as per direction of Engineer In-Charge.	Each	2.00	3451.18	6903.00
77	Providing and fixing approved quality paper holder fix on wall with rawl plugs all materials labours etc., all complete as directed by the Engineer-in-charge.C.P. brass	Each	2.00	382.94	766.00
78	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :One urinal basin with 5 litre white P.V.C. automatic flushing cistern complete as per direction of Engineer In-Charge.	Each	2.00	3268.36	6537.00
79	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require: White Vitreous China Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps	Each	2.00	1867.57	3736.00
80	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws hard board backing complete as per direction of Engineer In-Charge.and washers complete.	Each	2.00	841.68	1684.00
81	Providing and fixing PTMT TOWEL RAIL complete with brackets fixed to wooden cleats with CP brass screws with concealed fittings arrangement of approved quality and colour. brass towel rail 600mm long and 20 dia mm with C.P. brass brackets complete as per direction of Engineer In-Charge.	Each	4.00	390.65	1563.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
82	Providing and fixing approved quality liquid soap dispenser and holder fix on wall with rawl plugs all materials labours etc., all complete as directed by the Engineer-in-charge.	Each	2.00	51.05	103.00
83	Providing and fixing approved brands of three layered Sintex Water tank-PVC water tanks including,lifting, positioning and cost of all labours, materials, fittijngs etc.complete as per direction of Engineer In-Charge.-(2000L each)	ltrs	2000.00	5.77	11546.00
84	Providing and fixing Stainless Steel A ISI 304 (18/8) KITCHEN SINK Pantry unit of sufficient size with sandwich type of platform with one sink (Nirali Make) plumbing fixture plumbing fixtureas per IS: 13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required: 510x1040 mm bowl depth 200 mm complete as per direction of Engineer In-Charge.	Each	1.00	3663.17	3664.00
85	Providing and fixing PVC, soil waste and vent pipes conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 75 mm dia complete as per direction of Engineer In-Charge.	RM	20.00	51.05	1021.00
86	Providing and fixing PVC, soil waste and vent pipes conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 110 mm dia complete as per direction of Engineer In-Charge.	RM	60.00	66.37	3983.00
87	Providing and fixing PVC, soil waste and vent pipes conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 150 mm dia complete as per direction of Engineer In-Charge.	RM	20.00	81.68	1634.00
88	Providing & fixing 100 mm PVC for gully, floor or nahani trap at all heights and levels complete as per direction of Engineer In-Charge.	Each	6.00	357.36	2145.00
89	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :25 mm nominal bore complete as per direction of Engineer In-Charge.	Each	6.00	326.13	1957.00
90	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :32 mm nominal bore complete as per direction of Engineer In-Charge.	Each	2.00	381.30	763.00
91	Providing and fixing brass stop cock of approved design, quality and make 15mm NB complete as per direction of Engineer In-Charge.	Each	5.00	198.47	993.00
92	Providing and fixing brass stop cock of approved design, quality and make 20mm NB complete as per direction of Engineer In-Charge.	Each	5.00	214.15	1071.00
93	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc. 15 mm nominal outer dia Pipes	meter	20.00	268.73	5375.00
94	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc. 20 mm nominal outer dia Pipes	meter	60.00	313.67	18820.00

CONTACTOR (SIGN AND SEAL)

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
95	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc. 25 mm nominal outer dia Pipes	meter	60.00	368.64	22119.00
96	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall. 32 mm nominal outer dia Pipes	meter	20.00	315.24	6305.00
97	Providing and fixing brass bib cock of approved quality: 15 mm nominal bore complete as per direction of Engineer In-Charge.	Each	8.00	198.47	1588.00
98	Providing and fixing brass bib cock of approved quality 20 mm nominal bore complete as per direction of Engineer In-Charge.	Each	8.00	214.15	1714.00
99	Providing and fixing brass stop cock of approved design, quality and make 15mm NB complete as per direction of Engineer In-Charge.	Each	8.00	198.47	1588.00
100	Providing and fixing brass stop cock of approved design, quality and make 20mm NB complete as per direction of Engineer In-Charge.	Each	8.00	214.15	1714.00
101	Providing and fixing vista make vertical blind of approved color and brand cost is inclusing of supply of materials, fixing, labour charges, transportation all leads, lifts, taxes etc. complete at all height and levels complete as per direction of Engineer In-Charge.	Sqm	65.00	433.94	28207.00
102	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete: Serrated with central bulb (225 mm wide, 8-11 mm thick)	meter	40.00	185.78	7432.00
103	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete. 600 mm dia RCC pipes	Sqm	38.00	1957.86	74399.00
104	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer. G.I. pipes	kg	442.20	103.65	45834.00
105	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, toppers, handles, including applying a priming coat of approved steel primer.	Sqm	16.00	5687.85	91006.00
				TOTAL AMOUNT: (A) **(Civil works for RCC Control Room, RCC Equipment Rooms, RCC Oil Pit)**	**Rs. 7,918,784.00**

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
(B) Electrical works					
SL. NO.	**DESCRIPTION**	**UNIT**	**QTY**	**ITEM RATE (Excluding GST)**	**AMOUNT**
106	LED indoor luminaire, industrial grade with diffuser and heat sink, minimum 3-star BEE rating, 36W, 240V, Philips/ Surya Roshini / Wipro/ Bajaj/ Crompton make as per LM79- 08 & LM80-15 standards as approved by NTPC/BHEL	Nos	35.00	3104.08	108643.00
107	LED indoor luminaire, industrial grade with diffuser and heat sink, minimum 3-star BEE rating, 18W, 240V, Philips/ Surya Roshini / Wipro/ Bajaj/ Crompton make as per LM79- 08 & LM80-15 standards as approved by NTPC/BHEL	Nos	20.00	1034.69	20694.00
108	LED bulkhead luminaire around the building (on the outer walls), 9W, 240V, minimum 3 star BEE rating, Philips/ Surya Roshini / Wipro/ Bajaj/ Crompton make as per LM79-08 & LM80-15 standards as approved by NTPC/BHEL	Nos	20.00	137.96	2760.00
109	Ceiling fan 1200 mm sweep 5 star type of reputed make as approved by NTPC/BHEL	Nos	6.00	2414.29	14486.00
110	Fan regulator Modular type of reputed make as approved by NTPC/BHEL	Nos	6.00	172.45	1035.00
111	6A modular type switch of reputed make as approved by NTPC/BHEL	Nos	100.00	103.47	10347.00
112	6A, 1ph, 5 pin, switched socket outlet Modular type of reputed make as approved by NTPC/BHEL	Nos	10.00	103.47	1035.00
113	16A, 1ph, 5 pin, switched socket outlet Module type of reputed make as approved by NTPC/BHEL	Nos	10.00	206.94	2070.00
114	3x6A, 1ph, 5 (2-3) pin socket outlet controlled by one 16A switch of reputed make as approved by NTPC/BHEL	Nos	5.00	344.90	1725.00
115	25A, 1ph, 5 pin, industrial socket with MCB enclosure of reputed make as approved by NTPC/BHEL	Nos	8.00	241.43	1932.00
116	63A, 3ph, 415V, industrial socket with MCB enclosure of reputed make as approved by NTPC/BHEL	Nos	2.00	338.69	678.00
117	Exhaust fan 450mm of reputed make as approved by NTPC/BHEL	Nos	12.00	6553.07	78637.00
118	Power distribution board of reputed make as approved by NTPC/BHEL	Nos	2.00	5173.48	10347.00
119	Cables, cable conduits for the above, all conduits (Embedded in wall or floor) including accessories shall be 1" pvc pipe (dia) of reputed make as approved by NTPC/BHEL	Mtr	1500.00	27.60	41400.00
120	4CX25 Sq mm Cu Cable of reputed make as approved by NTPC/BHEL	Mtr	50.00	310.41	15521.00
				TOTAL AMOUNT: (B) Electrical works	**Rs. 311,310.00**

CONTACTOR (SIGN AND SEAL)

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT

(C) Civil Works for Pooling station includes Inverter Transformer foundations, platforms for PCU, HT Panels , electrical equipment's

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
121	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.all type of soil as per direction of Engineer in charge.	Cum	1983.00	119.29	236560.00
122	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in soft rock complete as per direction of Engineer in charge.	Cum	105.00	231.21	24277.00
123	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in Hard rock complete as per direction of Engineer in charge.	Cum	105.00	666.63	69996.00
124	Filling available excavated earth/murram (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 2 km and lift upto 1.5 m complete as per direction of Engineer in charge.	Cum	1635.00	144.09	235588.00
125	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size).	Cum	169.00	4105.97	693909.00
126	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto floor V level : 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20/10mm mm nominal size) complete as per direction of Engineer in charge.	Cum	3.00	4453.32	13360.00
127	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:1½:3 (M20) (1 Cement: 1½ coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size).	Cum	14.00	4730.12	66222.00
128	Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. All works upto floor level	Cum	470.00	5291.98	2487233.00
129	Centering and shuttering including strutting, propping etc. and removal of form for :Foundations, footings, pedestal, bases of columns etc. for mass complete as per direction of Engineer in charge.	sqm	1160.00	186.86	216760.00
130	Centering and shuttering including strutting, propping etc. and removal of form for all heights : plinth beams, Tie/Lintel beams, girders, bressumers and cantilevers FOR ANY HEIGHT	sqm	744.00	362.14	269436.00
131	Centering and shuttering including strutting, propping etc. and removal of form for Suspended floors, roofs, landings, balconies and access platform complete as per direction of Engineer in charge. FOR ANY HEIGHT	sqm	371.00	454.64	168672.00
132	Centering and shuttering including strutting, propping etc. and removal of form for all heights : Walls (any thickness)/cable trench wall including attached pilasters, butteresses, plinth and string courses etc.	sqm	508.00	399.70	203049.00
133	Supplying and filling in plinth with sand/murrum under floors, including watering,ramming, consolidating and dressing complete.	Cum	50.00	1281.20	64061.00
134	Dry stone filling for Soak pit AVERAGE 40mm down graded stones including supply of stones, filling and preparing surface complete.	sqm	125.00	479.01	59877.00
135	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure upto plinth level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	25.00	3478.51	86963.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
136	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	10.00	4979.34	49794.00
137	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	sqm	10.00	611.46	6115.00
138	Random rubble masonry with hard stone in foundation, below fencing and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20mm nominal size) upto plinth level for fencing work with :Cement mortar 1:6 (1 cement : 6 coarse sand). Complete as per direction of Engineer-in-charge.	cum	10.00	4015.24	40153.00
139	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and finishing with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 coarse sand) finished rough with sponge. EXTERNAL PLASTER	sqm	110.00	273.26	30059.00
140	12 mm cement plaster of mix : 1:4 (1 cement: 4 coarse sand) DRAIN PLASTER	sqm	262.00	181.15	47463.00
141	Cement concrete flooring (with ironite hardener) 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, etc. complete. 50 mm thick with 10 mm nominal size stone aggregate IS 2571	sqm	308.00	516.60	159113.00
142	Finishing with acid and or alkali resistant Epoxy paint/COATING, 2mm thk heavy duty industrial grade (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work	sqm	10.00	124.25	1243.00
143	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement. 18 mm thick	sqm	46.00	341.87	15727.00
144	Finishing walls with Acrylic Smooth exterior weather proof paint of required shade : New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior weather proof primer applied @ 2.20 kg/10 sqm) EXTERNAL	sqm	110.00	108.04	11885.00
145	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre (for Internal walls and ceiling), of approved manufacturer, of required shade and colour complete, as per manufacturer's specification: Two or more coats on new work INTERNAL WALLS AND CEILING (EXCEPT SCADA ROOM)	sqm	10.00	57.17	572.00
146	Finishing walls with water proofing cement paint of required shade : New work (Two or more coats applied @ 3.84 kg/10 sqm all complete as per direction of Engineer-in -charge	sqm	262.00	59.86	15684.00
147	Diluting and injecting chemical emulsion for POST- CONSTRUCTIONAL anti-termite treatment (including the cost of chemical emulsion) :Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor: With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	sqm	10.00	675.98	6760.00
148	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	51.00	1187.39	60558.00
149	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. Polished Granite stone slab, colour as approved by Engineer In-charge.	sqm	10.00	2313.45	23135.00
150	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto all level. High strength deformed Thermo-Mechanically Treated bars with corrosion inhibitors corrosion resistant steel CRS re-bars with fusion bonded Epoxy coated (FBEC) re-bars or Zinc Coated re-bars of grade minimum Fe-500 or more and shall conform to IS: 1786.	kg	46953.00	64.00	3004992.00

CONTACTOR (SIGN AND SEAL)

UNPRICED PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
151	Providing and fixing G.I. chain link mesh fabric fencing of required width in mesh size 25 X25 mm /40X40MM made of G.I. wire of dia 4 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required both ends twisted conforming to IS 2721 complete as per the direction of Engineer-in-charge.	sqm	477.00	522.96	249454.00
152	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	kg	32417.00	66.75	2163770.00
153	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.Hot finished welded type tubes	kg	2000.00	94.10	188207.00
154	Hot dip galvanisation of fencing column post, fencing Flat, fencing Stay post and other structure steel works. thickness 86 micron	kg	2842.00	21.78	61888.00
155	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	kg	50.00	61.43	3072.00
156	Fencing with R.C.C./Steel post placed at required distance, embedded in cement concrete, corner post shall be strutted on both sides and end post one side only, provided with horizontal lines and two diagonals of barbed wire weighing 9.38 kg per 100 metres (minimum), between the two posts fitted and fixed with G.I. staples on wooden plugs or G.I. binding wire tied to 6 mm bar nibs fixed while casting the post (cost of R.C.C. posts, struts, earth work and concrete to be paid for separately) :- Payment will be made as per metre cost of total length of barbed wire used.	meter	716.00	7.87	5637.00
157	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work	sqm	200.00	79.70	15941.00
158	Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) Flush/ Ruled pointing	sqm	10.00	187.22	1873.00
159	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm + 0.05 %, total coated thickness with zinc coating 120 gsm as per IS: 277 in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches while transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	sqm	507.00	411.67	208719.00
	TOTAL AMOUNT: (C) Civil Works for Pooling station				**Rs. 11,267,777.00**

Activities	Summary of the activities	
A	Civil Works for RCC Control Room, RCC Equipment Rooms, RCC Oil Pit	Rs. 7,918,784.00
B	Electrical works	Rs. 311,310.00
C	Civil Works for Pooling station	Rs. 11,267,777.00
	Total value of the works (rounded off)	**Rs. 19,497,871.00**
QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT		**XXXXX**
QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT		**XXXXX**

Plus applicable GST

NOTE:
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.

CONTACTOR (SIGN AND SEAL)

CIVIL WORKS

NIT Issued By
Samapangi C,
Sr. Manager-Civil, BHEL-EDN

CONTACTOR (SIGN & SEAL)

A-1 SITE LEVELING & GRADING

1.0 SITE LEVELLING AND GRADING:

1.1 Site levelling works involves the following works:

1) All works related to site clearance including removal of bushes, trees, levelling, grading, finishing and other additional works shall be carried out by the Contractor. Mandatory permission/ licenses/ statutory clearances from Competent Authorities for site levelling activities like removal of tree and bushes, undertaking blasting related works, disposal of cutting material etc. shall be carried out by the contractor.
2) Site grading level shall be fixed with due reference to site drainage of the whole area, existing drainage pattern, maximum flood level and system requirements.
3) Site levelling works/scheme shall match with the specific functional requirement of Solar PV optimum generation considering the full utilization of the plot area for the desired capacity.
4) Consideration from the boundary and fencing requirements.

1.2 Based on the spot level, contour survey done and meeting above requirements, bidder can propose different site grade levels. The site levelling may be carried in patches/blocks. Bidder may also propose the site leveling and grading matching with the **natural topography** of the land considering the optimized use of the land, however bidder shall ensure to meet the desired power generation capacity in the allotted plot area. Bidder shall also ensure that no water ponding and flooding occurs in the low lying areas & effective drainage is provided in the whole plot area, in all kind of site levelling and grading or plant at natural topography schemes, bidders has to ensure to provide proper and effective drainage system in line with “Drainage System” chapter. After performing the optimization of levels from the detailed site survey by the Contractor, the final formation level of the plot in various areas shall be finalized. The area shall be suitably cut and filled to suit the layout requirement. The site levelling and grading scheme incorporating the above aspects shall be submitted to NTPC for approval.

1.3 Fill shall normally be made up of Cohesive Non swelling material capable of being compacted upto 95% Standard Proctor density. In case earth has to be borrowed from outside the plant boundary, the same shall be arranged by the Contractor himself. The slope at the edge of graded areas

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	shall not be flatter than 1:1.5 (1 vertical to 1.5 horizontal) in cutting and 1:2 in filling. In case of fill by rock material, the same shall be done in line with relevant Indian Standard.
1.4	All buildings & switchyard area/sub-station area shall be constructed in levelled area. No foundation shall be allowed on back filled soil and in that case the depth of foundations shall reach up to NGL. Final Level will be approved in detail engineering.
1.5	The slope protection measure shall be provided in case inter levelled patches level difference is more than 2.0m. Random rubble/boulder/stone pitching/concrete blocks etc. shall be provided for the slope protection for road side slope, storm water ditches/drainage, embankment slopes, inter levelled patches slopes etc. as per design requirements.
1.6	Suitable sand erosion control measure shall be provided in case any sand dune falls inside the plot area. The same may be made with Random rubble/boulder/stone pitching/concrete blocks etc. Bidder shall also provide sufficient grass/buses/trees covers on these dune.

A-2 GENERAL CIVIL WORKS

1.0 GENERAL

This chapter covers the Specific technical and functional requirements.

The design calculations and drawings for RCC structure/Room, Steel structure, foundation system, road work, drainage, etc. shall be submitted for prior approval of NTPC before commencement of construction. The construction methodology for road works, drains shall be also be submitted for NTPC approval before start of works.

All design of RCC and Steel structures shall be carried as per IS: 456 and IS 800 respectively and other specific code as applicable to specific structures.

2.0 CMCS, INVERTER ROOMS, SECURITY ROOM:

The following structures shall be designed and provided by the bidder:

(I) **CMCS Building**: For the operation and maintenance of SPV Plant one Central Monitoring and Control Station (CMCS) with 11 KV switchgear room shall be provided. The CMCS building shall consist of the following:

1. Air conditioned SCADA Room
2. Inverter, battery room, ACDB and 11 KV Switchgear Room

Inverter(s), battery room, ACDB and 11 KV Switchgear room shall be based on manufacturer recommendation, easy passage of O&M persons and cable trench layout required. The CMCS shall be RCC framed structure with bricks/concrete blocks masonry walls.

The minimum size & requirements of the CMCS Building & all items shall be as per tender drawing.

(II) **Inverter Rooms**: Inverter rooms consist of PCU's, LT panels, batteries, etc. shall be provided based on manufacturer recommendation, easy passage of O&M persons and cable trench layout required. The Inverter Room shall be RCC framed structure with bricks/concrete blocks masonry walls and containerized solutions.

The battery and its associated equipment shall be suitably segregated inside the Inverter room with proper ventilation arrangement.

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The equipment inside the inverter room shall be placed so as to provide sufficient space for their maintenance.

The layout, design and drawings for all RCC structure, etc. and foundation system shall be approved from NTPC before start of works.

The buildings and allied works shall be designed to meet NATIONAL BUILDING CODE (SP: 07 2016) requirements.

Finish floor level of all building shall be minimum 450 mm above from Finish graded level.

2.1 Specification for RCC Building for CMCS and Inverter room.

The CMCS building shall be made of RCC framed structure with bricks/concrete blocks masonry walls. The thickness of outer masonry walls shall be minimum 230mm in case of bricks and minimum 200mm thick in case of concrete blocks. The following detailed specification shall also be followed for RCC works:

2.1.1 **Floor Finishes**

Switchgear/Inverter rooms	: Cement concrete flooring with ironite hardener.
SCADA room	: Heavy duty vitrified ceramic tiles
Battery room	: Acid Alkali resistance tile flooring or acid alkali resistant epoxy coating over concrete flooring with ironite hardener

Flooring for air conditioned areas area shall be provided with vitrified ceramic tiles of size 600X 600 mm of min 9 mm thickness, laid with 3 mm ground joints as per approved pattern. Cement concrete flooring shall conform to IS 2571.

The floor finish for toilet shall be vitrified ceramic anti-skid tiles and Dado glaze ceramic tiles upto 2.1m shall be used. The normal size of Ceramic tiles shall be 300 mm X 300 mm X 9 mm and shall comply IS: 15622.

Finish floor level of all building shall be minimum 600 mm above from Finish graded level.

2.1.2 **False Celling**

The SCADA room shall be provided with false ceiling of 15 mm thick mineral fiber board, in tile form of size 600mm x 600mm, along with

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galvanized light gauge rolled form supporting system in double web construction pre painted with steel capping, of approved shade and color, to give grid of maximum size of 1200x600 mm as per manufacturers details including supporting grid system, expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts(if required), return air grills(if required), light fixtures, etc., all complete.

2.1.3 **Roof Finishes**

Roof of the Building shall consist of Cast-in-situ RCC slab with decking sheet (RCC slab with permanent formwork) The slab formwork decking sheet shall be permanently colour coated profile sheet with minimum 0.6mm thickness of grade SS255 as per ASTM A653M / grade G250 as per AS 1397 coated with zinc of class designation Z275 or aluminium zinc alloy of class designation AZ150 or similar. The decking sheet shall meet the strength, deflection and other functional requirements.

Bidder can also provide Roof of the building as Cast-in-situ RCC slab conforming to Indian code.

The roof of the building shall be water proof with Polymeric membrane type waterproofing as per DSR. The roof shall be designed for minimum superimposed load to 150 kg/m2.

For efficient disposal of rainwater, the run off gradient for the roof shall not be less than 1:100 and the roof shall be provided with PVC/RCC water gutter, wherever required. Gutter shall be made water tight using suitable watertight treatment. This gradient can be provided either in structure or subsequently by screed concrete 1:2:4 (using 12.5 mm coarse aggregate) and/or cement mortar (1:4). However, minimum 25 mm thick cement mortar (1:4) shall be provided on top to achieve smooth surface. The roof of all building shall be projecting out by at least 450 mm all around the building for its external walls protection from rain water and parapet wall above the roof beam. Height of parapet wall shall be minimum 300 mm above top of roof level. Structural steel hand railings of minimum 700mm height shall also be provided over the parapet wall.

The bidder shall also provide rain water harvesting system consisting of ground water recharge pits for CMCS building roof.

2.1.4 **View point**

RCC terrace of CMCS building shall also work as view point. View point shall be used for security purposes and viewing gallery. Suitable RCC half

landing staircase shall be provided for access to roof of the RCC CMCS building.

2.1.5 **Windows, Doors, Ventilators and Rolling Shutters**

Doors, windows and ventilators of air-conditioned areas, entrance lobby of all buildings, and all windows and ventilators of CMCS building shall have, powder coated (minimum thickness of powder coating 50 micron) aluminum framework with glazing. Window shall be provided with suitable aluminum grill.

Doors of toilet areas shall be of steel framed solid core flush shutter as per IS 2202. Minimum size of door provided shall be 2.1 m high and 1.2 m wide. However, for toilets minimum width shall be 0.75 m and office areas minimum width shall be 1.20 m.

The Bidder can also propose uPVC extruded casement/ sliding windows and doors with complete fitting and accessories as per items mentioned in DSR 2016.

All external door of CMCS shall be provided with Collapsible metal grille with locking system.

Doors and windows on external walls of the buildings (other than areas provided, with insulated metal claddings) shall be provided with RCC sunshade over the openings with 300 mm projection on both side of the openings. Projection of sunshade from the wall shall be minimum 450 mm over window openings and 450 mm over door openings except for main entrance door to the control room where the projection shall be 1500 mm.

Rolling shutter (Mechanical gear operated). Rolling shutters shall be fabricated from 18-gauge steel and machine rolled with 75 mm rolling centers with effective bridge depth of 12 mm lath sections, interlocked with each other and ends locked with malleable cast iron clips to IS: 2108 and shall be designed to withstand a wind load without excessive deflection. Metal rolling shutters and rolling grills as IS: 6248

2.1.6 **Glazing**

All accessible ventilators and windows of all buildings shall be provided with min. 4mm thick float glass, tinted for preventing solar radiations, unless otherwise specified.

For single glazed aluminium partitions and doors, toughened float glass of 10 mm thickness shall be used. All glazing work shall conform to IS: 1083 and IS: 3548.

The glass to used should be from reputed brand / manufacturer and as approved by NTPC. The glass should be free from distortion and thermal stress.

2.1.7 **Paintings of wall and ceilings**

Internal wall surfaces: SCADA room All other rooms in plant buildings	 -Acrylic Emulsion -Acrylic Distemper
External faces of walls:	-Exterior emulsion paint
Walls of battery room	-Acid alkali resistant paint, an exposed wall above Dado -2100 mm high Dado of acid alkali resistant tiling.
All Ceiling	-Acrylic Distemper

The paint shall be anti-fungal quality of reputed brand suitable for masonry. All painting on masonry or concrete surface shall preferably be applied by roller. If applied by brush, then same shall be finished off with roller. For painting on concrete, masonry and plastered surface, IS: 2395 shall be followed. Minimum 2 finishing coats of paint shall be applied over a coat of primer.

For painting on steel work and ferrous metals, BS: 5493 and IS: 1477 shall be followed. The type of surface preparation, thickness and type of primer, intermediate and finishing paint shall be according to the painting system adopted.

Ceiling of all rooms except Battery room shall be white washed. The ceiling of Battery room (if provided) shall be acid/alkali resistant paint. CMCS building outside colors of paining shall be similar to PEB painting colors.

A standard color scheme for the different buildings/structures shall be prepared by the Contractor and the approval of the Owner shall be obtained, before commencement of work.

2.1.8 **Plumbing and sanitary**

Wash basin provision for hand wash shall also be provided in **battery room**.

All fittings, fastener, grating shall be brass with chromium plated as per relevant IS code. Necessary plumbing lines shall be provided for CMCS room building.

The bidder shall design & provide packaged sewerage treatment plant/septic with soak pit for CMCS assuming that a total of 15 people shall use the facility. The waste water/effluents from the sewerage plants/septic tank shall meet the state pollution board requirement.

2.2 Specification for PEB room

Deleted.

2.3 Water Supply

GI pipes of Medium quality conforming to IS 1239 (Part I-1990) or CPVC pipes conforming to IS 15778 shall be used for all portable hot and cold water distribution supply and plumbing works.

The Syntax or equivalent make PVC storage water storage tank conforming to IS: 12701 shall be provided over the roof of the CMCS with adequate capacity for 10 No person and 24 hr requirement, complete with all fitting including float valve, stop cock etc. The capacity of the tank shall be minimum 500 liters.

2.4 Plastering

All external surfaces shall have 18 mm cement plaster in two coats, under layer 12 mm thick cement plaster 1:5 and finished with a top layer 6 mm thick cement plaster 1:6 (DSR 2013-13.11).

White cement primer shall be used as per manufacturer's recommendation.

At least one coat of plaster shall be applied to interior walls by hand or mechanically, to a total thickness of 12 mm using 1:6, 1 cement and 6 sand. Plastering shall comply to IS: 1542, IS: 1661, IS: 1630. Oil bound washable distemper on smooth surface applied with minimum 2 mm thick Plaster of Paris putty for control room. Plaster of Paris (Gypsum Anhydrous) conforming to IS: 2547 shall be used for plaster of paris punning.

2.5 Masonry Work

Brick works shall be using at least class designation 7.5 of approved quality as per IS: 1077, IS: 2212 and IS: 3495. Concrete blocks shall be of minimum compressive strength of 7.5 N/mm2 and shall be of Grade-A as per IS: 2185. Stone masonry work with hard stone in building works, foundation, plinth and drains shall be Coursed Rubble or Random Rubble masonry work with stone of good quality and durability. The masonry surface shall be plastered with minimum 18mm plaster in case of CMCS walls. The stone masonry work shall be in line with IS: 1597, IS: 1122 and IS: 1126.

The cement mortar for all kind of masonry work shall be in the ratio 1 cement and 6 sand by weight.

Bricks/blocks required for masonry work shall be thoroughly soaked in clean water tank for approximately two hours. Brick shall be laid in English bond style. Green masonry work shall be protected from rain. All masonry work shall be kept moist on all the faces for a period of seven days.

Bricks of class designation 50 and 35 may be permitted to have slight distorted & rounded edges provided no difficulty shall arise on this account in laying of uniform courses in non-load bearing structures and shall be subjected to approval of NTPC. Tolerances on dimensions up to +/- 8% shall be permitted. Dimension test to be carried out as per IS code.

The external wall for the building shall be 230 mm thick walls and internal wall 230/115 thick as per requirements. The external wall of CMCS facing the transformer area shall be as per IS: 1646 - Code of practice for fire safety of buildings (general): electrical installations.

Use of fly ash brick for masonry shall be subjected to approval of NTPC.

Suitable damp proof course shall be provided the proportion of cement, sand & aggregate shall be 1:2:4 using 6 mm down stone chips with a water proofing admixtures. The thickness of damp-proof course shall be minimum 40 mm.

2.6 Reinforced Concrete Structure, Allied Works and Foundation

All RCC works shall be design mix as per IS: 456-2000. For structural concrete items, Ordinary Portland cement (43 Grade) conforming to IS: 8112 and Fly ash based Portland pozzolana cement conforming to IS: 1489 (Part-1) shall be used for superstructure. Type of cement for sub-structures shall be decided based on the final Soil Investigation report.

Coarse aggregate for concrete shall be crushed stones chemically inert, hard, strong, durable against weathering of limited porosity and free from deleterious materials. It shall be properly graded. It shall meet the requirements of IS: 383.

Sand shall be hard, durable, clean and free from adherent coatings of organic matter and clay balls or pellets. Sand, when used as fine aggregate in concrete shall conform to IS: 383. For plaster, it shall conform to IS: 1542 and for masonry work to IS: 2116

Reinforcement steel shall be of high strength deformed TMT steel bars with corrosion inhibitors, Corrosion Resistant Steel (CRS) re-bars, Fusion Bonded Epoxy Coated (FBEC) re-bars or Zinc Coasted re-bars of grade minimum Fe-500 and shall conform to IS: 1786. Ductile detailing in accordance with IS: 13920 shall be adopted for superstructure and substructure of all RCC buildings / structures

The following minimum grades of concrete for design mix and nominal mix shall be adopted for the type of structures noted against each unless not specified elsewhere.

M 30 - All RCC structural elements above and below ground level, precast concrete, MMS foundation, cable trench, oil pit, Grade Slab, Paving, culverts & road.

M-20 (Equivalent nominal Mix of 1:1.5:3)* - Fencing work

M-15 (Equivalent Nominal Mix of 1:2:4) - Base slab of drains.

M-10 (Equivalent Nominal Mix of 1:3:6) - Plain Concrete Cement.

The bidder shall carry out the design mix of M-30 grade concrete on priority. The design mix shall be approved from NTPC before start of work.

In case Geotechnical investigations requires any special kind of cement or higher grade of concrete, the same shall be provided.

The foundation system shall be made which transfer loads safely to the soil for the module mounting structures, depending on soil conditions, geographical condition, regional wind speed, bearing capacity, slope stability etc. All foundation system and foundation depth shall be decided based on the approved geotechnical investigation report. No foundation allowed on back filled soil and the foundation depth to reach upto NGL.

All loads shall be considered in line with IS: 875. Seismic loads for design shall be in accordance with IS: 1893 and relevant Standards.

IS: 2502 Code of Practice for Bending and Fixing of Bars for concrete Reinforcement must be complied for reinforcements. IS: 5525 and SP: 34 shall be followed for reinforcement detailing.

A minimum 75 mm thick PCC shall be provided below RCC wherever RCC is laid over the ground. Proper and sufficient formwork/shuttering shall be provided for the required period as per IS: 456.

2.7 A. Structural Steel

All structural steel design shall be carried out as per IS 800. Structural steel shall conform IS 2062/IS 1079 or equivalent, Pipe shall be as per medium/high grade of IS 1161, Chequered plates shall conformed to 3502 and Hollow steel sections for structural use shall conform to IS: 4923.

B. Structural Steel/Steel Sheet Painting

All non-hot dip galvanised structural steel (excluding Module Mounting & SCB structure)/ Outdoor metal containers/ Enclosure/ Rolling shutter items shall be provided with paint designed for a minimum maintenance-free life of fifteen (15) years (high durability) as per **ISO 12944 and IS 800**. For finishing coat suitable colour pigment shall be added. All paints including primer shall be of the reputed brand/manufacturer and as approved by the Engineer-In-charge. The method of application shall be as per the recommendations of the manufacturer. For corrosive category of refer appendix-D1

2.8 Grouting

Cement mortar (1:2) grout with non-shrink additives shall be used for grouting below base plate of column. The grout shall be high strength grout having a minimum characteristic compressive strength of min 30 N/mm2 at 28 days.

3.0 TRANSFORMER YARD CIVIL WORKS

Transformer and equipment's foundations shall be founded on piles/isolated spread footings depending on the final geotechnical investigation report. Metering yard equipment's structures shall be designed as per IS: 801 and IS: 800.

Transformer foundations shall have its own pit which would cover the area of the transformer and cooler banks, so as to collect any spillage of oil or oil drainage in case of emergency. The oil pit shall be filled with granite stones of 40 mm size uniformly graded.

The bidder can propose soak pit under Transformer or Burnt oil pit at a distance connected to transformer soak pit depending upon oil quantity in Transformers. It shall be sized to accommodate the oil volume of the transformer connected to it, without backflow. The Gravel-filled level under transformer shall be in accordance with FGL outside pit and transformer bottom level.

The area around the transformer and equipment's shall be covered with gravel and galvanized chain link fence of height min 1.8 m with fence posts and gates shall be provided. The portion of the fence covering towards rail track shall be made of a removable type for movement of the transformer during erection /removal. In addition, a small gate, 1.2 m wide shall be provided for an entry. The transformer yard fencing work shall conform to CEIG requirements.

Transformer track rails shall conform to IS 3443. The requirement of a fire barrier wall between transformers shall be as per Electricity Rules and IS 1646 recommendations

4.0 PIPE /CABLE RACKS & TRENCHES

Trenches shall be constructed in reinforced cement concrete of M-30 grade of wall thickness min 150 mm. The top of trenches shall be kept at least 100 mm above the gravel level so that rain water does not enter the trench. Trench walls shall not foul with the foundations.

Outdoor Cable Trenches: RCC cable trenches shall be constructed in the switchyard and pre-cast RCC removable covers with lifting arrangement, edge protected with suitable galvanized angle iron designed to withstand self-weight of top slab + concentrated load of 150 kg at center of span on each panel.

Indoor Cable Trenches: RCC indoor cable trenches shall be provided with 50X50X4 mm angles grouted on the top edge of the trench wall for holding minimum 6 mm thick mild steel checkered plate covers (600-1200 mm in length except at ends & bends) conform to IS: 3502 with lifting arrangement. Angle or channels shall also be grouted at distances of 600 mm across the indoor cable trenches to support the checkered plates.

Trench Drainage: The trench bed shall have a slope of approx. 1/500 along the run & 1/250 perpendicular to the run. In case straight length exceeds 30 m, suitable expansion joint shall be provided at appropriate distances. The expansion joint shall run through vertical wall and base of trench. All expansion joints shall be provided with approved quality PVC water stops. Suitable drainage at lowest point of the trench shall be provided.

5.0 ROAD AND PATHWAY

5.1 Road

The approach road to the Floating Solar Power Plant facilities shall originate from the nearest existing Plant road. Approach road shall be 3.0 meter wide with 0.5 meter wide shoulder on both side. Red moorum/brick, minimum 100 mm thick shall be provided for shoulder. The crown of the road shall be minimum 150 mm above FGL. The final finished roads shall have a camber of 1 in 50.
The minimum road section shall be as follows:

1) Topping: Wearing course of premix carpet 20 mm thick.
2) WBM, compacted 75 mm thick (Grade-III).
3) WBM, compacted 100 mm thick (Grade-II).
4) Granular Sub-base, compacted 150mm thick granular sub-base (Gr-I). (WBM 100 mm thickness can be modified to 75 mm for WBM with corresponding increase of 25 mm in subbase thickness.) Bidders can also propose Wet Mix Macadam (WMM) in place of Water Bound Macadam (WBM) for approach road base construction.)
5) Sub-grade under road and its shoulders shall be compacted to achieve 95% or more of standard proctor's MDD. CBR value of the sub grade level should be minimum 4%. If actual CBR is less than 4% in a particular stretch then GSB thickness shall be increased suitably.

The methodology of road construction with material specifications shall be in line with IRC/MORTH and shall be submitted for approval before starts of works. Road works shall be carried out as per tender drawing.

6.0 DRAINAGE SYSTEM

Surface drainage/Garland Drain system shall be designed considering “maximum hourly rainfall intensity” at the site area considering latest 25 years return period however the minimum value of “maximum hourly rainfall intensity” shall be maintained as 60 mm in the drainage system design. The minimum value of surface run off coefficient shall be considered as 0.6 in the design of drainage system. The drainage system

shall be designed as per the IRC specifications and prevailing industry practices. The drainage scheme shall be designed considering the bidder's plot area and nearby catchment area contributing to the plot drains. Drainage scheme with detention ponds which allows for groundwater recharge & maintains the existing drainage pattern as far as possible is desired. A network of open drains shall be designed & provided to carry surface run off. The drains shall be trapezoidal or rectangle section lined with concrete slabs/brick masonry/stone masonry/stone slabs. The minimum thickness of these lining shall be 115mm for brick masonry, 75mm thick for concrete slab, 150mm thick for stone masonry and 40mm thick for stone slab.

Grade level shall be fixed with due reference to highest high flood level of the receiving body of water. Laying of Hume pipe shall be in line with IS: 783.

7.0 ELECTRIFICATION OF BUILDING

Electrification of all building shall be carried out as per IS 732-1989, IS: 4648-1968 and other relevant standards.

8.0 LIST OF APPLICABLE INDIAN STANDARDS:

Indian codes, and/or standards shall govern, in all the cases wherever they are available. In case of a conflict between such codes and/or standards and the specifications, the stringent provisions shall govern. Such codes and/or standard referred to shall mean the latest revision, amendments/changes adopted and published by the relevant agencies. In case of any further conflict in this matter the same shall be referred to the Engineer-in-charge, whose decision shall be final and binding.

Other internationally acceptable standards shall be accepted, only if, no Indian Standards are existing. However, other standards also will be accepted if the Contractor establishes that the works are meeting the requirements of Indian Standards also.

A brief list of Indian Standards applicable to these works is as below:

General

IS: 875-I	Code of Practice for Design Dead Loads for Building and Structures
IS: 875-II	Code of Practice for Design Imposed Loads for Building and Structures

IS: 875-III	Code of practice for design loads (other than earthquake) for buildings and structures.
IS: 1893	Criteria for earthquake resistant design of structures.
IS: 4326	Code of Practice for earthquake resistant design and construction of buildings

Foundations

IS: 1080	Code of practice for design and construction of shallow foundations in soils (other than raft, ring and shell)
IS: 1904	Code of practice for structural safety of building foundations
IS: 2950	Code of practice for design and construction of raft foundations.
IS: 4091	Code of Practice for Design and Construction of Foundations for Transmission Line Towers and Poles
IS: 6403	Code of Practice for determination of bearing capacity of shallow foundations
IS: 8009	Code of Practice for foundation settlement calculations
IS: 2911	Design & Construction of Pile Foundation - Code of Practice

Concrete Structures

IS: 456	Code of practice for plain and Reinforced concrete
IS: 3370	Code of practice for concrete structures for the storage of liquids.
IS: 3414	Code of Practice for design and installation of joints in buildings
IS: 5525	Recommendation for detailing of reinforced concrete works
IS: 6313	Code of practice for anti-termite measures in buildings
IS: 13920	Ductile detailing of Reinforced Concrete Structures subjected to Seismic forces
IS: 1904	Code of practice for design and construction of foundations in soils general requirements

Steel Structures

IS: 800	Code of practice for use of structural steel in general building construction
IS: 801	Code of practice for use of cold-formed light gauge steel structure members

IS: 802	Code of Practice for use of Structural Steel in over Head Transmission Line Towers.
IS: 806	Code of practice for use of steel tubes in general building construction.
IS: 808	Dimensions for hot rolled steel beam, column channel and angle section
IS: 811	Specification for Cold Formed Light Gauge Structural Steel Sections
IS: 813	Scheme of symbols for welding
IS: 1079	Hot Rolled carbon Steel Sheet and Strip - Specification
IS: 2062	Hot Rolled Medium and High Tensile Structural Steel - Specification
IS: 4923	Hollow steel sections for structural use.
IS 1161	Steel tubes for structural purpose
IS: 2721	Galvanized steel chain link fence fabric - Specification

Painting and Coating

IS: 4736	Hot-dip zinc coatings on mild steel tubes
IS: 4759	Hot-dip zinc coatings on structural steel and other allied products – Specification
IS:1868	Anodic coatings on aluminum and its alloys
IS 2395-I	Painting of Concrete, Masonry and Plaster Surfaces - Code of: Operations and Workmanship
IS 2395-II	Code of practice for painting concrete, masonry and plaster surfaces: Schedule
IS 1477-I	Code of Practice for Painting of Ferrous Metals in Buildings: Pre-treatment
IS:1477-II	Code of practice for painting of ferrous metals in buildings: Painting

Water supply and sanitary

IS: 1239	Mild steel tubes and tubulars and other wrought steel fittings
IS: 1172	Code of basic requirements for water supply, drainage and sanitation
IS: 1742	Code of Practice for building drainage

IS: 2527	Code of practice for fixing rainwater gutters and down pipes for roof drainage.
IS: 15778	Chlorinated polyvinyl chloride pipes for potable hot and cold water distribution supplies
IS: 16088	Chlorinated polyvinyl chloride pipes for automatic sprinkler fire extinguishing system
IS: 10124	Fabricated PVC fittings for potable water supplies
IS: 4985	Un-plasticized PVC pipes for potable water supplies
IS: 13592	Un-plasticized Polyvinyl Chloride (PVC-U) Pipes for Soil and Waste Discharge System Inside and Outside Buildings Including Ventilation and Rainwater System
IS: 12818	Un-plasticized polyvinyl chloride (PVC-U)screen and casing pipes for bore/tubewell
IS: 2470	Code of Practice for installation of septic tanks

Miscellaneous

IS: 1905	Code of Practice for structural use of un-reinforced masonry
IS: 3067	Code of Practice for general design details and preparatory works for damp proofing and water proofing of buildings
SP: 6	Handbook for structural engineers (all parts)
SP: 7	National Building Code of India
SP: 16	Design Aids for reinforced concrete to IS:456
SP: 20	Handbook on masonry design and construction
SP: 22	Explanatory handbook on codes for earthquake engineering
SP: 24	Explanatory handbook on Indian Standard Code of Practice for plain and reinforced concrete
SP: 25	Handbook on causes and prevention of cracks in buildings
SP: 32	Handbook on functional requirements of industrial buildings
SP: 34	Handbook of concrete reinforcement & detailing
IRC: 37	Guidelines for design of flexible pavements
IRC: 42	Guidelines on Road Drainage
IRC: 58	Guidelines for the design of rigid pavements for highways

IRC: 73	Geometric design of roads

APPENDIX-D1

GENERAL DESIGN DATA

A. **VICINITY MAP**: Refer Tender drawing No: 5746-004-POC-A-001

B. **WIND**: Basic wind speed shall as per Cl. 2.0 of Chapter A-2.

C. **SEISMIC** shall be as per IS: 1893 (Part-1)

D. Corrosive category: C5

GENERAL CONDITIONS

OF

CONTRACT

2019

ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್, ವಿದ್ಯುನ್ಮಾನ ವಿಭಾಗ, ಬೆಂಗಳೂರು

भारत हेवी इलेक्ट्रिकल्स लिमिटेड, इलेक्ट्रानिक्स डिवीज़न, बेंगलुरु

Bharat Heavy Electricals Limited, Electronics Division, Bengaluru

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CHAPTER -1

1. GENERAL INSTRUCTION TO TENDERERS

1.1. DESPATCH INSTRUCTION

i) The General Conditions of Contract form part of the Tender specifications. All pages of the tender documents shall be duly signed, stamped and submitted along with the offer in token of complete acceptance thereof. The information furnished shall be complete by itself. The tenderer is required to furnish all the details and other documents as required in the following pages

ii) Tenderers are advised to study all the tender documents carefully. Any submission of tender by the tenderer shall be deemed to have been done after careful study and examination of the tender documents and with the full understanding of the implications thereof. Should the tenderers have any doubt about the meaning of any portion of the Tender Specification or find discrepancies or omissions in the drawings or the tender documents issued are incomplete or shall require clarification on any aspects, the scope of work etc., he shall contact the authority inviting the tender well in time (so as not to affect last date of submission) for clarification before the submission of the tender. Tenderer's request for clarifications shall be with reference to Sections and Clause numbers given in the tender documents. The tender specifications and terms and conditions shall be deemed to have been accepted by the tenderer in the offer. Pre requirements and conditions shall be liable for rejection.

iii) Integrity pact (IP): If NIT calls for Integrity Pact, the same shall be duly signed & stamped by the authorised signatory & submitted along with tender document.

1.2. SUBMISSION OF TENDERS

1.2.1 The tenderers must submit their tenders as per instructions in the NIT

1.2.2 BHEL takes no responsibility for delay, loss or non-receipt of tenders sent by post/courier. The tenders received after the specified time of their submission are treated as 'Late Tenders' and shall not be considered under any circumstances. Offers received by Fax/Email/Internet shall be considered as per terms of NIT.

1.2.3 Tenders shall be opened by authorised Officer of BHEL at his office at the time and date as specified in the NIT, in the presence of such of those tenderers or their authorised representatives who may be present

1.2.4 Tenderers whose bids are found techno commercially qualified shall be informed the date and time of opening of the Price Bids and such Tenderers may depute their representatives to witness the opening of the price bids. BHEL's decision in this regard shall be final and binding.

1.2.5 Before submission of Offer, the tenderers are advised to inspect the site of work and the environments and be well acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour, means of transport and access to Site, accommodation, etc. No claim will be entertained later on the grounds of lack of knowledge of any of these conditions.

1.3. ***LANGUAGE***

1.3.1 The tenderer shall quote the rates in English language and international numerals. These rates shall be entered in figures as well as in words. For the purpose of the tenders, the metric system of units shall be used.

1.3.2 All entries in the tender shall either be typed or written legibly in ink. Erasing and over-writing is not permitted and may render such tenders liable for rejection. All cancellations and insertions shall be duly attested by the tenderer.

1.4 ***PRICE DISCREPANCY:***

1.4.1 Conventional (Manual) Price Bid opening:

i) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of BHEL there is obvious misplacement of decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly

ii) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected;

iii) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (i) and (ii) above.

iv) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of BHEL, the bid is liable to be ignored.

v) In case of lump sum price, if there is any difference between the amount in figures and in words, the amount quoted by the bidder in words shall be taken as correct.

vi) In case of omission in quoting any rate for one or more items, the evaluation shall be done considering the highest quoted rate obtained against the respective items by other tenderers for the subject tender. If the tenderer becomes L-1, the notional rates for the omission items shall be the lowest rates quoted for the respective items by the other tenderers against the respective omission items for the subject job and the 'Total quoted price (loaded for omissions)' shall be arrived at. However the overall price remaining the same as quoted originally, the rates for all the items in the 'Total quoted price (loaded for omissions)' shall be reduced item wise in proportion to the ratio of 'Original' total price and the 'Total quoted price (loaded for omissions)".

1.4.2 Reverse Auction: In case of Reverse Auction, the successful bidder shall undertake to execute the work as per overall price offered by him during the Reverse Auction process. In case of omission of rates, the procedure shall be as per 'Guidelines for Reverse Auction' enclosed.
i) Offers from tenderers who are under suspension (banned) by any Unit/Region/Division of BHEL shall not be considered.
ii) Offers from tenderers who do not comply with the latest guidelines of Ministry/ Commissions of Govt of India shall not be considered.

1.5. ***EVALUATION OF BIDS***

i) Technical Bids submitted by the tenderer will be opened first and evaluated for fulfilling the Pre-Qualification criteria and other conditions in NIT/Tender documents, based on documentary evidences submitted along with the offer, BHEL reserves the right to ask for proofs/documents, clarification in relation to Technical/commercial data during tender evaluation

ii) Price Bids of shortlisted bidders shall only be opened either through the conventional price bid opening or through electronic Reverse Auction, at the discretion of BHEL

iii) Price Bids of unqualified bidders shall not be opened. Reasons for rejection shall be intimated to the vendor before the opening of Price bid.

1.6. ***DATA TO BE ENCLOSED***

The following information in full shall be furnished by the tenderer. Non-submission of this information may lead to rejection of the offer.

i) INCOME TAX PERMANENT ACCOUNT NUMBER, GSTIN, SAC, HSN Certified copies of PAN, GSTIN shall be furnished along with tender. The names, addresses and contact information of the Directors/Partners shall be furnished along with the offer.

ii) An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor.

iii) IN CASE OF INDIVIDUAL TENDERER:

His / her full name, address, PAN, GSTIN and place & nature of business to be furnished.

iv) IN CASE OF PARTNERSHIP FIRM

The names of all the partners and their addresses, a copy of the partnership deed/instrument of partnership shall be enclosed.

v) IN CASE OF COMPANIES:

Date and place of registration including date of commencement certificate in case of Public Companies (certified copies of Memorandum and articles of Association are also to be furnished). Nature of business carried on by the Company and the provisions of the Memorandum relating thereof.

*1.7. **AUTHORISATION AND ATTESTATION***

Tenders shall be signed by a person duly authorised/empowered to do so. An attested copy of the Power of Attorney, in case the tender is signed by an individual other than the sole proprietor shall be submitted along with the tenders

*1.8. **EARNEST MONEY DEPOSIT***

1.8.1 Every tender must be accompanied by the prescribed amount of Earnest Money Deposit (EMD) in the manner described herein.

The EMD may be accepted only in the following forms:
(i) Electronic Fund Transfer credited in BHEL account (before tender opening)
(ii) Banker's cheque/ Pay order/ Demand draft, in favor of BHEL (along with offer)In case total EMD amount is more than Rs 20 Lakh, the amount in excess of Rs 20 lakh maybe accepted in the form of Bank Guarantee from scheduled bank. The Bank Guarantee in such cases shall be valid for at-least six months.
(iii) Through SBI collect (before tender opening)
(iv) No other form of EMD remittance shall be acceptable to BHEL

1.8.2 EMD by the bidder will be forfeited as per Tender Documents if

i) After opening the tender and within the offer validity period, the tenderer revokes his/her tender or makes any modification in his tender which is not acceptable to BHEL.
ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ Contract.
iii) EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged in derailing the tender process by unlawful means

1.8.3 EMD shall not carry any interest.

1.8.4 In the case of unsuccessful bidders, the Earnest Money will be refunded to them within a reasonable time after acceptance of award by successful tenderer.

1.8.5 EMD of successful tenderer will be converted as part of Security Deposit

*1.9. **SECURITY DEPOSIT***

The total amount of Security Deposit will be 5% of the contract value (including all applicable taxes) EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

1.9.1 Modes of Security deposit:

The balance amount to make up the required Security Deposit of 5% of the contract value may be accepted in the following forms:
i) Cash (as permissible under the extant Income Tax Act)
ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL
iii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL
iv) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL)
v) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL) (Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)
vi) 50% of the required Security Deposit, including the EMD, should be paid before start of the work. Balance of the Security Deposit can be collected by deducting10% of the gross amount progressively from each of the running bills of the Contractor till the total amount of the required Security Deposit is collected. If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor. Security Deposit shall be released to the Contractor upon fulfilment of contractual obligations as per terms of the contract.

1.9.2 The Security Deposit shall not carry any interest.

1.9.3 The validity of Bank Guarantees towards Security Deposit shall be initially up to the completion period as stipulated in the Letter of Intent/Award (plus maintenance period if applicable), and 03 months claim period. The same shall be kept valid by proper renewal till the acceptance of Final Bills of the Contractor, by BHEL

1.9.4 BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the Contractor's failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract. BHEL reserves the right to set off the Security Deposit against any claims of other contracts with BHEL.

*1.10. **REFUND OF SECURITY DEPOSIT***

50% of the security deposit may be refunded on completion of the work after payment of the final bill and the balance 50% of the security deposit is refunded only after the expiry of the maintenance period from date of completion of work as stipulated in the contract concerned.

***1.10.1** DEFECTS LIABILITY PERIOD:*

The contractor shall be responsible to make good and remedy at his own expenses within such period as may be stipulated by the Engineer-in-charge, any defect which may develop or may be noticed before the expiry of the maintenance period of six months or as stipulated in NIT hereto from the certified date of completion and intimation of which has been sent to the contractor within seven days of the expiry of the said period by a letter sent by hand delivery or by registered post or Email. If contractor fails to attend to the above, defect will be rectified at contractor's risk & cost and same will be deducted from the security deposit/payable amounts available with BHEL.

*1.11. **BANK GUARANTEES***

Where ever Bank Guarantees are to be furnished/submitted by the contractor, the following shall be complied with

i) Bank Guarantees shall be from Scheduled Banks / Public Financial Institutions as defined in the Companies Act.

ii) The Bank Guarantees shall be as per prescribed BHEL formats.

iii) It is the responsibility of the bidder to get the Bank Guarantees revalidated/extended for the required period (subject to a minimum period of six months), as per the advice of BHEL. BHEL shall not be liable for issue of any reminders regarding expiry of the Bank Guarantees.

iv) In case extension/further extensions of any Bank Guarantees are not required, the bidders shall ensure that the same is explicitly endorsed by BHEL

v) In case the Bank Guarantees are not extended before the expiry date, BHEL reserves the right to invoke the same by informing the concerned Bank in writing, without any advance notice/communication to the concerned bidder.

vi) Bidders to note that any corrections to Bank Guarantees shall be done by the issuing Bank, only through an amendment in an appropriate non judicial stamp paper.

vii) The Original Bank Guarantee shall be sent directly by the Bank to BHEL under Registered Post (Acknowledgement Due).

1.12. VALIDITY OF OFFER

The rates in the Tender shall be kept open for acceptance for a minimum period of Ninety (90) DAYS from latest due date of offer submission (including extension, if any). In case BHEL calls for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer which shall be binding on the tenderers.

1.13 EXECUTION OF CONTRACT AGREEMENT

The successful tenderer's responsibility under this contract commences from the date of issue of the Letter of Intent by BHEL. The Tenderer shall submit an unqualified acceptance to the Letter of Intent/Award within the period stipulated therein.

The successful tenderer shall be required to execute an agreement in the prescribed form, with BHEL, within fifteen days (15 days) after the acceptance of the Letter of Intent/Award, and in any case before releasing the first running bill. The contract agreement shall be signed by a person duly authorized/empowered by the tenderer. The expenses for preparation of agreement document shall be borne by Tenderer.

1.14. REJECTION OF TENDER AND OTHER CONDITIONS

1.14.1 The acceptance of tender will rest with BHEL which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever:-

a. To reject any or all of the tenders.

b. To split up the work amongst two or more tenderers as per NIT

c. To award the work in part if specified in NIT

d. In case of either of the contingencies stated in (b) and (c) above, the time for completion as stipulated in the tender shall be applicable.

1.14.2 Conditional tenders, unsolicited tenders, tenders which are incomplete or not in the form specified or defective or have been materially altered or not in accordance with the tender conditions, specifications etc., are liable to be rejected.

1.14.3 Tenders are liable to be rejected in case of unsatisfactory performance of the tenderer with BHEL, or tenderer under suspension (hold/banning /delisted) by any unit / region / division of BHEL or tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt of India. BHEL reserves the right to reject a bidder in case it is observed that they are overloaded and may not be in a position to execute this job. The decision of BHEL will be final in this regard.

1.14.4 If a tenderer who is a proprietor expires after the submission of his tender or after the acceptance of his tender, BHEL may at their discretion, cancel such tender. If a partner of a firm expires after the submission of tender or after the acceptance of the tender, BHEL may then cancel such tender at their discretion, unless the firm retains its character.

1.14.5 BHEL will not be bound by any Power of Attorney granted by changes in the composition of the firm made subsequent to the execution of the contract. They may, however, recognize such power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.

1.14.6 If the tenderer deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or to cancel the contract if awarded and forfeit the Earnest Money/Security Deposit/any other money due.

1.14.7 Canvassing in any form in connection with the tenders submitted by the Tenderer shall make his offer liable to rejection.

1.14.8 In case the Proprietor, Partner or Director of the Company/Firm submitting the Tender, has any relative or relation employed in BHEL, the authority inviting the Tender shall be informed, along with the Offer. Failing to do so, BHEL may, at its sole discretion, reject the tender or cancel the contract and forfeit the Earnest Money/Security Deposit.

1.14.9 The successful tenderer should not sub-contract part or complete work detailed in the tender specification undertaken by him without written permission of BHEL's Construction Manager/Site Incharge. The tenderer is solely responsible to BHEL for the work awarded to him.

1.14.10 The Tender submitted by a techno commercially qualified tenderer shall become the property of BHEL who shall be under no obligation to return the same to the bidder. However unopened price bids and late tenders shall be returned to the bidders after finalization of contract.

1.14.11 Unsolicited discount received after the due date and time of Bid Submission shall not be considered for evaluation. However, if the party who has submitted the unsolicited discount/rebate becomes the L-I party, then the awarded price i.e contract value shall be worked out after considering the discount so offered.

1.14.12 BHEL shall not be liable for any expenses incurred by the bidder in the preparation of the tender irrespective of whether the tender is accepted or not.

1.15 ***BHEL Fraud Prevention Policy :***

The bidder along with its associate/ collaborators/sub-contractors/ Sub-Vendors/ Consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice. Fraud prevention policy and list of Nodal officers shall be hosted on BHEL website, vendor portals of Units/Regions Internet.

CHAPTER-2

2.1 DEFINITION: The following terms shall have the meaning hereby assigned to them except where the context otherwise requires

i) BHEL shall mean Bharat Heavy Electricals Limited, a company registered under Companies Act 1956, with its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI – 110 049, or its Authorised Officers or its Site Engineers or other employees authorised to deal with any matters with which these persons are concerned on its behalf.

ii) "EXECUTIVE DIRECTOR" or 'GROUP GENERAL MANAGER' or "GENERAL MANAGER (Incharge)" or "GENERAL MANAGER" shall mean the Officer in Electronics Division, Mysore road, Bengaluru-560026

iii) "COMPETENT AUTHORITY" shall mean Executive Director or Group General Manager or General Manager (In-charge) or General Manager or BHEL Officers who are empowered to act on behalf of the Executive Director or General Manager (In-charge) or General Manager of BHEL.

iv) "ENGINEER" or "ENGINEER IN CHARGE" shall mean an Officer of BHEL as may be duly appointed and authorized by BHEL to act as "Engineer" on his behalf for the purpose of the Contract, to perform the duty set forth in this General Conditions of Contract and other Contract documents. The term also includes 'CONSTRUCTION MANAGER' or 'SITE INCHARGE' as well as Officers

v) "SITE" shall mean the places or place at which the plants/equipment are to be erected and services are to be performed as per the specification of this Tender.

vi) "CLIENT OF BHEL" or "CUSTOMER" shall mean the project authorities with whom BHEL has entered into a contract for supply of equipment or provision of services.

vii) "CONTRACTOR" shall mean the successful Bidder/Tenderer who is awarded the Contract and shall include the Contractor's successors, heirs, executors, administrators and permitted assigns.

viii) "CONTRACT" or "CONTRACT DOCUMENT" shall mean and include the Work Order, Contract Agreement, the accepted appendices of Rates, Schedules, Quantities if any, General Conditions of Contract, Special Conditions of Contract, Instructions to the Tenderers, Drawings, Technical Specifications, the Special Specifications if any, the Tender documents, subsequent amendments mutually agreed upon and the Letter of Intent/Acceptance issued by BHEL. Any conditions or terms stipulated by the contractor in the tender documents or subsequent letters shall not form part of the contract unless, specifically accepted in writing by BHEL in the Letter of Intent/Award and incorporated in the agreement.

ix) "GENERAL CONDITIONS OF CONTRACT" shall mean the 'Instructions to Tenderers' and 'General Conditions of Contract' pertaining to the work for which above tenders have been called for.

x) "TENDER SPECIFICATION" or "TENDER" or "TENDER DOCUMENTS" shall mean General Conditions, Common Conditions, Special Conditions, Price Bid, Rate Schedule, Technical Specifications, Appendices, Annexures, Corrigendum's, Amendments, Forms, procedures, Site information, etc and drawings/documents pertaining to the work for which the tenderers are required to submit their offers. Individual specification number will be assigned to each Tender Specification.

xi) "LETTER OF INTENT" shall mean the intimation by a Post/Fax/email to the tenderer that the tender has been accepted in accordance with provisions contained in the letter. The responsibility of the contractor commences from the date of issue of this letter and all terms and conditions of the contract are applicable from this date.

xii) "COMPLETION TIME" shall mean the period by 'date/month' specified in the 'Letter of Intent/Award' or date mutually agreed upon for handing over of the intended scope of work, the erected equipment/plant which are found acceptable by the Engineer, being of required standard and conforming to the specifications of the Contract.

xiii) "PLANT" shall mean and connote the entire assembly of the plant and equipment's covered by the contract.

xiv) "EQUIPMENT" shall mean equipment, machineries, materials, structural, electrical and other components of the plant covered by the contract.

xv) "TESTS" shall mean and include such test or tests to be carried out on the part of the contractor as are prescribed in the contract or considered necessary by BHEL, in order to ascertain the quality, workmanship, performance and efficiency of the contractor or part thereof.

xvi) "APPROVED", "DIRECTED" or "INSTRUCTED" shall mean approved, directed or instructed by BHEL.

xvii) "WORK or CONTRACT WORK" shall mean and include supply of all categories of labour, specified consumables, tools and tackles and Plants required for complete and satisfactory site transportation, handling, stacking, storing, erecting, testing and commissioning of the equipment's to the entire satisfaction of BHEL.

xviii) "SINGULAR AND PLURALS ETC" words carrying singular number shall also include plural and vice versa, where the context so requires. Words imparting the masculine Gender shall be taken to include the feminine Gender and words imparting persons shall include any Company or Associations or Body of Individuals, whether incorporated or not.

xix) "HEADING" – The heading in these General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken as instructions thereof or of the contract.

xx) "MONTH" shall mean calendar month unless otherwise specified in the Tender.

xxi) Day' or 'Days' unless herein otherwise expressly defined shall mean calendar day or days of twenty four (24) hours each. A week shall mean continuous period of seven (7) days.

xxii) "COMMISSIONING" shall mean the synchronization testing and achieving functional operation of the Equipment with associated system after all initial adjustments, trials, cleaning, re-assembly required at site if any, have been completed and Equipment with associated system is ready for taking into service.

xxiii) "WRITING" shall include any manuscript type written or hand written or printed statement or electronically transmitted messages, under the signature or seal or transmittal of BHEL.

xxiv) "TEMPORARY WORK" shall mean all temporary works for every kind required in or for the execution, completion, maintenance of the work.

xxv) 'CONTRACT PRICE' or 'CONTRACT VALUE' shall mean the sum including applicable taxes mentioned in the LOI/LOA/Contract Agreement subject to such additions thereto or deductions there from as may be made under provisions hereinafter contained

xxvi) "COMMENCEMENT DATE" or "START DATE" shall mean the commencement/start of work at Site as per terms defined in the Tender

xxvii) "SHORT CLOSING" or "FORE CLOSING" of Contract shall mean the premature closing of Contract, for reasons not attributable to the contractor and mutually agreed between BHEL and the contractor

xxviii) "TERMINATION" of Contract shall mean the pre mature closing of contract due to reasons as mentioned in the contract

2.2 LAW GOVERNING THE CONTRACT AND COURT JURISDICTION

The contract shall be governed by the Law for the time being in force in the Republic of India. The Civil Court having original Civil Jurisdiction at Bengaluru, shall alone have exclusive jurisdiction in regard to all claims in respect of the Contract. No other Civil Court shall have jurisdiction in case of any dispute, under this contract

2.3 ISSUE OF NOTICE

2.3.1 Service of notice on contractor: Any notice to be given to the Contractor under the terms of the contract shall be served by sending the same by Registered Post / Speed Post / FAX / Email to or leaving the same at the Contractor's last known address of the principal place of business (or in the event of the contractor being a company, to or at its Registered Office). In case of change of address, the notice shall be served at changed address as notified in writing by the Contractor to BHEL. Such posting or leaving of the notice shall be deemed to be good service of such notice and the time mentioned to the condition for doing any act after notice shall be reckoned from the date so mentioned in such notice.

2.3.2 Service of notice on BHEL Any notice to be given to BHEL in-charge under the terms of the Contract shall be served by sending the same by post or Email or leaving the same at BHEL address or changed address as notified in writing by BHEL to the Contractor.

2.4 USE OF LAND

No land belonging to BHEL or their Customer under temporary possession of BHEL shall be occupied by the contractor without written permission of BHEL.

2.4.1 STORES AND MATERIALS:

The contractor shall, at his own expense, supply all stores and materials required for the contract, other than those which may be provided by BHEL at the rates detailed therein subject to their availability at the place of issue indicated therein. All stores and materials to be supplied by the Contractor shall be of the best kind as described in the Specifications and the Contractor shall, if required by the Engineer –in- charge furnish him with proof to his satisfaction that the store and materials so comply with the specifications.

The contractor shall, at his own expense and without delay, supply samples of stores and materials proposed to be used in the execution of the work for the approval of the Engineer-in charge, who may reject all stores and materials not corresponding either in quality or character to the approved samples.

In the case of stores provided by BHEL, the Contractor shall bear the cost of loading, transporting to site, unloading, storing under cover as required, assembling & jointing the several parts together as necessary and incorporating & fixing these stores & materials in the work, including all preparatory work of whatever description that may be required, and closing, preparing, loading and returning empty cases or containers to the place of issue without any extra charges.
Contractor is responsible for safe & secure storage of above material.

2.4.2 PATENT RIGHTS:

The contractor shall fully indemnify BHEL, or the agent, servant, or employee of BHEL, against any action, claim or proceeding relating to infringement or the use of any patent or design or any alleged patent or design rights, and shall pay any royalties which may be payable in respect of any article/ or part thereof included in the contract.

In the event of any claims being made or action brought against BHEL, or any agent, or servant or employee of BHEL., in respect of any of the matters aforesaid, the contractor shall not apply when such increment has taken place in complying with the specific directions issued by the BHEL but the contractor shall pay any royalties payable in respect of any such use.

2.4.3 WATER :

The contractor shall allow in his tender and provide at his cost all water required for the work or his employees on the work, together with all pipes and fittings or other means that may be necessary or required to ensure a proper and ample supply of water for all purpose connected with the work.

In the event of a provision existing in the Tender documents for supply of water on payment by BHEL, water will be supplied from the BHEL supply System, or other sources at any points fixed by the Site Engineer/ Engineer-in-charge on the site of work. The contractor shall make necessary arrangement for lifting, pumping, carrying or conveying the water as required at his own cost. The levy of water charges to be borne by the Contractor in such case shall be specifically mentioned in the Tender documents.

2.4.4 TEMPORARY WORKSHOPS, STORES ETC :

The Contractor shall, during the progress of the work provide, erect and maintain at his own expense all necessary temporary workshops, store, offices, toilets etc., required for the proper and efficient execution of the work. The planning, siting and erection of these building shall have the approval of the Engineer-in-charge and the Contractor shall at all times keep them in a clean and sanitized condition to the entire satisfaction of the Engineer-in-charge.

On completion of the work all such temporary buildings shall be cleared and the site restored to its original state in a clean and tidy condition to the entire satisfaction of the Engineer-in-charge.

2.5 COMMENCEMENT OF WORK

2.5.1 Time is essence of contract and is specified in the tender document or in each individual work order.

2.5.2 The contractor shall commence the work within seven(07) days from LOI/work order or as intimated by BHEL and shall proceed with the same with due expedition without delay.

2.5.3 If the contractor fails to start the work within stipulated time as per LOI or as intimated by BHEL, then BHEL at its sole discretion will have the right to cancel the contract. The Earnest Money and/or Security Deposit with BHEL will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.

2.5.4 All the work shall be carried out under the direction and to the satisfaction of BHEL.

2.6 ***MEASUREMENT OF WORK AND MODE OF PAYMENT:***

2.6.1 All payments due to the contractors shall be made by electronic mode only, unless otherwise found operationally difficult.

2.6.2 For progress running bill payments: - The Contractor shall present detailed measurement sheets in triplicate, duly indicating all relevant details based on technical documents and connected drawings for work done during the month/period under various categories in line with terms of payment as per contract. The basis of arriving at the quantities, weights shall be relevant documents and drawings released by BHEL. These measurement sheets shall be prepared jointly with BHEL Engineers and signed by both the parties.

2.6.3 These measurement sheets will be checked by BHEL Engineer and quantities and percentage eligible for payment under various groups shall be decided by BHEL Engineer. The abstract of quantities and percentage so arrived at based on the terms of payment shall be entered in Measurement Book and signed by both the parties.

2.6.4 Based on the above quantities, contractor shall prepare the bills in prescribed format and work out the financial value. These will be entered in Measurement Book and signed by both the parties. Payment shall be made by BHEL after effecting the recoveries due from the contractor.

2.6.5 All recoveries due from the contractor for the month/period shall be effected in full from the corresponding running bills unless specific approval from the competent authorities is obtained to the contrary.

2.6.6 Measurement shall be restricted to that portion of work for which it is required to ascertain the financial liability of BHEL under this contract.

2.6.7 The measurement shall be taken jointly by persons duly authorized on the part of BHEL and by the Contractor.

2.6.8 The Contractor shall bear the expenditure involved if any, in making the measurements and testing of materials to be used/used in the work. The contractor shall, without extra charges, provide all the assistance with appliances and other things necessary for measurement.

2.6.9 If at any time due to any reason whatsoever, it becomes necessary to re-measure the work done in full or in part, the expenses towards such re measurements shall be borne by the contractor unless such re measurements are warranted solely for reasons not attributable to contractor.

2.6.10 Passing of bills covered by such measurements does not amount to acceptance of the completion of the work measured. Any left out work has to be completed, if pointed out at a later date by BHEL.

2.6.11 Final measurement bill shall be prepared in the final bill format prescribed for the purpose based on the certificate issued by BHEL Engineer that entire works as stipulated in tender specification has been completed in all respects to the entire satisfaction of BHEL. Contractor shall give unqualified "No Claim" Certificate. All the tools and tackles loaned to him should be returned in satisfactory condition to BHEL. The abstract of final quantities and financial values shall also be entered in the Measurement Books and signed by both parties to the contract. The Final Bill shall be prepared and paid within a reasonable time after completion of work.

*2.7 **RIGHTS OF BHEL***

BHEL reserves the following rights in respect of this contract during the original contract period or its extensions if any, as per the provisions of the contract, without entitling the contractor for any compensation.

2.7.1 To withdraw any portion of work and/or to restrict/alter quantum of work as indicated in the contract during the progress of work and get it done through other agencies to suit BHEL's commitment to its customer or in case BHEL decides to advance the date of completion due to other emergent reasons/ BHEL's obligation to its customer.

2.7.2 To terminate the contract or get any part of the work done through other agency or deploy BHEL's own/hired/otherwise arranged resources , at the risk and cost of the contractor after due notice of a period of two weeks by BHEL, in the event of:-

i) Contractor's continued poor progress

ii) Withdrawal from or abandonment of the work before completion of the work

iii) Contractor's inability to progress the work for completion as stipulated in the contract

iv) Poor quality of work

v) Corrupt act of Contractor

vi) Insolvency of the Contractor

vii) Persistent disregard to the instructions of BHEL

viii) Assignment, transfer, sub-letting of contract without BHEL's written permission

ix) Non fulfillment of any contractual obligations / non-compliance of statutory requirements

x) In the opinion of BHEL, the contractor is overloaded and is not in a position to execute the job as per required schedule

2.7.3 To meet the expenses including BHEL overheads of 35% & Liquidated damage/penalties arising out of "Risk & Cost" as explained above under Sl.No. 2.7.2. BHEL shall recover the amount from any money due from Contractor, from any money due to the Contractor including Security Deposit or by forfeiting any T&P or material of the contractor under this contract or any other contract of BHEL or by any other means or any combination thereof

2.7.4 To terminate the contract or to restrict the quantum of work and pay for the portion of work executed in case BHEL's contract with their customer are terminated for any reason, as per mutual agreement.

2.7.5 To effect recovery from any amounts due to the contractor under this or any other contract or in any other form, the moneys BHEL is statutorily forced to pay to anybody, due to contractor's failure to fulfill any of his obligations. BHEL shall levy overheads of 35% on all such payments.

2.7.6 While every endeavor will be made by BHEL to this end, they cannot guarantee uninterrupted work due to conditions beyond their control. The Contractor will not be normally entitled for any compensation/extra payment on this account unless otherwise specified elsewhere in the contract.

2.7.7 In case the execution of works comes to a complete halt or reaches a stage wherein worthwhile works cannot be executed and there is no possibility of commencement of work for a period of not less than two months, due to reasons not attributable to the contractor and other than Force Majeure conditions, BHEL may consider permitting the contractor to de mobilize forthwith and re mobilize at an agreed future date. Cost of such demobilization/remobilization shall be mutually agreed. ORC (Over run Charges) in such cases shall not be applicable for the period between the period of demobilization and re mobilisation. The duration of contract/time extension shall accordingly get modified suitably. In case of any conflict, BHEL decision in this regard shall be final and binding on the contractor.

2.7.8 In the unforeseen event of inordinate delay in receipt of materials, drawings, fronts, etc, due to which inordinate discontinuity of work is anticipated, BHEL at its discretion may consider contractor's request to short close the contract, provided that the balance works are minor vis a vis the scope of work envisaged as per the contract. At the point of requesting for

short closure, contractor shall establish that he has completed all works possible of completion and he is not able to proceed with the balance works due to constraints beyond his control. In such a case, the estimated value of the unexecuted portion of work as mutually agreed, shall however be reduced from the final contract value.

2.7.9 ***LIQUIDATED DAMAGES/PENALTY***

COMPENSATION FOR DELAY:

If the contractor fails to maintain the required progress in terms of condition 2.10 or to complete the work and clear the site on or before the contracted or extended the period of completion, he shall, without prejudice to any other right or remedy of the BHEL on account of such breach, pay as agreed compensation an amount calculated as stipulated below

For unfinished anticipated value of work where finished portion is fit for use

Rate of compensation as follows:

- *Completion period (as originally stipulated)not exceeding 6 months. ……@ 1 percent per week*
- *Completion period (as originally stipulated) Exceeding 6 months and not exceeding 2 years…@ 0.5 percent per week*
- *Completion period (as originally stipulated) exceeding 2 years…… @ 0.25 percent per week*

Provided always that the total amount of compensation for delay to be paid under condition shall not exceed the under noted percentage of the anticipated contract value

- *Completion period (as originally stipulated) not exceeding 6 months. ……@ 10 percent of anticipated value of work*
- *Completion period (as originally stipulated)Exceeding 6 months and not exceeding 2 years…@ 7.5 percent of anticipated value of work*
- *Completion period (as originally stipulated)Exceeding 2 years……..@ 5 percent of anticipated value of work*

The amount of compensation may be adjusted or set off against any sum payable to the Contractor under this or any other contract with the BHEL.

2.7.10 ***POST TECHNICAL AUDIT OF WORK AND BILLS****: BHEL reserve the right to carry out a post-payment audit and technical examination of the work and final bill including all supporting vouchers, abstract etc., and to enforce recovery of any sums becoming due as a result thereof in the manner provided in the proceeding sub-paragraph's provided however that no such recovery shall be enforced after three years of passing the final bill*

2.8 RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS ETC.

The following are the responsibilities of the contractor in respect of observance of local laws, employment of personnel, payment of taxes etc. The subcontractor shall fully indemnify BHEL against any claims of whatsoever nature arising due to the failure of the contractor in discharging any of his responsibilities hereunder:

2.8.1 The contractor at all times during the continuance of this contract shall, in all his dealings with local labour for the time being employed on or in connection with the work, have due regard to all local festivals and religious and other customs.

2.8.2 The contractor shall comply with all applicable State and Central Laws, Statutory Rules, Maternity act, Regulations etc. such as contract labour(R&A) Act 1970, Minimum wage Act 19748, Payment of wages Act 1936,ESI Act 1948, EPF Act 1952, Employees' compensation Act 1923, Provision of Companies Act 1948 & rules thereof, The interstate Migrant Workmen 1979, The Karnataka Factories Rules 1969, Payment of Bonus Act 1965, Payment of Gratuity Act 1972. Child labour Prohibition act 1986, Karnataka Minimum Wage Act , Prevention of sexual harassment at work place Act 2013, Guidelines/notification related to Safai Karamchari Act , Equal Remuneration Act 1976, The company's instructions as issued from time to time in regard to working hours, wages, leaves, holidays etc. for labour as may be enacted by the Government during the tenure of the Contract and having force or jurisdiction at Site. The Contractor shall also give to the local Governing Body, Police and other relevant Authorities all such notices as may be required by the Law.

The contractor shall produce the following registers and forms:

- *Form XIII- Register of work men employed by contractor(Rule 75)*
- *Form XIV- Employment Card issued by contractor(Rule 76)*
- *Form XVI- Muster Roll (Rule 78(1) (a)(i))*
- *Form XVII- Register of Wages (Rule 78(1) (a)(i))*
- *Form XVIII- Register of wages cum Muster Roll(in case of weekly payment)*
- *Form XIX- Wage slip (Rule 78(b))*
- *Form XX- Register of deduction for damages Or Loss Rule 78(1) (a)(ii))*
- *Form XXI- Register of files Rule 78(1) (a)(ii))*
- *Form XXII- Register of Advance Rule 78(1) (a)(ii))*
- *Form XXIII- Register of Overtime Rule 78(1) (a)(iii))*
- *Form XXIV- Return to be sent by the contractor to the Licensing officer (Rule 82(1))*

2.8.3 The contractor shall obtain independent License under the Contract Labour (Regulations and Abolition Act)as required from the concerned Authorities based on the certificate (Form-V) issued by the Principal Employer/Customer

2.8.4 The contractor shall pay all taxes, fees, license charges, deposits, duties, tolls, royalties, commission or other charges which may be levied on account of his operations in executing the contract.

2.8.5 While BHEL would pay the inspection fees and Registration fees of Boiler & explosive/Electrical Inspectorate, all other arrangements for site visits periodically by the Inspectorate to site, Inspection certificate etc. will have to be made by contractor. However, BHEL will not make any payment to the Inspectorate in connection with contractor's Welders/Electricians qualification tests etc.

2.8.6 Contractor shall be responsible for provision of Health and Sanitary arrangements (more particularly described in Contract Labour Regulation & Abolition Act), Safety precautions etc. as may be required for safe and satisfactory execution of contract.

2.8.7 The contractor shall be responsible for proper accommodation including adequate medical facilities for personnel employed by him.

2.8.8 The contractor shall be responsible for the proper behavior and observance of all regulations by the staff employed by him.

2.8.9 The contractor shall ensure that no damage is caused to any person/property of other parties working at site. If any such damage is caused, it is responsibility of the contractor to make good the losses or compensate for the same.

2.8.10 All the properties/equipment/components of BHEL/their Client loaned with or without deposit to the contractor in connection with the contract shall remain properties of BHEL/their Client.

2.8.11 The contractor shall use such properties for the purpose of execution of this contract. All such properties/equipment/components shall be deemed to be in good condition when received by the contractor unless he notifies within 48 hours to the contrary. The contractor shall return them in good condition as and when required by BHEL/their Client. In case of non-return, loss, damage, repairs etc, the cost thereof as may be fixed by BHEL Engineer will be recovered from the contractor

2.8.12 Any delay in completion of works/or non-achievement of periodical targets due to the reasons attributable to the contractor, the same may have to be compensated by the contractor either by increasing manpower and resources or by working extra hours and/or by working more than one shift. All these are to be carried out by the contractor at no extra cost.

2.8.13 The contractor shall arrange, coordinate his work in such a manner as to cause no hindrance to other agencies working in the same premises.

2.8.14 All safety rules and codes applied by the Client/BHEL at site shall be observed by the contractor without exception. The contractor shall be responsible for the safety of the equipment/material and works to be performed by him and shall maintain all light, fencing guards, slings etc. or other protection necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer with a view to prevent pilferage, accidents, fire hazards. Due precautions shall be taken against fire hazards and atmospheric conditions. Suitable number of Clerical staff, watch and ward, store keepers to take care of equipment/materials and construction tools and tackles shall be posted at site by the contractor till the completion of work under this contract. The contractor shall arrange for such safety devices as are necessary for such type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per prescribed standards and practices. Contractor has to ensure the implementation of Health, Safety and Environment (HSE) requirements as per directions given by BHEL/Customer. The contractor has to assist in HSE audit by BHEL/Customer and submit compliance Report. The contractor has to generate and submit record/reports as per HSE plan/activities as per instruction of BHEL/Customer. All tools, plant and equipment brought to the site shall become the property of BHEL and shall not be removed from the site without the prior written approval from BHEL. When the work is finally completed or the Contractor is determined for reasons other than the defaults of the contract, he shall forthwith remove from the site all tools, plants, equipment etc., (other than those as may have been provided by BHEL) and upon such removal, the same shall revert in, and become the property of the contractor.

2.8.15 The contractor will be directly responsible for payment of wages to his workmen on specified date of respective month declared as per applicable Labour Act. A pay roll sheet giving all the payments given to the workers and duly signed by the contractor's representative should be furnished to BHEL site for record purpose.

2.8.16 In case of any class of work for which there is no such specification as laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.

2.8.17 Also, no idle charges will be admissible in the event of any stoppage caused in the work resulting in contractor's labour and Tools & Plants being rendered idle due to any reason at any time.

2.8.18 The contractor shall take all reasonable care to protect the materials and work till such time the plant/equipment has been taken over by BHEL or their Client whichever is earlier.

2.8.19 The contractor shall not stop the work or abandon the site for whatsoever reason of dispute, excepting force majeure conditions. All such problems/disputes shall be separately discussed and settled without affecting the progress of work. Such stoppage or abandonment shall be treated as breach of contract and dealt with accordingly

2.8.20 The contractor shall keep the area of work clean and shall remove the debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of work, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices, etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor. If the work is executed in Factory premises, no hutment will be allowed.

2.8.21 The contractor shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and timely execution shall be the essence of this contract. The contractor shall be responsible to ensure that the quality, assembly and workmanship conform to the dimensions and clearance given in the drawings and/ or as per the instructions of the Engineer.

2.8.22 The Contractor to note that some of BHEL's T&Ps/MMDs may not be insured. The Contractor will take necessary precautions and due care to protect the same while in his custody from any damage/ loss till the same is handed over back to BHEL. In case the damage / loss is due to carelessness/ negligence on the part of the contractor, the Contractor is liable to get them repair/ replaced immediately and in case of his failure to do so within a reasonable time, BHEL will reserve the right to recover the loss from the contractor.

2.8.23 The contractor shall provide all watchmen necessary, for the protection of the site, the work, the materials, the tools , plant, equipment and anything else lying on the site during the progress of the work. He shall solely be responsible for and shall take all reasonable and proper steps for protecting, securing , lighting and watching all places on or about the work and the site which may be dangerous to any person whom so ever.

2.8.24 SITE DRAINAGE: All water that may accumulate on the site during the process of the work, or in trenches and excavations shall be removed to the entire satisfaction of the Engineer-in-charge and at Contractors expense.

2.8.25 INSPECTION OF THE WORK: BHEL Officers concerned with the Contract shall have power at any time to inspect and examine any part of the work and the contractor shall give such facilities as may be required to given for such inspection and examination.

2.8.26 In case the contractor is required to undertake any work outside the scope of this contract, the rates payable shall be those mutually agreed upon if the item rates are not mentioned in existing contract

i. For any item of wok required to be carried out after the contract has been awarded and which is not covered by Contractors Schedule but is covered by C.P.W.D. schedule of rates the rate payable for such a fresh item will be derived from updated C.P.W.D. schedule of rates by the method of proportion as follows:

ii. *Rate as per estimated updated C.P.W.D DSR and loading tender excess (plus or minus) on pro–rata basis for nearest analogous items. For other items rate as per estimated C.P.W.D DSR and loading tender excess(plus or minus)*

iii. *If rates are not available in C.P.W.D. DSR, deviated item rates will be derived from market rate with 15% profit and overheads.*

2.9 ***PROGRESS MONITORING, MONTHLY REVIEW AND PERFORMANCE EVALUATION***

2.9.1 A detailed plan/programme for completion of the contractual scope of work as per the time schedule given in the contract shall be jointly agreed between BHEL and Contractor, before commencement of work . The above programme shall be supported by month wise deployment of resources viz Manpower, T&P, Consumables, etc. Progress will be reviewed periodically (Daily/Weekly/Monthly) vis a vis this jointly agreed programme. The Contractor shall submit periodical progress reports (Daily/Weekly/Monthly) and other reports/information including manpower, consumables, T&P mobilization etc as desired by BHEL.

2.9.2 Monthly progress review between BHEL and Contractor shall be based on the agreed programme as above, availability of inputs/fronts etc, and constraints if any, as per prescribed formats. Manpower, T&P and consumable reports as per prescribed formats shall be submitted by contractor every month. Release of RA Bills shall be contingent upon certification by BHEL Site Engineer of the availability of the above prescribed formats duly filled in and signed.

2.9.3 The burden of proof that the causes leading to any shortfall is not due to any reasons attributable to the contractor is on the contractor himself. The monthly progress review shall record shortfalls attributable to (i) Contractor, (ii) Force Majeure Conditions, and (iii) BHEL

2.10 ***TIME OF COMPLETION***

2.10.1 Time is essence of the contract. The time schedule shall be as prescribed in the Contract. The time for completion shall be reckoned from the date of commencement of work at Site as certified by BHEL Engineers

2.10.2 The entire work shall be completed by the contractor within the time schedule or within such extended periods of time as may be allowed by BHEL under clause 2.11

2.11 ***EXTENSION OF TIME FOR COMPLETION***

2.11.1 If the completion of work as detailed in the scope of work gets delayed beyond the contract period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the Contract.

2.11.2 Based on the monthly reviews jointly signed, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of backlog attributable to the contractor. Any further 'Time extension' or 'Time extensions' at the end of the previous extension shall be worked out similarly.

2.11.3 However if any 'Time extension' is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk and cost of contractor.

2.11.4 A joint programme shall be drawn for the balance amount of work to be completed during the period of 'Time Extension', along with matching resources (with weightages) to be deployed by the contractor as per specified format. Review of the programme and record of shortfall shall be done every month of the 'Time extension' period in the same manner as is done for the regular contract period.

2.11.5 During the period of 'Time extension', contractor shall maintain their resources as per mutually agreed program

2.11.6 At the end of total work completion as certified by BHEL Engineer, and upon analysis of the total delay, the portion of time extensions attributable to (i) Contractor, (ii) Force majeure conditions, and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. The total period of time extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall be imposed/levied for the portion of time extensions attributable to contractor and recoverable from the dues payable to the contractor.

2.12 ***OVERRUN COMPENSATION (THIS CLAUSE IS NOT APPLICABLE IN BHEL FACTORY & TOWNSHIP PREMISES)***

2.12.1 Over Run Compensation (ORC) is payable by way of rate revisions for periods beyond original, contract period subject to the following terms and conditions.

2.12.2 Rates shall be increased by 10% for the first twelve months of one or more extensions beyond original contract period. For the next twelve months of further extensions if any, rates shall be increased as above by 10% over the previous twelve months, and similarly for each subsequent twelve months extension.

2.12.3 Should there be any 'Time extension' for reasons attributable only to the contractor, then the work shall be executed by the contractor at the rates applicable for the period the work was planned

2.12.4 Payment of ORC shall be regulated as follows:

i) Contractor is entitled to Over Run Compensation (ORC) only for the portion of backlog attributable to BHEL.

ii) 50% of the compensation is allocated for deployment of resources agreed as per the joint programme drawn vide 2.11.4. Payment shall however be based on the actual deployment of resources for the month as certified by BHEL, as per weightages assigned therein

iii) 50% of the compensation, is allocated for achieving of planned progress agreed as per the joint programme drawn vide 2.11.4. Payment shall be on pro rata basis for actual achieved quantities

iv) Total Over Run Compensation shall be limited to 10% of the executed contract value as certified in Final Bill. For this purpose executed contract value excludes PVC, ORC, Supplementary/Additional Items and Extra Works done on Man-day rate basis

2.12.5 Contractor shall not be entitled for any Over Run Compensation (ORC) for the portion of backlog attributable to the contractor. Such works shall be executed at the rates applicable for the period the work was planned

2.13 ***QUANTITY VARIATION***

2.13.1 The quoted rates shall remain firm irrespective of any variations in the individual quantities.

2.14 ***EXTRA WORKS***

2.14.1 All rectifications/modifications, revamping, and reworks required for any reasons not attributable to the contractor, or needed due to any change in deviation from drawings and design of equipment, operation/maintenance requirements, mismatching, or due to damages in transit, storage and erection/commissioning, and other allied works which are not very specifically indicated in the drawings, but are found essential for satisfactory completion of the work, will be considered as extra works.

2.14.2 Extra works arising on account of the contractor's fault, irrespective of time consumed in rectification of the damage/loss, will have to be carried out by the contractor free of cost. Under such circumstances, any material and consumable required for this purpose will also have to be arranged by the contractor at his cost.

2.14.3 All the extra work should be carried out by a separately identifiable gang, without affecting routine activities. Daily log sheets in the pro-forma prescribed by BHEL should be maintained and shall be signed by the contractor's representative and BHEL engineer. No claim for extra work will be considered/entertained in the absence of the said supporting documents i.e. daily log sheets. Signing of log sheets by BHEL engineer does not necessarily mean the acceptance of such works as extra works.

2.14.4 BHEL retains the right to award or not to award any of the major repair/ rework/modification/rectification/fabrication works to the contractor, at their discretion without assigning any reason for the same

2.14.5 After eligibility of extra works is established and finally accepted by BHEL engineer/designer, payment will be released on competent authority's approval at the following rate.

MAN-HOUR RATE FOR ELIGIBLE EXTRA WORKS: Single composite average labour man-hour rate, including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, consumables for carrying out any major rework/ repairs/ rectification/ modification/ fabrication as certified by site as may arise during the course of erection, testing, commissioning or extra works arising out of transit, storage and erection damages, payment , if found due will be as per applicable minimum wage act

2.14.6 The above composite labour man hour rate towards extra works shall remain firm and not subject to any variation during execution of the work. PVC will not be applicable for extra works. Rate revision, Over Run Charges/compensation etc will not be applicable due to extra works.

2.14.7 Extra Works for Civil Packages shall be regulated as follows

i) Rates for Extra Works arising due to (1) non availability of BOQ (Rate Schedule), OR (2) change in Specifications of materials/works (3) rectification/modification/dismantling & re erecting etc due to no fault of Contractor, shall be in the order of the following:

a) Item rates are to be derived from similar nature of items in the BOQ (Rate Schedule) with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities.

b) As per applicable updated CPWD-DSR (or latest edition) with applicable escalation derived, Notification issued by the office of CPWD for 'Cost Index' in that Region where the project is being executed,

c) Item rates are to be worked out on the basis of prevailing market rates mutually agreed between BHEL and Contractor, plus 15% towards Contractor's overheads and profit.

ii) PVC and ORC will not applicable be for (i) above.

2.15 ***SUPPLEMENTARY ITEMS***

2.15.1 For NON Civil Works

Supplementary items are items/works required for completion of entire work but not specified in the scope of work. Subject to certification of such items/works as supplementary items by BHEL Engineer, rates shall be derived on the basis of any one of the following on mutual agreement:

i) Based on percentage breakup/rates indicated for similar/nearby items

ii) In case (i) above does not exist, then BHEL/site may derive the percentage breakup/rates to suit the type of work

2.15.2 For Civil Works

i) Rates for Supplementary Works/Additional Works arising out due to additions/alterations in the original scope of works as per contract subject to certification of BHEL Engineer shall be worked out as under:

a) Item rates which are available in existing BOQ (Rate Schedule) shall be operated with applicable escalation derived from All India Consumer Price Index for Whole Sale Commodities

b) Items of works which are not available in existing BOQ shall be operated as an 'Extra Works' and rate shall be derived as per clause no 2.14

ii) Execution of Supplementary Works/Additional Works through the Contractor shall be at the sole discretion of BHEL, and shall be considered as part of executed contract value for the purpose of Quantity Variation as per clause 2.13

iii) BHEL Engineer's decision regarding fixing the rate as above is final and binding on the contractor.

iv) PVC and ORC will not be applicable for (i) above.

2.16 ***STRIKES & LOCKOUT***

2.16.1 The contractor will be fully responsible for all disputes and other issues connected with his labour/employee. In the event of the contractor's labour/employee resorting to strike or the Contractor resorting to lockout and if the strike or lockout declared is not settled within a period of 15 days, BHEL shall have the right to get the work executed through any other

agencies and the cost so incurred by BHEL along with Overhead charges of 35% shall be deducted from the Contractor's bills along with overhead of 35%

2.16.2 For all purposes whatsoever, the employees of the contractor shall not be deemed to be in the employment of BHEL

2.17 FORCE MAJEURE

The following shall amount to Force Majeure:-

2.17.1 Acts of God, act of any Government, War, Sabotage, Riots, Strike, Civil commotion, Police action, Revolution, Flood, Fire, Cyclones, Earth quake and Epidemic and other similar causes over which the contractor has no control.

2.17.2 If the contractor suffers delay in the due execution of the contractual obligation due to delays caused by force majeure as defined above, the agreed time of completion of the job covered by this contract or the obligations of the contractor shall be extended by a period of time equal to period of delay, provided that on the occurrence of any such contingency, the contractor immediately reports to BHEL in writing the causes of delay and the contractor shall not be eligible for any compensation.

2.18 ***ARBITRATION & RECONCILIATION***

2.18.1 In case amicable settlement is not reached in the event of any dispute or difference arising out of the execution of the Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision by the Contractor in any manner touching upon the Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred to the sole arbitration of the arbitrator appointed by BHEL/In charge.

The award of the Arbitrator shall be binding upon the parties to the dispute Subject as aforesaid, the provisions of Arbitration and Reconciliation Act 1996 (India) or statutory modifications or reenactments thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. The venue of the arbitration shall be the place from which the contract is issued or such other place as the Arbitrator at his discretion may determine

2.18.2 In case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred to by either party to the arbitration of one of the arbitrators in the department of public enterprises. The award of the arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties hereto finally and conclusively.

2.18.3 The cost of arbitration shall be borne equally by the parties.

2.18.4 Work under the contract shall be continued during the arbitration proceedings

2.19 ***PAYMENTS***

Payments to Contractors are made in any one of the following forms

2.19.1 Running Account Bills (RA Bills)

i) These are for interim payments when the contracts are in progress. The bills for such interim payments are to be prepared by Contractor in prescribed formats (RA Bill forms).

ii) Payments shall be made according to the extent of work done as per measurements taken up to the end of the calendar month and in line with the terms of payments described in the Tender documents along with relevant statutory documents applicable for the work.

iii) Recoveries on account of electricity, water, statutory deductions, etc are made as per terms of contract

iv) Full rates for the work done shall be allowed only if the quantum of work has been done as per the specifications stipulated in the contract. If the work is not executed as per the stipulated specifications, BHEL may ask the contractor to re do the work according to the required specifications, without any extra cost. However, where this is not considered necessary 'OR' where the part work is done due to factors like non-availability of material to be supplied by BHEL 'OR' non availability of fronts 'OR' non availability of drawings, fraction payment against full rate, as is considered reasonable, may be allowed with due regard for the work remaining to be done. BHEL decision in this regard will be final and binding on the contractor.

v) In order to facilitate part payment, BHEL Site Engineer at his discretion may further split the contracted rates/percentages to suit site conditions, cash flow requirements according to the progress of work

2.19.2 Final Bill

Final Bill' is used for final payment on closing of Running Account for works or for single payment after completion of works. 'Final Bill' shall be submitted as per prescribed format after completion of works as per scope and upon material reconciliation, along with the following.

i) 'No Claim Certificate' by contractor

ii) Clearance certificates where ever applicable viz Clearance Certificates from Customer, various Statutory Authorities like Labour department, PF Authorities, Commercial Tax Department, etc

iii) Indemnity bond as per prescribed format BHEL shall settle the final bills after deducting all liabilities of Contractor to BHEL

2.20 ***PERFORMANCE GUARANTEE FOR WORKMANSHIP***

2.20.1 Even though the work will be carried out under the supervision of BHEL Engineers the Contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of as mentioned in the contract/NIT from the date of commencement of guarantee period as defined in Technical Conditions of Contract, for good workmanship and shall rectify free of cost all defects due to faulty erection detected during the guarantee period. In the event of the Contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the Contractor's risk and cost, without prejudice to any other rights and recover the same from the balance security deposit.

2.20.2 BHEL shall release the balance security deposit subject to the following

i) Contractor has submitted 'Final Bill'

ii) Guarantee period as per contract has expired

iii) Contractor has furnished 'No Claim Certificate' in specified format

iv) BHEL Site Engineer/Construction Manager has furnished the 'No Demand Certificate' in specified format

v) Contractor has carried out the works required to be carried out by him during the period of Guarantee and all expenses incurred by BHEL on carrying out such works is included for adjustment from the Guarantee money refundable.

2.21 ***CLOSING OF CONTRACTS***

The Contract shall be considered completed and closed upon completion of all contractual obligations and settlement of Final Bill or completion of Guarantee period whichever is later. Upon closing of Contract, BHEL shall issue a completion certificate as per standard format, based on specific request of Contractor.

2.22 ***REVERSE AUCTION/PRICE BID OPENING:***

- *BHEL reserves the right to go for reverse auction at any point of time before opening of Price Bid.*
- *Bids with non-acceptance of reverse auction will be liable for rejection.*
- *Opening of Price Bid at discretion of BHEL.*
- *BHEL shall be at liberty to cancel the tender at any time, before ordering, without assigning any reason.*

2.23 ***SUSPENSION OF BUSINESS DEALINGS***

BHEL reserves the right to take action against Contractors who either fail to perform or Tenderers/Contractor who indulge in malpractices, by suspending business dealings with them in line with BHEL guidelines issued from time to time.

2.24 OTHER ISSUES

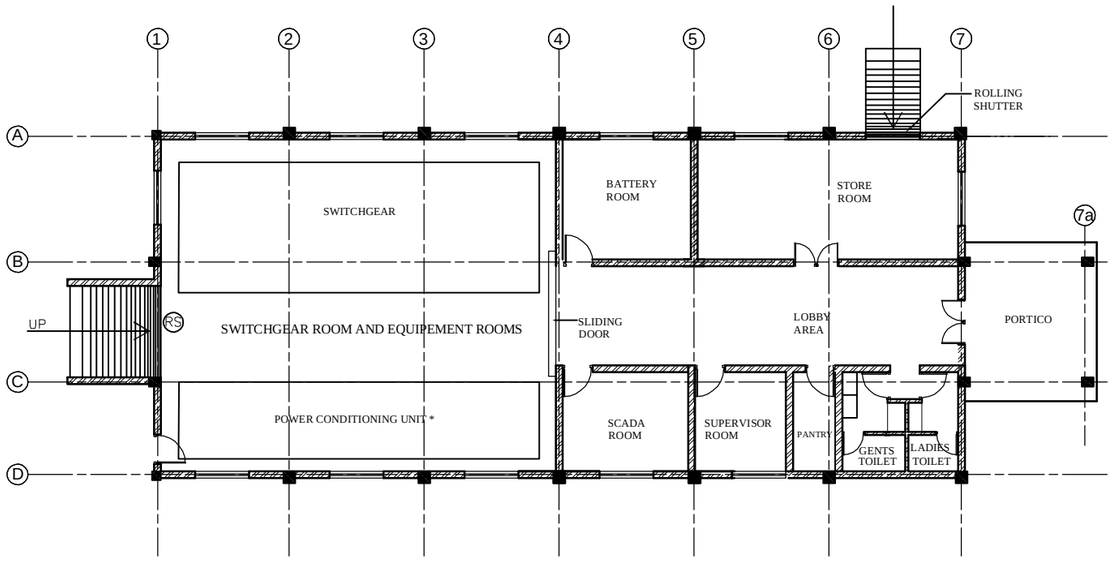
2.24.1 Value of Non judicial Stamp Paper for Bank Guarantees and for Contract Agreement shall be not less than Rs 200/- unless otherwise required under relevant statutes.

2.24.2 In case of any conflict between the General Conditions of Contract and Special Conditions of Contract, provisions contained in the Special Conditions of Contract shall prevail.

2.24.3 Unless otherwise specified in NIT, offers from consortium/JVs shall not be considered.

2.24.4 BHEL may not insist for signing of Contract Agreements in respect of low value and short time period contracts

TENTATIVE TENDER DRAWINGS



CMCS ARCHITCTURAL GROUND FLOOR PLAN

CMCS BUILDING CONSIST OF MINIMUM ROOMS AS BELOW	
GROUND FLOOR	GROUND FLOOR
(a) INVERTOR ROOM	(a) SCADA ROOM
(b) SWITCHGEAR ROOM	TOP FLOOR
(c) STORE ROOM	(c) VIEW POINT
(d) BATTERY ROOM	
(e) SUPERVISOR ROOM	
(f) PANTRY	
(g) TOILET 2NOS	
(h) LOBBY AREA	

FOR TENDERING PURPOSE ONLY

TABLE

CMCS ROOMS	MINIMUM AREA
SCADA ROOM	16 SQM.
STORE ROOM	25 SQM.
TOILET X 2 NOS	16 SQM. (TOTAL)
PANTRY	5 SQM.
SUPERVISOR ROOM	12 SQM.

FINISHING SCHEDULE

S.NO.	ROOM	FLOOR	INTERNAL WALL	EXTERNAL WALL	CEILING
1	SWITCHGEAR ROOM	CEMENT CONCRETE FLOORING WITH IRONITE HARDENER	12MM THICK CEMENT PLASTER WITH 1:5, WITH ACRYLIC DISTEMPER PAINTING	18MM THICK CEMENT PLASTER WITH 1:6, WITH EXTERIOR EMULSION PAINTING	6MM THICK PLAIN CEMENT PLASTER WITH ACRYLIC DISTEMPER
2	SCADA ROOM	HEAVY DUTY VITRIFIED CERAMIC TILE SIZE OF 600x600	12MM THICK CEMENT PLASTER WITH 1:5, WITH ACRYLIC EMULSION PAINT	18MM THICK CEMENT PLASTER WITH 1:6, WITH EXTERIOR EMULSION PAINTING	15MM THICK MINERAL FIBRE BOARD IN TILE FORM OF 600X600MM FALSE CEILING
3	BATTERY ROOM	ACID/ALKALI RESISTANCE TILE FLOORING OR ACID ALKALI RESISTANT EPOXY COATING	12MM THICK CEMENT PLASTER, ACID ALKALI RESISTANT PAINT, AN EXPOSED WALLS ABOVE DADO-2100MM HIGH DADO OF ACID/ALKALI RESISTANT TILING	18MM THICK CEMENT PLASTER WITH 1:6, WITH EXTERIOR EMULSION PAINTING	ACID RESISTANT RESIN BASED EPOXY COATING
4	LOBBY	HEAVY DUTY VITRIFIED CERAMIC TILES AND SKIRTING	12MM THICK CEMENT PLASTER WITH 1:5, WITH ACRYLIC DISTEMPER PAINTING	18MM THICK CEMENT PLASTER WITH 1:6, WITH EXTERIOR EMULSION PAINTING	6MM THICK PLAIN CEMENT PLASTER WITH ACRYLIC DISTEMPER
5	TOILET	HEAVY DUTY ANTI-SKID CERAMIC TILE SIZE IS 300x300mm	HEAVY DUTY ANTI-SKID CERAMIC TILES AND DODO UPTO 2100MMHT. AND THE SIZE OF TILE IS 300X300MM	18MM THICK CEMENT PLASTER WITH 1:6, WITH EXTERIOR EMULSION PAINTING	6MM THICK PLAIN CEMENT PLASTER WITH ACRYLIC DISTEMPER
6	STEPS	KOTA STONE/GRANITE- 20mm THICK	12MM THICK CEMENT PLASTER WITH 1:5, WITH ACRYLIC DISTEMPER PAINTING	-	6MM THICK PLAIN CEMENT PLASTER WITH ACRYLIC DISTEMPER
7	STORE ROOM	CEMENT CONCRETE FLOORING WITH IRONITE HARDENER	12MM THICK CEMENT PLASTER WITH 1:5, WITH ACRYLIC DISTEMPER PAINTING	18MM THICK CEMENT PLASTER WITH 1:6, WITH EXTERIOR EMULSION PAINTING	6MM THICK PLAIN CEMENT PLASTER WITH ACRYLIC DISTEMPER

NOTES

1. THE DETAIL CONSTRUCTION & DESIGN DRAWING OF CMCS BUILDING SHALL BE DEVELOPED BY BIDDER AND SUBMITTED TO NTPC FOR APPROVAL BEFORE START OF WORK.
2. SOME MINOR CHANGES IN DETAIL CONSTRUCTION OF CMCS BUILDING WITH RESPECT TO TENDER DRAWING MAY BE PORPOSE BY BIDDER AS PER RECOMENDATION OF EQUIPMENT MANUFACTURER, BETTER PERFORMANCE AND LOCATION OF SCADA ROOM AND VIEW POINT. THE SAME SHALL BE SUBJECT TO NTPC APPROVAL.
3. EQUIPMENT IN CMCS SWITCHGEAR ROOM AS PER APPROVAL OF SLD AND LAYOUT.
4. MINIMUM CLEARENCE BETWEEN BACK SIDE OF ANY FLOOR MOUNTED PANEL AND THE WALL SHALL BE 850 MM OR MANUFACTURER RECOMENDATION, WHICHEVER IS HIGHER.
5. MINIMUM WORKING CLEARENCE BEFORE FRONT PANELS OF ANY SWITCHGEAR,PCU OR SIMILLAR EQUIPEMENT GENERALY SHALL NOT BE LESS THEN 2200MM,
6. CMCS BUILDING EQUIPMENTS ROOM LENGTH/GRID CAN BE DETERMINED BASED ON ACTUAL REQUIREMENT,

* WITH OR WITHOUT PARTION WALL FOR PCU AS PER RECOMENDATION OF MANUFACTURER.

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REV.NO	DESCRIPTION	DRAWN	DESIGN	CHKD.	MECH (L/O)	MECH (WS)	ELEC.	C&I	STR.	APPD.	DATE
A	RELEASE FOR TENDER	RAVI	LDB	AKS	CLEARED BY					SSM	15.06.18

एन टी पी सी NTPC — एन टी पी सी लिमिटेड
NTPC Limited
(A GOVERNMENT OF INDIA ENTERPRISE)
(ENGINEERING DIVISION)

PROJECT: SOLAR POWER PROJECT

TITLE: CENTRAL MONITORING & CONTROL STATION ARCHITECTURAL PLAN

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	5746-004-POC-A-006	A

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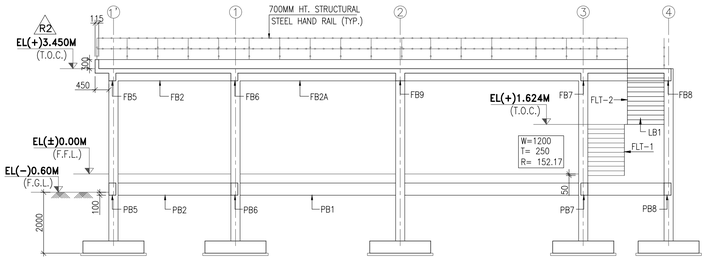
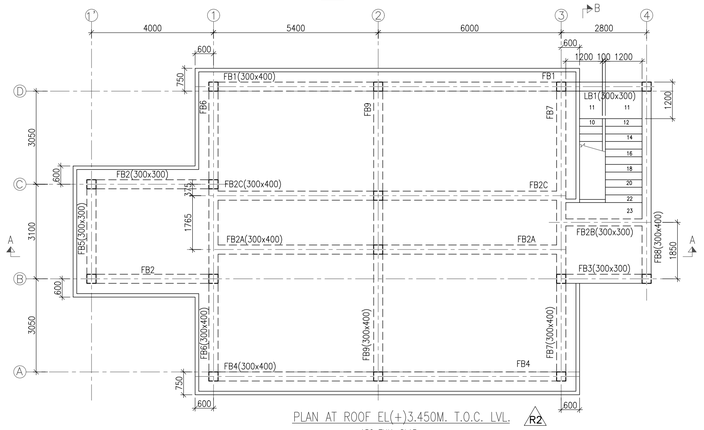
DRAWING NO. 5746-004-PVC-V-058

NORTH

TENTATIVE TENDER DRAWING

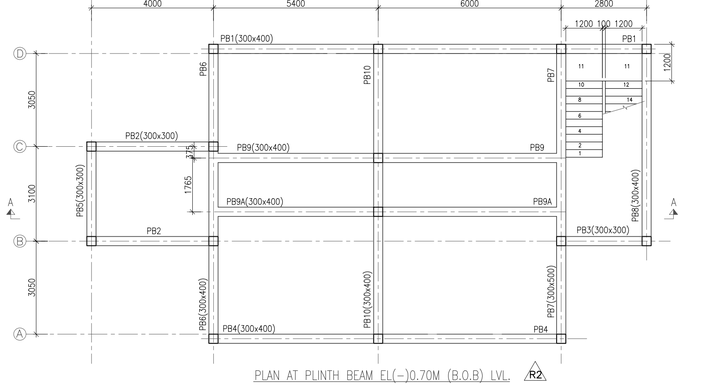


SECTION A–A /R2

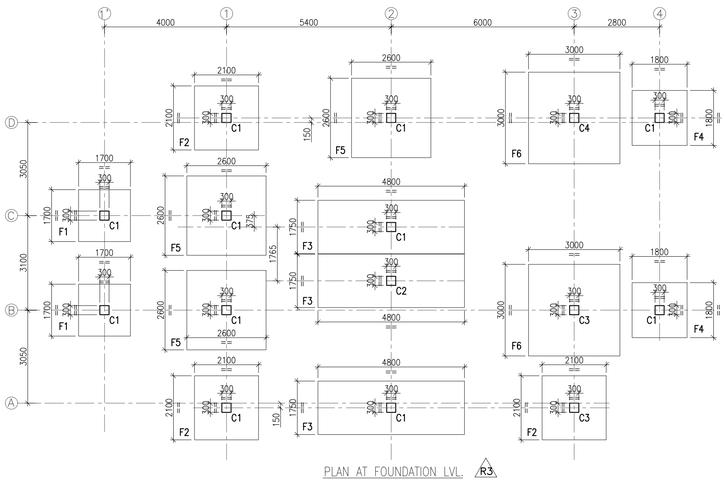


PLAN AT ROOF EL(+)3.450M. T.O.C. LVL. /R2

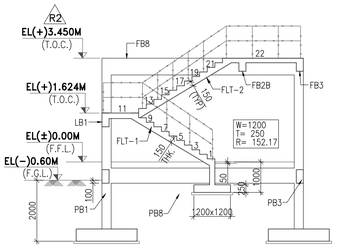
150 THK. SLAB



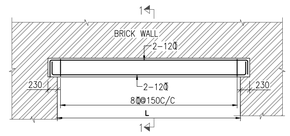
PLAN AT PLINTH BEAM EL(−)0.70M (B.O.B) LVL. /R2



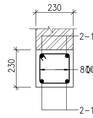
PLAN AT FOUNDATION LVL. /R3



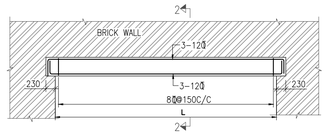
SECTION B–B /R2



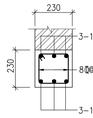
BEAM MKD. LB1(230x230) UP TO 2000MM /R2



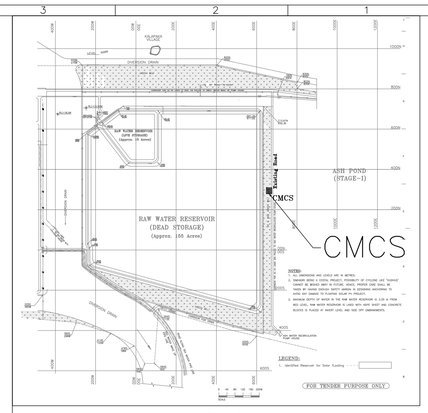
SECTION 1–1



BEAM MKD. LB2(230x230) 2000MM TO 3000MM /R2



SECTION 2–2



KEY PLAN

NOTES:–

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES.
2. FIGURED DIMENSIONS ONLY SHALL BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT ARCH./MECH DWG.
4. FINISHED FLOOR LEVEL CORRESPONDS TO EL(±)0.000M, WHICH IS AT 600MM ABOVE FGL/NGL. FGL/NGL SHALL BE CONSIDERED AT EXISTING /R3 ADJOINING ROAD CENTER.
5. ALL R.C.C. SHALL BE MIX M–30 /R1.
6. REINFORCEMENT STEEL SHALL BE OF HIGH STRENGTH DEFORMED TMT STEEL BARS WITH CORROSION INHIBITORS, CORROSION RESISTANT STEEL (CRS) RE–BARS, FUSION BONDED EPOXY COATED (FBEC) RE–BARS OR ZINC COASTED RE–BARS OF GRADE MINIMUM FE–500 AND SHALL CONFORM TO IS: 1786. DUCTILE DETAILING IN ACCORDANCE WITH IS: 13920 SHALL BE ADOPTED FOR SUPERSTRUCTURE AND SUBSTRUCTURE OF ALL RCC BUILDINGS / STRUCTURES
7. CLEAR COVER TO REINF. INCLUDING LINKS FOR R.C.C MEMBERS SHALL BE AS UNDER:– COLUMN= 40mm,FOOTING= 50mm BEAM= 25mm,SLAB= 20mm
8. STANDARD 'L' HOOKS SHALL BE PROVIDED AT THE ENDS OF ALL BARS.
9. PROVIDED LAP LENTH/DEVELOPMENT LENGTH 'L_d' FOR BOTH COMPRESSION AND TENSION MAIN R/F BAR SHALL BE=50XDIA OF BAR
10. LAPS SHALL BE STAGGERED AND AVOIDED AT THE SECTIONS OF MAX. BENDING MOMENT
11. NET SAFE BEARING CAPACITY HAS BEEN TAKEN AS 5T SQM /R3 AT 2.0M BELOW F.G.L
12. BOTTOM BAR INDICATES :– – – – – – –
13. TOP BAR INDICATES :– ———————

FOR TENDERING PURPOSE ONLY

COLUMN SCHEDULE /R2

FOUNDATION TO TERMINATION LVL.				
SIZE.	(300X300)	(300X300)	(300X300)	(300X300)
REINFORCEMENT.	8–12Ø ●	8–16Ø ●	4–16Ø ● +4–12Ø ○	8–20Ø ●
SPACING (S1)	8Ø@100 C/C(X)	8Ø@100 C/C(X)	8Ø@100 C/C(X)	8Ø@100 C/C(X)
SPACING (S2)	8Ø@150 C/C(X)	8Ø@150 C/C(X)	8Ø@150 C/C(X)	8Ø@150 C/C(X)
COL.MARKING	C1	C2	C3	C4

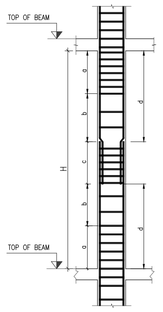
ISOLATED FOOTING SCHEDULE /R2

FOOTING MKD.	SIZE			REINFORCEMENT			
	L	B	D	ALONG–L BOTTOM	ALONG–L TOP	ALONG–B BOTTOM	ALONG–B TOP
F1	1700	1700	300	12Ø@200C/C	8Ø@200C/C	12Ø@200C/C	8Ø@200C/C
F2	2100	2100	300	12Ø@200C/C	8Ø@200C/C	12Ø@200C/C	8Ø@200C/C
F3	4800	1750	400	16Ø@150C/C	8Ø@200C/C	12Ø@200C/C	8Ø@200C/C
F4	1800	1800	300	12Ø@200C/C	8Ø@200C/C	12Ø@200C/C	8Ø@200C/C
F5	2600	2600	300	12Ø@200C/C	8Ø@200C/C	12Ø@200C/C	8Ø@200C/C
F6	3000	3000	300	12Ø@150C/C	8Ø@200C/C	12Ø@150C/C	8Ø@200C/C

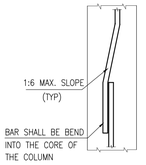
"L" & "B" IN THE SCHEDULE REFER TO LONGER & SHORTER DIMENSIONS OF THE FOOTING RESPECTIVELY, IRRESPECTIVE OF THE ORIENTATION FOR ORIENTATION OF FOOTINGS, REFER FOUNDATION LAYOUT PLAN

SHEAR REINFORCEMENT

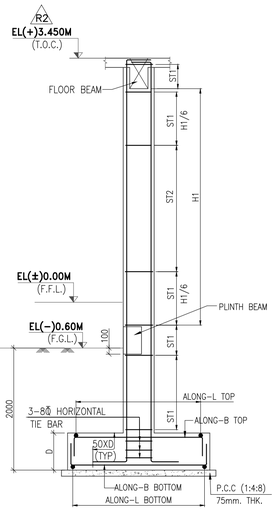
a= 450mm OR H/6 WHICH EVER GREATER	S1
b=	S2
c= LD SPLICING ZONE (50% OF BARS CAN BE SPLICED IN THIS ZONE	S1
d= >H/4	



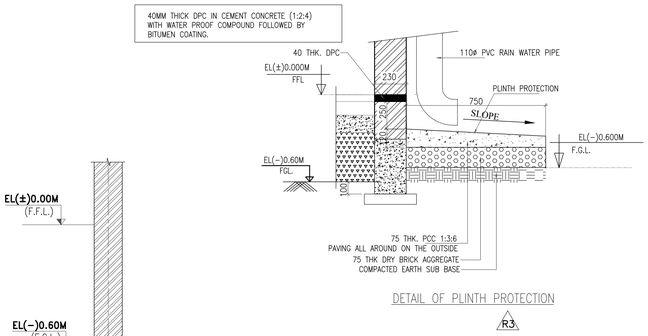
TYPICAL DETAIL FOR SPLICING OF COLUMN REINFORCEMENT BARS



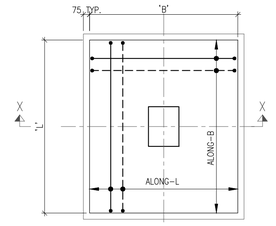
TYPICAL LAP SPLICE DETAIL



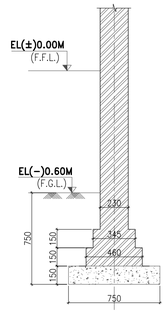
SECTION X–X
TYPICAL DETAIL OF COLUMN.



DETAIL OF PLINTH PROTECTION /R3



TYP. DETAIL OF ISOLATED FOUNDATION



TYP.230 MM THK. BRICK WALL FOOTING

REV.	DATE	ALTD	CHD	APPD	REV.	DATE	ALTD	CHD	APPD	REV.	DATE	ALTD	CHD	APPD	REV.	DATE	ALTD	CHD	APPD
0	13.01.20	--	VARUN	DKU	01	31.01.20	--	VARUN	DKU	02	08.02.20	--	VARUN	DKU	03	28.02.20	--	VARUN	DKU
	ISSUED FOR APPROVAL					REVISED AS PER COMMENTS					REVISED AS PER COMMENTS					REVISED AS PER COMMENTS			

DEPT. SC&PV
STATUS CONTRACT
DISTRIBUTION

25MWp FLOATING SOLAR PV PLANT FOR NTPC AT SIMHADRI

OWNER
NATIONAL THERMAL POWER CORPORATION

BHARAT HEAVY ELECTRICALS LTD
ELECTRONICS DIVISION, BANGALORE

TITLE
CMCS BUILDING – GENERAL ARRANGEMENT & REINFORCEMENT DETAILS OF FOUNDATIONS, COLUMNS, PLINTH BEAMS, ROOF BEAMS AND ROOF SLAB

SCALE 1:100
DRAWING NO. 5746-004-PVC-V-058
SHEET 1 OF 2 REV. 03

DRAWING NO. 5746-004-PVC-V-058

TENTATIVE TENDER DRAWING

FOR TENDERING PURPOSE ONLY

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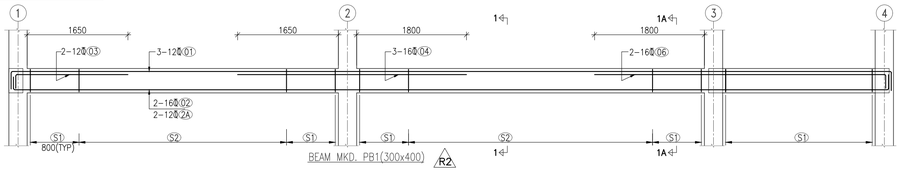
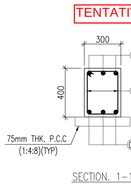
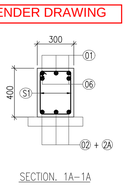


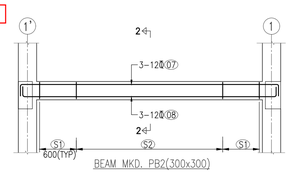
BEAM MKD. PB1(300x400) R2



SECTION. 1-1



SECTION. 1A-1A



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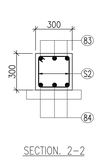
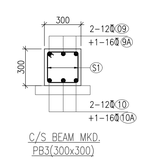
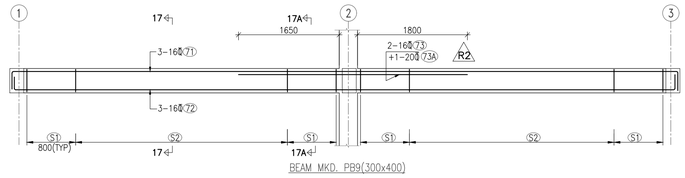


SECTION. 2-2



C/S BEAM MKD. PB3(300x300)



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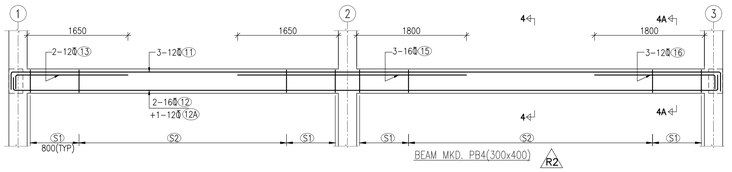

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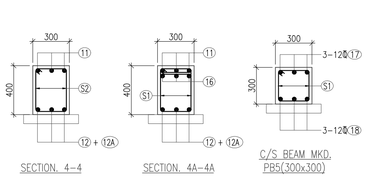
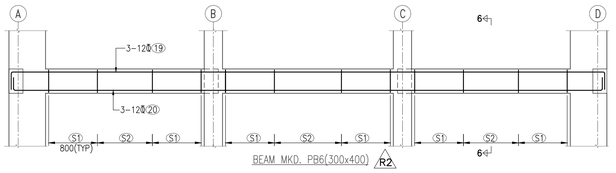


SECTION. 4-4 SECTION. 4A-4A C/S BEAM MKD. PB5(300x300)



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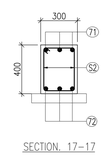
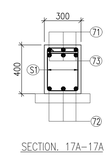


SECTION. 17-17



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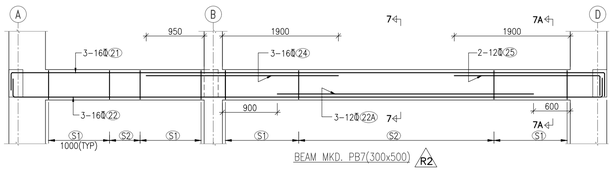

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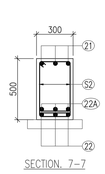
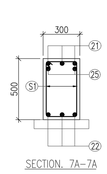


SECTION. 7-7



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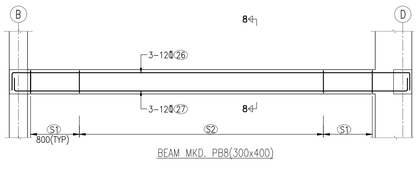

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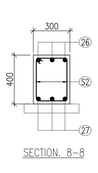

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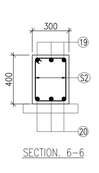

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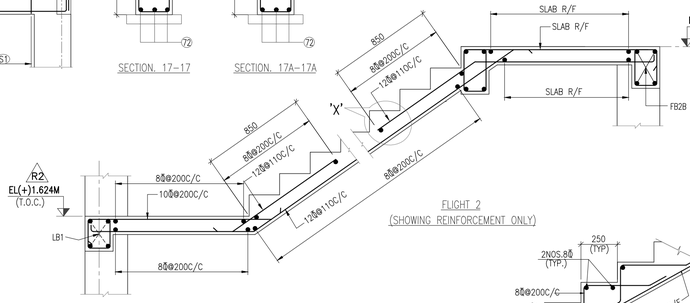

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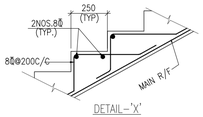
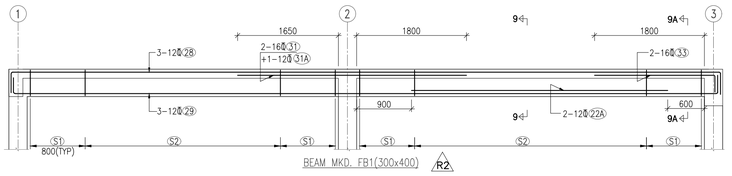


DETAIL-'X'



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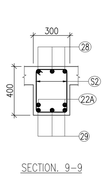
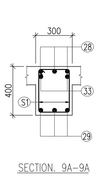
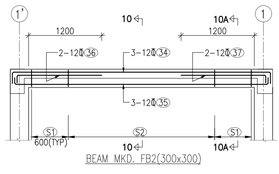


SECTION. 9-9



SECTION. 9A-9A



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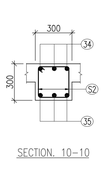

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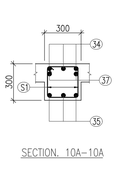

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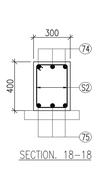

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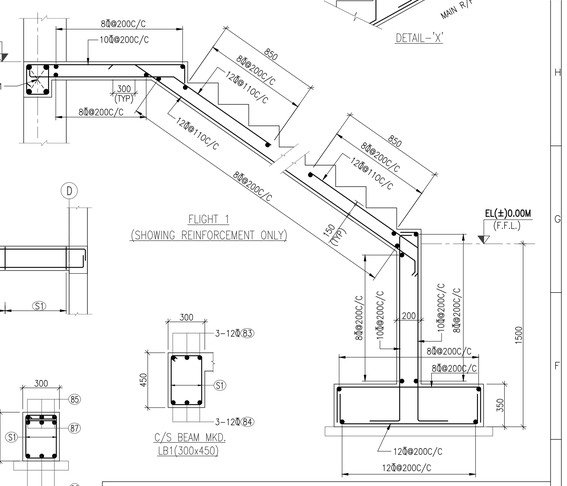

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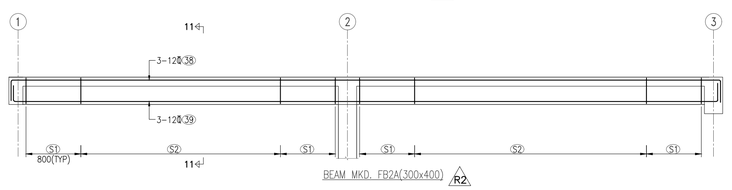

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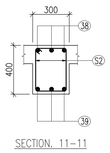
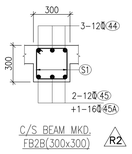
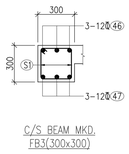


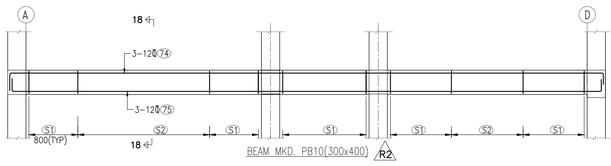
SECTION. 11-11



C/S BEAM MKD. FB2B(300x300) R2

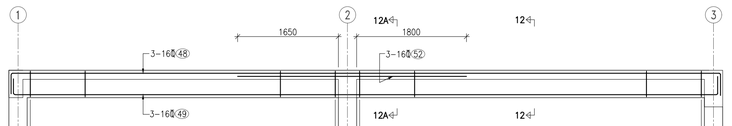


C/S BEAM MKD. FB3(300x300)



BEAM MKD. PB10(300x400) R2

C/S BEAM MKD. LB1(300x450)



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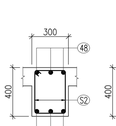

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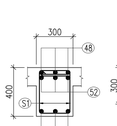
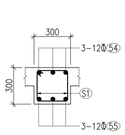


SECTION. 12A-12A



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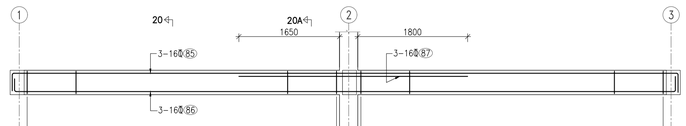

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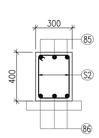

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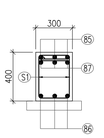

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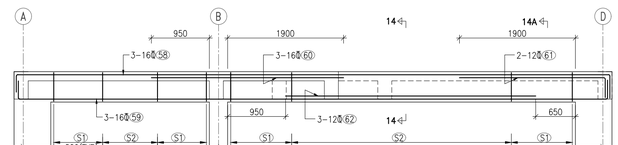

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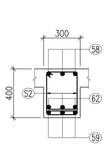

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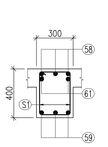
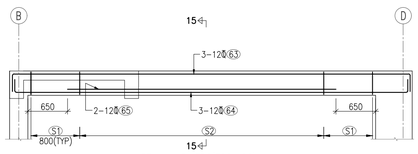
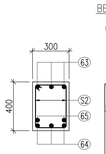


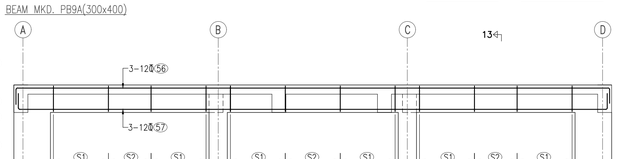
SECTION. 14A-14A



BEAM MKD. FB8(300x400)



SECTION. 15-15



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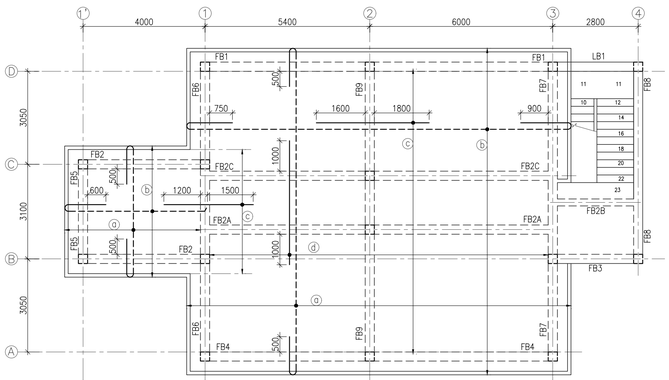
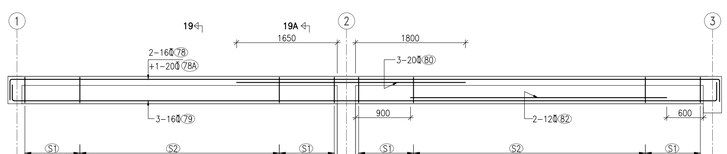


PLAN AT ROOF EL(+)3.450M. T.O.C. LVL.
150 THK. SLAB
DISTRIBUTION R/F. 8Ø@250C/C
WHEREVER REQUIRED



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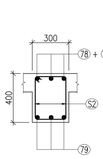
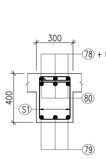
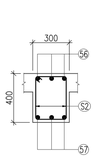


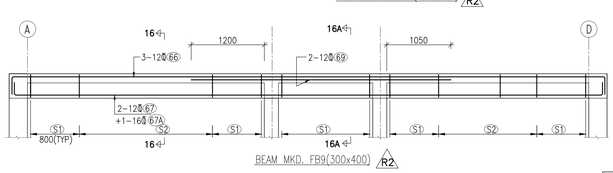
SECTION. 19-19



SECTION. 19A-19A



SECTION. 13-13



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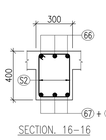
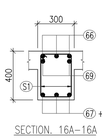


SECTION. 16-16



SECTION. 16A-16A

STIRRUPS SCHEDULE

S1	2L-8Ø@100C/C
S2	2L-8Ø@150C/C

SLAB REINF. SCHEDULE

a	8Ø@150C/C
b	8Ø@150C/C
c	8Ø@150C/C
d	8Ø@150C/C

LEGEND:

F.G.L. – FINISHED GROUND LEVEL
F.F.L. – FINISHED FLOOR LEVEL
T.O.C. – TOP OF CONCRETE
THK. – THICKNESS
TYP. – TYPICAL
U.N.O. – UNLESS NOTED OTHERWISE
℄ – CENTER LINE
B.O.B. – BOTTOM OF BEAM
T.O.B. – TOP OF BEAM
A.L.T. – ALTERNATE

NOTES:–

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES.
2. FIGURED DIMENSIONS ONLY SHALL BE FOLLOWED.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH RELEVANT ARCH./MECH DWG.
4. ALL R.C.C. SHALL BE MIX M-30
5. REINFORCEMENT STEEL SHALL BE OF HIGH STRENGTH DEFORMED TMT STEEL BARS WITH CORROSION INHIBITORS, CORROSION RESISTANT STEEL (CRS) RE-BARS, FUSION BONDED EPOXY COATED (FBEC) RE-BARS OR ZINC COASTED RE-BARS OF GRADE MINIMUM FE-500 AND SHALL CONFORM TO IS: 1786. DUCTILE DETAILING IN ACCORDANCE WITH IS: 13920 SHALL BE ADOPTED FOR SUPERSTRUCTURE AND SUBSTRUCTURE OF ALL RCC BUILDINGS / STRUCTURES
6. CLEAR COVER TO REINF. INCLUDING LINKS FOR R.C.C MEMBERS SHALL BE AS UNDER:– COLUMN= 40mm,FOOTING= 50mm,BEAM= 25mm,SLAB= 20mm
7. STANDARD 'L' HOOKS SHALL BE PROVIDED AT THE ENDS OF ALL BARS.
8. PROVIDED LAP LENTH/DEVELOPMENT LENGTH 'Ld' FOR BOTH COMPRESSION AND TENSION MAIN R/F BAR SHALL BE=50XDIA OF BAR
9. LAPS SHALL BE STAGGERED AND AVOIDED AT THE SECTIONS OF MAX. BENDING MOMENT
10. NET SAFE BEARING CAPACITY HAS BEEN TAKEN AS 7T SQM AT 2.0M BELOW F.G.L
11. BOTTOM BAR INDICATES :– — — — — — —
12. TOP BAR INDICATES :– ———————

25MWp FLOATING SOLAR PV PLANT FOR NTPC AT SIMHADRI

OWNER
NATIONAL THERMAL POWER CORPORATION

BHARAT HEAVY ELECTRICALS LTD
ELECTRONICS DIVISION, BANGALORE

DEPT. SC&PV
STATUS CONTRACT
DISTRIBUTION

TITLE
CMCS BUILDING – GENERAL ARRANGEMENT & REINFORCEMENT DETAILS OF FOUNDATIONS, COLUMNS, PLINTH BEAMS, ROOF BEAMS AND ROOF SLAB

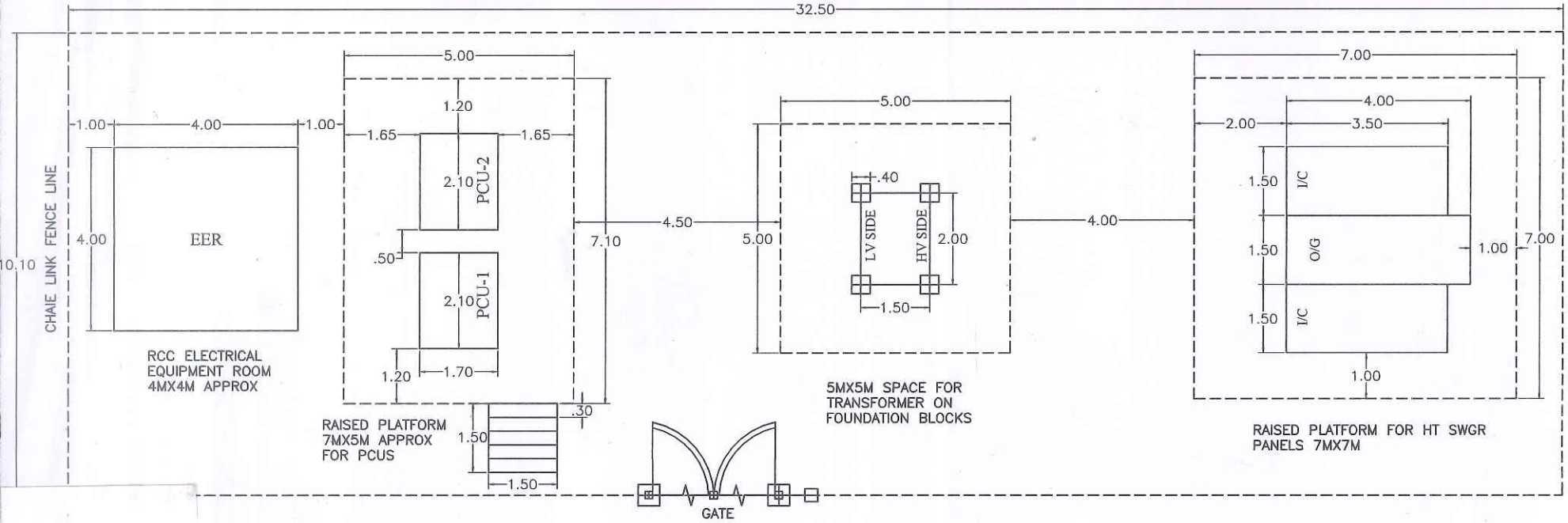
REV.	DATE	ALTD	CHD	APPD	REV.	DATE	ALTD	CHD	APPD	REV.	DATE	ALTD	CHD	APPD	REV.	DATE	ALTD	CHD	APPD
0	13.01.20	--	VARUN	DKU	01	31.01.20	--	VARUN	DKU	02	08.02.20	--	VARUN	DKU	03	28.02.20	--	VARUN	DKU
	ISSUED FOR APPROVAL					REVISED AS PER COMMENTS					REVISED AS PER COMMENTS					NO CHANGE			

SCALE 1:100
DRAWING NO. 5746-004-PVC-V-058
SHEET 2 OF 2 REV. R3

TENTATIVE TENDER DRAWINGS

FOR TENDERING PURPOSE ONLY

DETAILS OF INVERTER CUM TRANSFORMER PLATFORM YARD
25 MW FSPV NTPC SIMHADRI



SL.NO	ITEM	DIMENSION IN M	APPROX WEIGHT KG
1	PCU 2.5MW	2.1X1.7	6000
2	TRANSFORMER 5MVA	5X5	12000
3	HT SWGR PANELS	2X1.5X3.5+1X4X1.5 OR 1X3.5X1.5	2500X3 OR 2500X1

FIELD QUALITY PLAN

ITEM: CIVIL WORK	QP No.:	1	PROJECT:	25MW FSPV Project at NTPC Simhadri	
SUB- SYSTEM : FOUNDATION, EXCAVATION & FILL, SITE LEVELLING, CONCRETE, ROAD, BUILDING ETC.	REV. NO :	00	PACKAGE:	25MW SIMHADRI FQP CIVIL	
	DATE:	19-Feb-20	DOCUMENT NO:	5746-004-QVC-Q-066	
	PAGE:	Page 1	EPC CONTRACTOR	Bharat Heavy Electrical Limited	

Sl. No	Components/ Materials & Operation	Characteristics / instruments		Class of Check	Type of Check	Quantum Of check	Reference Document	Accpatence Norms	Format of Record		Remarks
1	2	3		4	5	6	7	8	9	D*	10
1	General Requirement-										
A	Site Survey	Initial & final level layouts, lines, alignments TOC level, RL Transfer, development of benchmark pillar	As per PO & BOM, IQC Plan.	B	Physical	As per engineering approval at test locations			TR/SR	√	
B	Seting up of field QA&QC Laboratory & Availabilty of QA & QC Manpower		As agreed / required	B	Physical	Once Prior to start of work and thereof monthly	Tech Spec.		SR	√	Functioning of laboratory equipment in proper working condition to be verified on monthly basic
C	Sampling for testing of building materials, concrete mix design etc.		As agreed / required	A	Physical	Once per each source	Tech. Specs & Const. Drawings		SR/TR	√	Test report along with the recommendations from specalist agency to be submitted to Employer
D	Stacking and storage of construction materials and components at site		As per IS :4082	B	Physical	Random	Tech Specs & Const. Drawings & IS : 4082		SR		
2	Excavation & Filling in Foundation Works										
2.1	Excavations										
i		Initial ground level before start of excavations, Final excavation levels, side slope of final excavations	As agreed/ required	B	Measurement	100%	Tech Specs or Const. Drawings		SR	√	
2.2	Fill/Backfill										
i	Standard proctor Test	Optimum moisture content & max. dry density before fill	As per IS: 2720, Proctor needle apparatus,etc.	A	Physical	One in every 10000 Cum for each type and source of fill material	IS 2720 (Pt.VII), Tech Specs and Const. Drawings		SR/TR	√	
2.3	Degree Of Compaction Of Fill/backfill										
I		Dry density by core cutter method --OR-- Dry density in place by sand replacement method --OR-- any other method as per IS2720	As per IS: 2720	A	Physical	(i) For foundation back fill one for everry 10 foundations for each compacted layer. (ii) For area filling, one every 1000 SOM area for each compacted layer.	IS 2720 (Pt. XXIX)/, IS 2720 (Pt. XXVIII)/, IS 2720 Relavant Part/ Tech Specs and Const. Drawings		SR/TR	√	
Ii		Relative density (Density index)	As per IS:2720	B	Physical	.....DO..... (i) & (ii) above	IS 2720(XIV). Tech Specs and Const. Drawings		SR/TR	√	
3.0	Pile Auguring	Pile load tets -lateral & pull out as per IS 2911 /Specification	As per Drg/ Spec/ IS 2911	A	Physical	As per engineering approval at test locations			SR/TR	√	
		Diameter & Depth of auguring/ hole (tot concreting)	IS2720 (Pt XXVIII). Tech specs	B	Physical	As per Drg plot locations	IS 2911 / IS2720 (Pt XXVIII). Tech specs		SR/TR	√	

		Depth before placement of reinforcement (Stabilising sides of bore for loose soil)	As per Drg / Spec	B	Physical	As per Drg plot locations	IS2911 / IS2720 (Pt XXVIII), Tech specs	SR / TR	✓	
3.1	**Cement**									
i		Retesting of cement	As per IS 4031	A	Review of MTC/ test reports	Each lot/Week No. received at site.	As per relevant IS codes	MTC/TR	√	Each consignment of cement shall be duly correlated with manufacturers TC. One sample from each lot shall be tested for setting time and compressive strength . If cement is stored more than 90 days in godown of contractor same shall be retested for comp. Strength & setting time.
3.2	**Coarse Aggregate**									
i		Specific gravity, water absorption, Soundness, Deleterious materials (coal & lignite, clay lumps, material finer than 75 micron sieve, soft fragment, shale)	As per IS 2386	B	Physical	Once for each source or every change of source	IS 2386 Part III, Part II, Part V, IS 456, IS 383/Tech Spec	SR/TR	√	
ii		Sieve analysis, flakiness index, elongation index	As per IS 2386	B	Physical	One for 100 cum or part thereof	IS 2386,Part I, IS 383/ Tech Spec	SR/TR	√	
iii		Crushing value, abrasive value & impact value	As per IS 2386	B	Physical	Once for each source or every change of source	IS 2386,Part IV, IS 383/ Tech Spec	SR/TR	√	
3.3	**Fine Aggregate**									
i		Silt content	IS 2386	B	Physical	One for 100 cum or part thereof	IS 2386, IS 383	SR/TR	√	
ii		All other tests similar to coarse aggregates as mentioned above.					IS 2386, IS 383	SR/TR	√	Except test for flakiness index, elongation index, water absorption value, impact value, abrasion, crushing value.
3.4	**Water**									
i		Complete test as per IS 456	Burette, conical flask, pipette etc.	B	Testing/Review of Test Report	Once for each source and thereafter yearly in case of bore well. If water is used from open source like river, stream, canal etc., then water testing is to be done quarterly.	IS 3025 Part 22 & 23 for test procedure, IS 456 for acceptance criteria	TR	√	
3.5	**Concrete**									
i		4 Trial mixes to ascertain the workability and cube strength	After receiving the recommended mix design from specialist agency.	A	Physical	each mix proportion	Tech. Spec.,IS 456	SR/TR	√	
ii		Concrete Cube Strength Test	IS:516	A	Physical	One set of 6 cubes per 50 Cum or part thereof for each grade of concrete per shift whichever is earlier.	IS:516, IS:456, Tech. Spec.	SR/TR	\	Min. of 6 cubes for each mix, 3 specimen shall be tested at 7 days remaining 3 shall be for 28 days comp. Strength.
iii		Workability slump test	As per IS 1119	B	Physical	At the time of concrete pouring and thereafter at every 2 hours	IS 456/Tech Specs	SR/TR	√	
iv		Compaction and Curing of concrete	IS 456	B	Physical	Random	IS 456	SR		
3.5.1	Admixture for concrete	Type of admixture	As per IS 9103	B	Review of MTC	For each lot received at site	Designed mix and IS 9103	MTC	√	3.5.1 is only applicable when admixture is recommended in Concrete mix design

3.6	**Batching Plant (if applicable)**									
i		Calibration of Batching plant		A	Physical	To be calibrated at the time of starting and subsequently once in three month in house.	Review of calibration chart / Certificate/ IS 4925	Calibration Report	√	Batching Plant shall be calibrated regularly at least once in a 3 months in-house. The weights for batching plant calibration to be calibrated once in year by NPL/NABL accredited lab./Weights & Measures Dept.
3.7	**Test/Checks on RCC Structure in Hardened Condition**									
i		Dimensional check on finished structure, insert steel column post & dimensional tolerance	As required	B	Measurement	Approved drawing	As per IS 456/tech spec/construction drawing	SR	√	
ii		Core Test	IS:516	A	Physical	As required by EIC.	As per IS:456, IS 516	SR/TR	√	Compressive strength based on core test is required to be carried out in case of doubt regarding the grade of concrete used, either due to poor workmanship or based on the results of cube strength test as per sl. No. 3.5 ii) above / discretion of EIC.
iii		Rebound Hammer test	IS:13311	A	physical	As required by EIC.	As per relevant / tech. Specification.	SR/TR	√	This test may be carried out to assess the strength of concrete in case of non-critical and lightly loaded structures as per discretions of EIC.
3.8	**Reinforcement Steel and Placement of Reinforcement Steel**									
i	Material	Physical and chemical properties as per relevant IS codes	As agreed/required	A	Review of MTC	Each batch/lot of delivery	As per IS 1786, IS 432, IS 1566, tech spec and cont. drawing	MTC	√	To be procured from owner approved source.
ii		Acceptance -- cover, spacing of bars, spacers and chairs after the reinforcement cage is put inside the framework	As agreed/required	B	Visual & measurement	Random in each shift	Tech spec and cons drawings, IS 2502	SR	√	
3.9	**PRE-CAST CONCRETE**									
i		Crushing strength	compression testing machine		Physical		IS:516 & IS: 456	SR/TR	√	If pre cast member manufactured at site then Sl.NO. 3.5 shall be applicable. If it is manufactured at manufacturing unit/factory, then random periodic surveillance shall be carried out by Regional QA/SSC-QA/CQA.
3.10	**Grouting**									
i		Compressive strength	As agreed/required	B	Physical	Random in each shift	Tech spec and const dwg	SR/TR	√	
4	**Brick Masonry**									
i	Test on bricks	Dimensions, shape, compressive strength, water absorption, warpage, efflorescence	As agreed/required	B	Measurement/ Physical test	As per relevant IS code/one sample for 30000 nos or part thereof	As per IS 1077, IS 13757,IS 2691, IS 12894/tech spec and const dwg	SR/TR		Warpage test is applicable for facing bricks only as per IS:2691
5	**Painting System --on Concrete works, steel works and plastered masonry surfaces**									
i	Materials - oil bound, acrylic emulsion, chemical resistant, oil resistant paint etc.	Shade, type approved by EIC	As agreed/required	B	Review of MTC/ test reports	Each batch of delivery	Tech spec and const dwg	MTC/TR	√	
ii	Acceptance of painted surfaces	As required	As agreed/required	B	Visual/physical	Each surface at random	Tech spec and const dwg	SR	√	

6	**Fencing and Gates**									
i	GI Chain link fence (IS 2721) & reinforced twisted barbed (IS 2629) etc. as per Tech. Spec.	Materials	As agreed/required	B	Review of MTC/ test reports	Each batch of delivery	Tech spec and const dwg	MTC/TR	√	MTC shall contain all the parameters specified in the technical specifications/ relevant IS codes
ii	Structural steel column post	Materials	As agreed/required	B	Review of MTC/test reports	Each batch of delivery	Tech spec and const dwg	MTC/TR	√	MTC shall contain all the parameters specified in the technical specifications/ relevant IS codes
iii		Acceptance of the materials and works	As agreed/required	B	Physical/measurement	Each installation	Tech spec and const dwg	SR		
7	**Earthing Mat (Grounding System)**									
i		DP tests	DP test kit	B	Physical	10% at random of the offered lot	Tech spec and const dwg	TR	√	
ii		Earth tests	Earthing test kit	A	Physical	100%	Tech spec and const dwg	SR	√	
8	**All other Bought Out items (BOIs)**									
i	Materials for Damp Proof Course, Grouting, Insulation Works, False Ceiling, Water Proofing works, Roof/Basement Treatment, Floor Finishes and Allied Works, Water Supply and sanitary Fittings and Fixtures, RCC Pipes, Water storage tank, Earthing Mat etc.	Materials	As agreed/required	B	Review of MTC/ test reports	Each Lot/Batch of delivery at site	Tech Spec./Const Drawings/Relevant IS Codes	MTC/TR	√	
ii		Acceptance of the materials and installation work	As agreed/required	B	Physical/measurement	Each installation/type/portion of works	Tech spec and const dwg	SR	√	
9	**Road Works**									
9.1	**Construction of Sub-Grade and Earthen/Hard Shoulders**									
i		Standard proctor Test	As per IS: 2720	A	Physical	One in every 2000 cum for each type and source of fill materials	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification, IS 2720 (Pt.VII)	SR/TR	√	
ii		Dry density by core cutter method ---- OR---- Dry density in place by sand displacement method ---- OR---- any other method as per IS 2720	As per IS: 2720	A	Physical	One in every 2000 SQM area for each compacted layer.	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification, IS 2720 (Pt. XXIX)/ IS 2720 (Pt. XXVIII),IS 2720 Relevant part	SR/TR	√	
9.2	**Granular Sub-Base (GSB) (if applicable)**									
i		Grading of aggregate and Atterberg limits	Set of IS Sieves	B	Physical	One test per 400 cum of test aggregate	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
ii		Density of compacted Layer	As required / agreed	A	Physical	one test per 1000 sqm.	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
iii		Deleterious Constituents	As required / agreed	B	Physical	As required	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
iv		CBR	As required / agreed	B	Physical	As required	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
9.3	**Water Bound Macadam (WBM) &/ Wet Mix Macadam (WMM)**									
i		Aggregate Impact Value	Aggregate Impact value Test Apparatus	B	Physical	One test per 1000 cum of aggregate	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	

ii		Grading of aggregate	Set of IS Sieves	B	Physical	One test per 250 cum	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
iii		combined Flakiness and Elongation Index	Flakiness & Elongation test gauge	B	Physical	One test per 500 cum of aggregate	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
iv		Atterberg limits of binding material	Atterberg limits determination	B	Physical	One test per 50 cum of binding material	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
v		Atterberg limits of screenings	Atterberg limits determination	B	Physical	One test per 100 cum of aggregate	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	
vi		Density of compacted layer	As required / agreed	A	Physical	one test per 1000 sqm.	Tech spec and const dwg, section 900 of MORTH specification	SR/TR	√	only applicable when WMM is used at site
9.4	**Premix surfacing , Seal coat and Tack Coat/ Prime coat**									
i		Quality of binder	Penetrometer with St. needle	A	Physical/MTC	Number of samples per lot and tests as per IS:73, IS:217 and IS:8887 as applicable	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification, IS 73	SR/TR/MTC	√	
ii		Aggregate Impact Value / Los Angeles Abrasion value	Aggregate Impact Value/Los Angeles Test apparatus	B	Physical	One test per 200 cum of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification	SR/TR	√	
iii		Combined Flakiness Index and elongation index of aggregates	Flakiness & Elongation test gauge	B	Physical	One test per 100 cum of aggregate for each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification	SR/TR	√	
iv		Grading of aggregates	Set of Sieves	B	Physical	Two test per day per plant both on individual constituents and mixed aggregate from dryer	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification	SR/TR	√	
v		Soundness (Magnesium and Sodium Sulphate)	As required as per IS:2386	B	Physical	one test of each source and whenever there is change in the quality of aggregate	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification	SR/TR	√	
vi		Temperature of binder at application	Thermometer	B	Physical	At regular interval	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification	SR/TR	√	
vii		Binder Content	Bitumen extractor	A	Physical	Two tests per day per plant	As per Tech Specs and Const. Drawings, Section 900 of MOSRTH specification	SR/TR	√	
9.5	**Alignment, Level, Surface Regularity and Rectification**									
i		Horizontal alignment, surface levels and surface regularity	As required/agreed	B	Physical	As per section 900 of MORTH specification	Tech spec and const dwg, section 900 of MORTH specification	SR		
ii		Rectification	As required/agreed	B	Physical	Earth rectification	Tech spec and const dwg, section 900 of MORTH specification	SR	√	
10	**Geo Technical Investigation Work(If Applicable)**									
		Deployment of NTPC approved agency, Equipments, Manpower etc.,	As required/agreed	B	Physical	Engineering to finalise location / field test / sampling Once before commencement of work		SR	√	
		Execution of geotechnical investigation - Locations, type etc as per scheme	As required/agreed	B	Physical			SR	√	
		Collection of distributed & undistributed samples, their packing & storage.	As required/agreed	B	Physical			SR		
		Conducting field tests as per investigating scheme such as SPT/ERT/SCPT/PLT/PMT etc.	As required/agreed	B	Physical			SR		

		Submission of field bore log, lab test schedule & selection of samples for laboratory testing	As required/agreed	B	Review & acceptance		SR/TR	✓
		Submission of field bore log, lab test schedule & selection of samples for laboratory testing	As required/agreed	B	Physical		SR	✓

			LEGEND : *RECORDS, INDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTSATION.		Doc. No. 5746-004-QVC-Q-066		Rev. 00
	Manufacturer/ Sub-supplier	Main-supplier	LEGEND TO BE USED: CLASS: #: A=CRITICAL, B=MAJOR, C=MINOR; Witnessing & Accepting Authority for 'A' CLASS CHECKS SHALL BE Executing Engineer AND FOR 'C' CLASS CHECKS SHALL BE MAIN CONTRACTOR (A & B CHECK SHALL BE NTPC CHP STAGE);				
	Signature		SR = Site Register , TR= Test Report, MTC= Manufacturer's Test Certificate (MTC shall contain all the paramrters in the technical specifications)		REVIEWED BY	APPROVED BY	APPROVAL SEAL
			This document shall be read in conjunction with SECI-BEL Tech. Specifications, BOQ, Drawings				

Note; Where FQA manpowr is not in place at site, these tests shall be witnessed by Execution Department. Random periodic surveillance shall be carried out by Regional QA/SSC-QA / CQA.

ANNEXURE A

PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY

(On non-Judicial paper of appropriate value)

Bank Guarantee No……..

Date……..

To

(Employer's Name and Address)

……..

Dear Sirs,

In accordance with the terms and conditions of Invitation for Bids/Notice Inviting Tender No……1(Tender Conditions), M/s. …….. having its registered office at ……2 (hereinafter referred to as the 'Tenderer'), is submitting its bid for the work of**……..3** invited by ……4.(name of the Employer) through its Unit at ……(

The Tender Conditions provide that the Tenderer shall pay a sum of Rs …… as Earnest Money Deposit in the form therein mentioned. The form of payment of Earnest Money Deposit includes Bank Guarantee executed by a Scheduled Bank.

In lieu of the stipulations contained in the aforesaid Tender Conditions that an irrevocable and unconditional Bank Guarantee against Earnest Money Deposit for an amount of .....5 ..... is required to be submitted by the Tenderer as a condition precedent for participation in the said Tender and the Tenderer having approached us for giving the said Guarantee,

we, the .....[Name & address of the Bank] ..... having our Registered Office at …….(hereinafter referred to as the Bank) being the Guarantor under this Guarantee, hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer without any demur, merely on your first demand any sum or sums of Rs. 5 .....(in words Rupees.....) without any reservation, protest, and recourse and without the beneficiary needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____ _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor/Contractor/Vendors in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment hereunder and the Tenderer shall have no claim against us for making such payment.

We …….. Bank further agree that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Tender or to extend the time of submission of from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Tenderer and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Tenderer or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Tenderer or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Tenderer and notwithstanding any security or other guarantee that the Employer may have in relation to the Tenderer's liabilities.

This Guarantee shall be irrevocable and shall remain in force upto and including……..6 and shall be extended from time to time for such period as may be desired by the Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Tenderer but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms hereof. However, unless a demand or claim under this Guarantee is made on us in writing on or before the ……. [7] we shall be discharged from all liabilities under this Guarantee.

We, ……. Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed……..5…..
b) This Guarantee shall be valid up to ……6
c) Unless the Bank is served a written claim or demand on or before _____7 all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of

(Name of the Bank)

Date……

Place of Issue……..

PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
(A) Civil Works for RCC Control Room, RCC Equipment Rooms, RCC Oil Pit					
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.all type of soil as per direction of Engineer in charge.	Cum	1147.00	119.29	136830.00
2	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in soft rock complete as per direction of Engineer in charge.	Cum	64.00	231.21	14798.00
3	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in Hard rock complete as per direction of Engineer in charge.	Cum	64.00	666.63	42665.00
4	Filling available excavated earth/murram (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 2 km and lift upto 1.5 m complete as per direction of Engineer in charge.	Cum	1063.00	144.09	153169.00
5	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size).	Cum	113.00	4105.97	463975.00
6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	Cum	19.00	4453.32	84614.00
7	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All works above plinth level and up to floor five level, excluding the cost of centering, shuttering and finishing: 1:2:4 (1 Cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	Cum	19.00	5611.75	106624.00
8	Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. All works upto plinth level	Cum	139.00	5291.98	735586.00
9	Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. All works above plinth level upto floor V level	Cum	109.00	6212.71	677186.00
10	Centering and shuttering including strutting, propping etc. and removal of form for :Foundations, footings, bases of columns etc. for mass complete as per direction of Engineer in charge.	sqm	341.00	186.86	63720.00
11	Centering and shuttering including strutting, propping etc. and removal of form for Columns, Pillars, Piers, Abutments, Posts and Struts complete as per direction of Engineer in charge. FOR ANY HEIGHT	sqm	255.00	481.31	122734.00
12	Centering and shuttering including strutting, propping etc. and removal of form for all heights : Lintels, beams, plinth beams, girders, bressumers and cantilevers FOR ANY HEIGHT	sqm	444.00	362.14	160793.00
13	Centering and shuttering including strutting, propping etc. and removal of form for Suspended floors, roofs, landings, balconies and access platform complete as per direction of Engineer in charge. FOR ANY HEIGHT	sqm	362.00	454.64	164580.00
14	Centering and shuttering including strutting, propping etc. and removal of form for all heights : Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	sqm	127.00	399.70	50763.00

CONTACTOR (SIGN AND SEAL)

PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
15	Supplying and filling in plinth with sand/murrum under floors, including watering,ramming, consolidating and dressing complete.	Cum	37.00	1281.20	47405.00
16	Dry stone SOLING AVERAGE 22.5 cm thick including supply of stones, ramming with sand and preparing surface complete.	sqm	185.00	479.01	88618.00
17	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure upto plinth level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	62.00	3478.51	215668.00
18	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	116.00	4979.34	577603.00
19	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	sqm	10.00	611.46	6115.00
20	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and finishing with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 coarse sand) finished rough with sponge. EXTERNAL PLASTER	sqm	551.00	273.26	150565.00
21	12 mm cement plaster of mix : 1:6 (1 cement: 6 coarse sand): INTERNAL PLASTER	sqm	434.00	172.89	75034.00
22	12 mm cement plaster of mix : 1:4 (1 cement: 4 coarse sand) DRAIN PLASTER	sqm	365.00	181.15	66122.00
23	6 mm cement plaster of mix : 1:3 (1 cement : 3 fine sand) CEILING PLASTER	sqm	275.00	149.14	41014.00
24	Providing and laying heavy duty vitrified ceramic floor tiles as approved by BHEL/NTPC in different sizes (thickness shall be 9mm) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 30mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3kg/sqm including grouting the joints with white cement and matching pigments etc., complete. Size of Tile 600x600 mm	Sqm	64.00	984.36	63000.00
25	Providing and laying heavy duty anti skid vertrified Ceramic floor tiles of size 300x300 mm or more (thickness shall be 9mm), of 1st quality conforming to IS : 15622, of approved make, in colours as approved by Engineer In-charge, laid on 30 mm thick cement mortar 1:4 (1 Cement: 4 Coarse sand), jointing with grey cement slurry @ 3.3kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.	sqm	16.00	713.99	11424.00
26	Providing and fixing Ist quality ceramic glazed wall tiles conforming to IS: 15622, of approved make, in all colours, shades in skirting, dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm,including pointing in white cement mixed with pigment of matching shade complete.	Sqm	67.00	675.88	45284.00
27	Providing & fixing Acid and alkali resistant tile in flooring on a bed of 30 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand). Tile thickness should be 20mm.	Sqm	80.00	980.72	78458.00
28	Providing & fixing dado/skirting Acid and alkali resistant tile on 12 mm thick mortar 1:4 (1 acid proof cement : 4 coarse sand). Tile thickness should be 12mm.	Sqm	168.00	1054.65	177182.00
29	Cement concrete flooring (with ironite hardener) 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, etc. complete. 50 mm thick with 10 mm nominal size stone aggregate IS 2571	sqm	20.00	516.60	10332.00
30	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement. 18 mm thick	sqm	15.00	341.87	5129.00
31	Finishing with acid and or alkali resistant Epoxy paint/COATING, 2mm thk heavy duty industrial grade (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work	sqm	35.00	124.25	4349.00
32	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	36.00	1187.39	42747.00

CONTACTOR (SIGN AND SEAL)

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CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
33	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. Polished Granite stone slab, colour as approved by Engineer In-charge.	sqm	5.00	2313.45	11568.00
34	Providing and fixing 20 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels. Granite of any colour and shade.	sqm	3.00	2629.02	7888.00
35	Providing and fixing stone slab with table rubbed, edges rounded and polished, of size 75x50 cm deep and 1.8 cm thick, fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer-in-charge and finished smooth. Granite Stone of approved shade	sqm	1.00	2110.29	2111.00
36	Providing and applying plaster of paris putty of 2 mm thickness of approved brandover plastered surface to prepare the surface even and smooth complete. Plaster of Paris (Gypsum Anhydrous) conforming to IS: 2547 shall be used for plaster of paris punning.	sqm	709.00	129.04	91486.00
37	Finishing walls with Acrylic Smooth exterior emulsion weather proof paint of required shade : New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior weather proof primer applied @ 2.20 kg/10 sqm) EXTERNAL	sqm	551.00	108.04	59532.00
38	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre (for Internal walls and ceiling), of approved manufacturer, of required shade and colour complete, as per manufacturer's specification: Two or more coats on new work INTERNAL WALLS AND CEILING (EXCEPT SCADA ROOM)	sqm	669.00	57.17	38247.00
39	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work SCADA ROOM	sqm	20.00	84.39	1688.00
40	Painting with acid alkali resistant paint of approved brand and manufacture of required colour to give an even shade: Two or more coats on new work BATTERY ROOM	sqm	84.00	85.31	7167.00
41	White washing with lime to give an even shade : New work (three or more coats) CEILING	sqm	10.00	18.73	188.00
42	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface : Water thinnable cement primer CEILING	sqm	10.00	39.36	394.00
43	Supplying and fixing rolling shutters (Mechanical gear operated) of approved make, made of required size M.S. laths, interlocked together through their entire length with effective bridge depth of 12mm lath sections, interlocked with each other and ends lock arrangements for inside and outside locking with malleable cast iron clips confirming to IS: 2108 and with mechanical device chain and crank operation for operating rolling shutters complete, including the cost of providing and fixing necessary fittings and fixtures of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters. 75x1.02 mm (18-gauge steel) M.S. laths with 1.20 mm thick top cover	sqm	9.00	2565.09	23086.00
44	Providing and fixing pressed steel door frames conforming to IS: 4351, manufactured from commercial mild steel sheet of 1.60 mm thickness, including hinges, jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25 mm, or base ties of 1.60 mm, pressed mild steel welded or rigidly fixed together by mechanical means, including M.S. pressed butt hinges 2.5 mm thick with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge: Profile C: Fixing with adjustable lugs with split end tail to each jamb	meter	20.00	291.49	5830.00

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
45	Providing and fixing ISI marked flush door (MDF) shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters. 35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqm	6.00	1983.71	11903.00
46	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, galvanized light gauge rolled form supporting system in double web construction pre painted with steel capping, of approved shade and color to give grid of maximum size of 1200x600 mm as per manufacturers details including supporting grid system, expansion fastners for suspension arrangement from RCC, providing opening for AC ducts (if required), return air grills (if required), light fixtures, etc., all complete: 15 mm thick MINERAL FIBER BOARD, in tile form of size 600mm x 600mm.	Sqm	20.00	1355.20	27104.00
47	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : For Fixed portion, Powder coated aluminium (minimum thickness of powder coating 50 micron)	kg	473.00	299.33	141585.00
48	Providing and fixing, for shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately). Powder coated aluminium (minimum thickness of powder coating 50 micron)	kg	401.00	358.41	143721.00
49	Providing and fixing 12 mm thick prelaminated particle board flat pressed three layer or graded wood particle board conforming to IS: 12823 Grade I Type ll, in panelling fixed in aluminum doors, windows shutters and partition frames with C.P. brass / stainless steel screws etc. complete as per architectural drawings and directions of Engineer-in-charge. Pre-laminated particle board with decorative lamination on both sides	sqm	21.00	686.77	14423.00
50	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With tinted glass panes of 4.0 mm thickness float glass for windows	sqm	49.00	655.74	32132.00
51	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item): With toughened glass panes of 10.00 mm thickness for Partition and doors	sqm	46.00	2917.82	134220.00
52	Providing and fixing anodised aluminium grill (anodised transparent or dyed to required shade according to IS: 1868 with minimum anodic coating of grade AC 15) of approved design/pattern, with approved standard section and fixed to the existing window frame with C.P. brass/ stainless steel screws @ 200 mm centre to centre, including cutting the grill to proper opening size for fixing and operation of handles and fixing approved anodised aluminium standard section around the opening, all complete as per requirement and direction of Engineer-in-charge. (Only weight of grill to be measured for payment).	kg	349.00	341.02	119017.00
53	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 300x10 mm	each	5.00	76.62	384.00
54	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 250x10 mm	each	2.00	67.93	136.00

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
55	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete : 125 mm	each	52.00	39.13	2035.00
56	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete : 300x16	each	13.00	168.69	2193.00
57	Providing and fixing aluminium hanging floor door stopper, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete. Single rubber stopper	each	21.00	22.27	468.00
58	Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles of approved quality with necessary screws etc. complete.	each	16.00	491.11	7858.00
59	Providing and fixing aluminium extruded section body tubular type universal hydraulic door closer (having brand logo with IS : 3564, embossed on the body, door weight upto 36 kg to 80 kg and door width from 701 mm to 1000 mm), with double speed adjustment with necessary accessories and screws etc. complete.	each	21.00	558.65	11732.00
60	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete as per direction of Engineer In-Charge.	Each	13.00	300.81	3911.00
61	18 mm thick moulded cement mortar band in two coats under layer 12 mm thick with cement mortar 1:5 (1 cement : 5 coarse sand) top layer 6 mm thick with cement mortar 1:4 (1 cement : 4 fine sand).	cm per m	10.00	10.63	107.00
62	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design : In 75x75 mm deep chase	meter	10.00	155.64	1557.00
63	Diluting and injecting chemical emulsion for POST- CONSTRUCTIONAL anti-termite treatment (including the cost of chemical emulsion) :Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor: With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	sqm	10.00	675.98	6760.00
64	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes. 110 mm diameter	meter	97.00	200.11	19411.00
65	Providing and fixing on wall face unplasticised - PVC moulded fittings/accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion. Shoe (Plain) 110 mm Shoe	each	48.00	74.65	3584.00
66	Providing and laying in situ five course water proofing treatment with APP (Atactic Polypropylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40Kg per sqm, 2nd & 4th courses of bonding material @ 1.20 kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd layer of roofing membrane APP modified Polymeric membrane 2.0 mm thick of 3.00 Kg/ sqm weight consisting of five layers prefabricated with centre core as 100 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 5th, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).	sqm	285.00	268.14	76420.00
67	Providing and laying brick tiles over mumty roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat: With common burnt clay F.P.S. (non modular) brick tiles of class designation 10	sqm	285.00	337.45	96173.00
68	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto all level. High strength deformed Thermo-Mechanically Treated bars with corrosion inhibitors corrosion resistant steel CRS re-bars with fusion bonded Epoxy coated (FBEC) re-bars or Zinc Coated re-bars of grade minimum Fe-500 or more and shall conform to IS: 1786.	kg	24306.00	64.00	1555584.00

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
69	Making plinth protection 75mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth.	sqm	110.00	402.82	44310.00
70	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	kg	1711.00	66.75	114206.00
71	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	kg	165.00	61.43	10137.00
72	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work	sqm	150.00	79.74	11961.00
73	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	5.00	4015.24	20077.00
74	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 using 6mm down stone chips, providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification. Providing & applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	sqm	36.00	337.48	12150.00
75	Providing and fixing PVC pipes for cable entry conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 150mm dia complete as per direction of Engineer In-Charge.	RM	50.00	81.68	4084.00
76	Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required :W.C. pan with ISI marked white solid plastic seat and 390 mm high with lid complete as per direction of Engineer In-Charge.	Each	2.00	3451.18	6903.00
77	Providing and fixing approved quality paper holder fix on wall with rawl plugs all materials labours etc., all complete as directed by the Engineer-in-charge.C.P. brass	Each	2.00	382.94	766.00
78	Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :One urinal basin with 5 litre white P.V.C. automatic flushing cistern complete as per direction of Engineer In-Charge.	Each	2.00	3268.36	6537.00
79	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require: White Vitreous China Wash basin size 550x400 mm with a pair of 15 mm C.P. brass pillar taps	Each	2.00	1867.57	3736.00
80	Providing and fixing 600x450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws hard board backing complete as per direction of Engineer In-Charge.and washers complete.	Each	2.00	841.68	1684.00
81	Providing and fixing PTMT TOWEL RAIL complete with brackets fixed to wooden cleats with CP brass screws with concealed fittings arrangement of approved quality and colour. brass towel rail 600mm long and 20 dia mm with C.P. brass brackets complete as per direction of Engineer In-Charge.	Each	4.00	390.65	1563.00

CONTACTOR (SIGN AND SEAL)

PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
82	Providing and fixing approved quality liquid soap dispenser and holder fix on wall with rawl plugs all materials labours etc., all complete as directed by the Engineer-in-charge.	Each	2.00	51.05	103.00
83	Providing and fixing approved brands of three layered Sintex Water tank-PVC water tanks including,lifting, positioning and cost of all labours, materials, fittijngs etc.complete as per direction of Engineer In-Charge.-(2000L each)	ltrs	2000.00	5.77	11546.00
84	Providing and fixing Stainless Steel A ISI 304 (18/8) KITCHEN SINK Pantry unit of sufficient size with sandwich type of platform with one sink (Nirali Make) plumbing fixture plumbing fixtureas per IS: 13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required: 510x1040 mm bowl depth 200 mm complete as per direction of Engineer In-Charge.	Each	1.00	3663.17	3664.00
85	Providing and fixing PVC, soil waste and vent pipes conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 75 mm dia complete as per direction of Engineer In-Charge.	RM	20.00	51.05	1021.00
86	Providing and fixing PVC, soil waste and vent pipes conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 110 mm dia complete as per direction of Engineer In-Charge.	RM	60.00	66.37	3983.00
87	Providing and fixing PVC, soil waste and vent pipes conforming to IS 4985 of SWR quality 4 Kg & 6 Kg / Sq cm, pressure. The rate shall incude cost of all fittings like plain elbow, plain tee, plain Y, 4 way tee and all required necessary specials etc., complete. jointing with rubber ring and solvent joints providing MS brackets grouted in the wall and fasteners cutting and making good the walls and floors (pipes running expose in sanitary ducts) supreme or prince quality pipes. 150 mm dia complete as per direction of Engineer In-Charge.	RM	20.00	81.68	1634.00
88	Providing & fixing 100 mm PVC for gully, floor or nahani trap at all heights and levels complete as per direction of Engineer In-Charge.	Each	6.00	357.36	2145.00
89	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :25 mm nominal bore complete as per direction of Engineer In-Charge.	Each	6.00	326.13	1957.00
90	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :32 mm nominal bore complete as per direction of Engineer In-Charge.	Each	2.00	381.30	763.00
91	Providing and fixing brass stop cock of approved design, quality and make 15mm NB complete as per direction of Engineer In-Charge.	Each	5.00	198.47	993.00
92	Providing and fixing brass stop cock of approved design, quality and make 20mm NB complete as per direction of Engineer In-Charge.	Each	5.00	214.15	1071.00
93	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc. 15 mm nominal outer dia Pipes	meter	20.00	268.73	5375.00
94	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc. 20 mm nominal outer dia Pipes	meter	60.00	313.67	18820.00

CONTACTOR (SIGN AND SEAL)

PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
95	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making good the walls etc. 25 mm nominal outer dia Pipes	meter	60.00	368.64	22119.00
96	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall. 32 mm nominal outer dia Pipes	meter	20.00	315.24	6305.00
97	Providing and fixing brass bib cock of approved quality: 15 mm nominal bore complete as per direction of Engineer In-Charge.	Each	8.00	198.47	1588.00
98	Providing and fixing brass bib cock of approved quality 20 mm nominal bore complete as per direction of Engineer In-Charge.	Each	8.00	214.15	1714.00
99	Providing and fixing brass stop cock of approved design, quality and make 15mm NB complete as per direction of Engineer In-Charge.	Each	8.00	198.47	1588.00
100	Providing and fixing brass stop cock of approved design, quality and make 20mm NB complete as per direction of Engineer In-Charge.	Each	8.00	214.15	1714.00
101	Providing and fixing vista make vertical blind of approved color and brand cost is inclusing of supply of materials, fixing, labour charges, transportation all leads, lifts, taxes etc. complete at all height and levels complete as per direction of Engineer In-Charge.	Sqm	65.00	433.94	28207.00
102	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete: Serrated with central bulb (225 mm wide, 8-11 mm thick)	meter	40.00	185.78	7432.00
103	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete. 600 mm dia RCC pipes	Sqm	38.00	1957.86	74399.00
104	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer. G.I. pipes	kg	442.20	103.65	45834.00
105	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of T-iron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, toppers, handles, including applying a priming coat of approved steel primer.	Sqm	16.00	5687.85	91006.00
				TOTAL AMOUNT: (A) **(Civil works for RCC Control Room, RCC Equipment Rooms, RCC Oil Pit)**	**Rs. 7,918,784.00**

CONTACTOR (SIGN AND SEAL)

PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
(B) Electrical works					
SL. NO.	**DESCRIPTION**	**UNIT**	**QTY**	**ITEM RATE (Excluding GST)**	**AMOUNT**
106	LED indoor luminaire, industrial grade with diffuser and heat sink, minimum 3-star BEE rating, 36W, 240V, Philips/ Surya Roshini / Wipro/ Bajaj/ Crompton make as per LM79- 08 & LM80-15 standards as approved by NTPC/BHEL	Nos	35.00	3104.08	108643.00
107	LED indoor luminaire, industrial grade with diffuser and heat sink, minimum 3-star BEE rating, 18W, 240V, Philips/ Surya Roshini / Wipro/ Bajaj/ Crompton make as per LM79- 08 & LM80-15 standards as approved by NTPC/BHEL	Nos	20.00	1034.69	20694.00
108	LED bulkhead luminaire around the building (on the outer walls), 9W, 240V, minimum 3 star BEE rating, Philips/ Surya Roshini / Wipro/ Bajaj/ Crompton make as per LM79-08 & LM80-15 standards as approved by NTPC/BHEL	Nos	20.00	137.96	2760.00
109	Ceiling fan 1200 mm sweep 5 star type of reputed make as approved by NTPC/BHEL	Nos	6.00	2414.29	14486.00
110	Fan regulator Modular type of reputed make as approved by NTPC/BHEL	Nos	6.00	172.45	1035.00
111	6A modular type switch of reputed make as approved by NTPC/BHEL	Nos	100.00	103.47	10347.00
112	6A, 1ph, 5 pin, switched socket outlet Modular type of reputed make as approved by NTPC/BHEL	Nos	10.00	103.47	1035.00
113	16A, 1ph, 5 pin, switched socket outlet Module type of reputed make as approved by NTPC/BHEL	Nos	10.00	206.94	2070.00
114	3x6A, 1ph, 5 (2-3) pin socket outlet controlled by one 16A switch of reputed make as approved by NTPC/BHEL	Nos	5.00	344.90	1725.00
115	25A, 1ph, 5 pin, industrial socket with MCB enclosure of reputed make as approved by NTPC/BHEL	Nos	8.00	241.43	1932.00
116	63A, 3ph, 415V, industrial socket with MCB enclosure of reputed make as approved by NTPC/BHEL	Nos	2.00	338.69	678.00
117	Exhaust fan 450mm of reputed make as approved by NTPC/BHEL	Nos	12.00	6553.07	78637.00
118	Power distribution board of reputed make as approved by NTPC/BHEL	Nos	2.00	5173.48	10347.00
119	Cables, cable conduits for the above, all conduits (Embedded in wall or floor) including accessories shall be 1" pvc pipe (dia) of reputed make as approved by NTPC/BHEL	Mtr	1500.00	27.60	41400.00
120	4CX25 Sq mm Cu Cable of reputed make as approved by NTPC/BHEL	Mtr	50.00	310.41	15521.00
				TOTAL AMOUNT: (B) Electrical works	**Rs. 311,310.00**

CONTACTOR (SIGN AND SEAL)

PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT

(C) Civil Works for Pooling station includes Inverter Transformer foundations, platforms for PCU, HT Panels , electrical equipment's

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
121	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.all type of soil as per direction of Engineer in charge.	Cum	1983.00	119.29	236560.00
122	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in soft rock complete as per direction of Engineer in charge.	Cum	105.00	231.21	24277.00
123	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 2km and lift upto 1.5m, disposed earth to be levelled and neatly dressed at location shown by BHEL/NTPC.in Hard rock complete as per direction of Engineer in charge.	Cum	105.00	666.63	69996.00
124	Filling available excavated earth/murram (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 2 km and lift upto 1.5 m complete as per direction of Engineer in charge.	Cum	1635.00	144.09	235588.00
125	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:3:6 (1 Cement : 3 coarse sand (zone-III) : 6 graded stone aggregate 20 mm nominal size).	Cum	169.00	4105.97	693909.00
126	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work upto floor V level : 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20/10mm mm nominal size) complete as per direction of Engineer in charge.	Cum	3.00	4453.32	13360.00
127	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : 1:1½:3 (M20) (1 Cement: 1½ coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size).	Cum	14.00	4730.12	66222.00
128	Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. All works upto floor level	Cum	470.00	5291.98	2487233.00
129	Centering and shuttering including strutting, propping etc. and removal of form for :Foundations, footings, pedestal, bases of columns etc. for mass complete as per direction of Engineer in charge.	sqm	1160.00	186.86	216760.00
130	Centering and shuttering including strutting, propping etc. and removal of form for all heights : plinth beams, Tie/Lintel beams, girders, bressumers and cantilevers FOR ANY HEIGHT	sqm	744.00	362.14	269436.00
131	Centering and shuttering including strutting, propping etc. and removal of form for Suspended floors, roofs, landings, balconies and access platform complete as per direction of Engineer in charge. FOR ANY HEIGHT	sqm	371.00	454.64	168672.00
132	Centering and shuttering including strutting, propping etc. and removal of form for all heights : Walls (any thickness)/cable trench wall including attached pilasters, butteresses, plinth and string courses etc.	sqm	508.00	399.70	203049.00
133	Supplying and filling in plinth with sand/murrum under floors, including watering,ramming, consolidating and dressing complete.	Cum	50.00	1281.20	64061.00
134	Dry stone filling for Soak pit AVERAGE 40mm down graded stones including supply of stones, filling and preparing surface complete.	sqm	125.00	479.01	59877.00
135	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure upto plinth level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	25.00	3478.51	86963.00

CONTACTOR (SIGN AND SEAL)

PRICE BID

CONSTRUCTION OF RCC CONTROL ROOM, RCC EQUIPMENT ROOMS, RCC OIL PIT AND CIVIL WORKS FOR POOLING STATION INCLUDES INVERTER TRANSFORMER FOUNDATIONS, PLATFORMS FOR PCU, HT PANELS , ELECTRICAL EQUIPMENT'S AND OTHER ASSOCIATED WORKS FOR 25 MWP (AC) FLOATING SOLAR PV POWER PLANT FOR NTPC AT SIMHADRI, A. P.

SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
136	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	10.00	4979.34	49794.00
137	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand)	sqm	10.00	611.46	6115.00
138	Random rubble masonry with hard stone in foundation, below fencing and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20mm nominal size) upto plinth level for fencing work with :Cement mortar 1:6 (1 cement : 6 coarse sand). Complete as per direction of Engineer-in-charge.	cum	10.00	4015.24	40153.00
139	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and finishing with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 coarse sand) finished rough with sponge. EXTERNAL PLASTER	sqm	110.00	273.26	30059.00
140	12 mm cement plaster of mix : 1:4 (1 cement: 4 coarse sand) DRAIN PLASTER	sqm	262.00	181.15	47463.00
141	Cement concrete flooring (with ironite hardener) 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement, including cement slurry, etc. complete. 50 mm thick with 10 mm nominal size stone aggregate IS 2571	sqm	308.00	516.60	159113.00
142	Finishing with acid and or alkali resistant Epoxy paint/COATING, 2mm thk heavy duty industrial grade (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On concrete work	sqm	10.00	124.25	1243.00
143	Cement plaster skirting up to 30 cm height, with cement mortar 1:3 (1 cement : 3 coarse sand), finished with a floating coat of neat cement. 18 mm thick	sqm	46.00	341.87	15727.00
144	Finishing walls with Acrylic Smooth exterior weather proof paint of required shade : New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior weather proof primer applied @ 2.20 kg/10 sqm) EXTERNAL	sqm	110.00	108.04	11885.00
145	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre (for Internal walls and ceiling), of approved manufacturer, of required shade and colour complete, as per manufacturer's specification: Two or more coats on new work INTERNAL WALLS AND CEILING (EXCEPT SCADA ROOM)	sqm	10.00	57.17	572.00
146	Finishing walls with water proofing cement paint of required shade : New work (Two or more coats applied @ 3.84 kg/10 sqm all complete as per direction of Engineer-in -charge	sqm	262.00	59.86	15684.00
147	Diluting and injecting chemical emulsion for POST- CONSTRUCTIONAL anti-termite treatment (including the cost of chemical emulsion) :Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor: With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	sqm	10.00	675.98	6760.00
148	Kota stone slabs 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement: 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	sqm	51.00	1187.39	60558.00
149	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building, all complete as per the architectural drawings, with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand), laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade, including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. Polished Granite stone slab, colour as approved by Engineer In-charge.	sqm	10.00	2313.45	23135.00
150	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto all level. High strength deformed Thermo-Mechanically Treated bars with corrosion inhibitors corrosion resistant steel CRS re-bars with fusion bonded Epoxy coated (FBEC) re-bars or Zinc Coated re-bars of grade minimum Fe-500 or more and shall conform to IS: 1786.	kg	46953.00	64.00	3004992.00

CONTACTOR (SIGN AND SEAL)

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SL. NO.	DESCRIPTION	UNIT	QTY	ITEM RATE (Excluding GST)	AMOUNT
151	Providing and fixing G.I. chain link mesh fabric fencing of required width in mesh size 25 X25 mm /40X40MM made of G.I. wire of dia 4 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required both ends twisted conforming to IS 2721 complete as per the direction of Engineer-in-charge.	sqm	477.00	522.96	249454.00
152	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	kg	32417.00	66.75	2163770.00
153	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.Hot finished welded type tubes	kg	2000.00	94.10	188207.00
154	Hot dip galvanisation of fencing column post, fencing Flat, fencing Stay post and other structure steel works. thickness 86 micron	kg	2842.00	21.78	61888.00
155	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required. In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete	kg	50.00	61.43	3072.00
156	Fencing with R.C.C./Steel post placed at required distance, embedded in cement concrete, corner post shall be strutted on both sides and end post one side only, provided with horizontal lines and two diagonals of barbed wire weighing 9.38 kg per 100 metres (minimum), between the two posts fitted and fixed with G.I. staples on wooden plugs or G.I. binding wire tied to 6 mm bar nibs fixed while casting the post (cost of R.C.C. posts, struts, earth work and concrete to be paid for separately) :- Payment will be made as per metre cost of total length of barbed wire used.	meter	716.00	7.87	5637.00
157	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work	sqm	200.00	79.70	15941.00
158	Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) Flush/ Ruled pointing	sqm	10.00	187.22	1873.00
159	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm + 0.05 %, total coated thickness with zinc coating 120 gsm as per IS: 277 in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches while transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	sqm	507.00	411.67	208719.00
	TOTAL AMOUNT: (C) Civil Works for Pooling station				**Rs. 11,267,777.00**

Activities	Summary of the activities	
A	Civil Works for RCC Control Room, RCC Equipment Rooms, RCC Oil Pit	Rs. 7,918,784.00
B	Electrical works	Rs. 311,310.00
C	Civil Works for Pooling station	Rs. 11,267,777.00
	Total value of the works (rounded off)	**Rs. 19,497,871.00**
QUOTE PERCENTAGE (%) ABOVE/BELOW (+/-) (OR) AT PAR TO TOTAL AMOUNT		
QUOTED PERCENTAGE (%) IN WORDS ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT		
Plus applicable GST		

NOTE:
1. CONTRACTOR SHOULD QUOTE PERCENTAGE (%) ABOVE/BELOW (OR) AT PAR TO TOTAL AMOUNT
2. QUOTED PERCENTAGE (%) IS APPLICABLE ON ALL ITEM RATES UNIFORMLY.

CONTACTOR (SIGN AND SEAL)