

**Bharat Heavy Electricals Ltd**  
Electronics Division  
Mysore Road, Bangalore – 560 026

Tender Document for  
Supply, Installation, Testing and Commissioning of NCT and four pole  
structure at KPCL 10MW SPV plant, Shivasamudram.

**Due date and time for tender document submission: 14-March-2016 before 1:00 PM**

**This tender document contains 37 pages**

- 1) Cover page (this page): 1 page
- 2) Part-I Technical-cum-commercial bid - 2 pages
- 3) Part-I Notice Inviting Tenders – 33 pages
- 4) Part-II Price bid -1 page

**Enclosures to this document:**

- 1) Works specification PS-439-1014.
- 2) Annexure-1 :BH-KP10-NCT – Details of mounting structure for NCT.
- 3) Annexure -2: BH-KP10-060 – GA for four pole structure.

**Documents to be submitted along with tender:**

- 1) Offer shall be submitted in two parts: Part-I and Part-II as below:
- 2) Part-I shall contain following documents:
  - a) Filled-up Part-I technical-cum-commercial bid (Two pages in this document.)
  - b) Notice inviting tenders (33 pages) signed by contractor with seal, on all pages.
- 3) Part-II is price bid (1 page), which shall be filled up with price per unit, individually for all the activities. Further, it shall include commercial terms as taxes, etc.
- 4) Part-I and Part-II shall be submitted in two separately sealed envelopes, identified by suitable noting written on the cover.
- 5) Part-I and Part-II sealed envelopes should be put in a large outer envelope, with the BHEL tender reference, name of works and name & address of the tenderer written on the envelope.

**Note:**

- 1) Tender document shall be addressed to Sr DGM (SC&PV-System Engg), BHEL, Electronics Division, Mysore road, Bangalore 560 026.
- 2) Tender document shall be handed over to Sr DGM (SC&PV –System Engg), BHEL, Electronics Division, Mysore road, Bangalore 560 026.



BHARAT HEAVY ELECTRICALS LIMITED, ELECTRONICS DIVISION  
MYSORE ROAD, BANGALORE-560026

DEPARTMENT : SC & PV

SECTION : PV SYSTEM ENGINEERING

REF.TENDER ENQUIRY NO: **EDN:PVSE:KPCL:NCT&FOUR POLE:001** DATED : **01.03.2016**

**PART-I TECHNICAL-CUM-COMMERCIAL BID (To be furnished by the Bidders)**

- 01. NAME OF THE WORK : **Execution of works as per specification PS-439-1014**  
For KPCL 10MW SPV plant at Shivasamudram, Mandya Dist.
- 02. APPROXIMATE ESTT COST : 2.38 lakhs
- 03. STIPULATION PERIOD / PENALTY / PRICE VARIATION CLAUSE : (a) **Stipulated completion period: 8 weeks from the date of work order for all the activities put together.**  
(b) **Penalty for delayed completion of work:**  
Penalty of 0.5% per week of delay on the total value of the Pending activities, subject to ceiling of 5%.  
(c) **Payment:**  
(1) Advance payment from BHEL is not applicable.  
(2) 100 % Payment after completion of work and duly certified by BHEL engineer.  
(d) **Price variation clause (PVC) is NOT applicable.**  
(e) Offer shall be made for all the activities.  
Otherwise, offer is liable for rejection.
- 04. NAME OF THE CONTRACTOR : .....
- 05. ADDRESS : .....  
(A) OFFICE : .....  
.....  
.....  
TEL.PH NO : .....  
(B) RESIDENCE : .....  
.....  
TEL.PH NO : .....
- 06. QUALIFICATION : .....
- 07. STAFF STRENGTH : .....  
(A) TECHNICAL : .....  
(B) GENERAL : .....
- 08. PLANT/EQUIPMENTS : .....

CONTRACTOR  
(With Seal)

EMPLOYER

- 9 a) SCOPE OF WORK : UNDERSTOOD/ NOT UNDERSTOOD  
(as per works specification **PS-439-1014**)  
b) ACCEPT TO EXECUTE IN TOTAL : YES/ NO
10. FINANCIAL TURN OVER DURING :  
LAST 3 YEARS (please enclose copy of details)
11. GRADE A LISENCE DETAILS :
12. EMD PARTICULARS : **Not applicable**  
(A) CASH : -  
(B) DEMAND DRAFT : -
13. ACCEPTANCE OF :  
(A) DRAWINGS :  
(B) DESIGNS :
14. a). WHETHER REGISTERED WITH GOVT. AGENCIES :  
SUCH AS CPWD/STATE PWD/MES/RAILWAY/  
OTHER PUBLIC SECTOR UNDERTAKING ETC.,  
b) VALIDITY OF REGISTRATION :
15. BHEL'S PAYMENT TERMS : WHETHER ACCEPTABLE / NOT
16. Has offer been provided for all the **activities**? : YES / NO

CONTRACTOR  
(With Seal)

EMPLOYER



**Bharat Heavy Electricals Limited (Electronics Division)  
Mysore Road, Bangalore - 560 026.**

**NOTICE INVITING TENDERS**

1. TENDER NUMBER : REF:EDN:PVSE:KPCL:NCT&FOUR POLE DATED : 01.02.2016
2. NAME OF THE WORK : **Execution of works as per specification PS-439-1014**  
For 10MW Grid connected Solar Photovoltaic Power Plant  
at KPCL,SHIVASAMUDRAM,KARNATAKA.
3. STIPULATION PERIOD/ PENALTY/  
PRICE VARIATION CLAUSE : (a) **Stipulated completion period:**  
**8 weeks from the date of work order**  
**for all the activities put together.**  
(b) **Penalty for delayed completion of work:**  
Penalty of 0.5% per week of delay on the total value of the  
Pending activities, subject to ceiling of 5%.  
(c) **Payment:**  
(1) Advance payment from BHEL is not applicable.  
(2) 100 % Payment after completion of work and duly certified  
by BHEL engineer.  
(d) **Price variation clause (PVC) is NOT applicable.**  
(e) Offer shall be made for all activities.  
Otherwise, offer is liable for rejection.
4. ESTIMATED COST : -
5. EARNEST MONEY DEPOSIT : Not applicable.
6. SECURITY DEPOSIT (SD) : Not applicable.
7. LAST DATE AND TIME FOR  
THE SUBMISSION OF DULY  
FILLED IN TENDER DOCUMENT : BEFORE 1.00 PM ON 14-03-2016 (MONDAY)
8. PLACE OF SUBMISSION OF  
TENDER DOCUMENT & PLACE : **Tender to be handed over to:**  
Sr DGM (SC&PV-System Engg)  
BHEL, Electronics Division, Mysore Road,  
Bangalore 560 026.
- 9.
10. DATE AND TIME FOR TECHNICAL:  
BID OPENING : At 1:30 PM ON 14-02-2016.

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**NOTE:**

**The Tenderer shall return the duly filled in Tender document after affixing signature on all pages.**

ISSUED TO CONTRACTOR:



**Bharat Heavy Electricals Limited**  
**(ELECTRONICS DIVISION)**  
**MYSORE ROAD, BANGALORE - 560 026.**

**INSTRUCTION TO TENDERER**

1. Sealed Tenders for the above noted work are hereby invited from Contractors experienced in works of similar kind and magnitude.
2. Tenders should be addressed to the SrDGM (SCPV-System Engg), Electronics Division, Bharat Heavy Electricals Limited, Mysore road, Bangalore – 560 026, superscribing the Tender reference, Name of Work and Name and Address of the Tenderer.
  - 2.1 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) and telex numbers.
3. All entries in tender documents should be in one ink. Eraser and over writing are not permitted. All cancellation and insertion should be duly signed by tenderer concerned with proper indication of the name designation and address of the person signing.
4. 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.
5. Unit rate should be quoted in figures as well as in words in Indian Currency only i.e. Rupees and Paise 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 an account of Octroi, Sales Tax, tax on work contract etc., and also expenses towards all statutory formalities (see clauses 8, 39 and Annexure 'C'). Amount of each item and total on each sheet as also the grand total amount of the whole contract shall be filled by the tenderers.
6. In case the rate quoted in figures differs from those quoted in words, the lower of the rates will be taken as the tendered rate and shall be binding on the tenderer.

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7. In quoting rates, the tenderer are advised to take into account all factors including any fluctuations in market rates. No claim for enhanced rates will be entertained on this account after acceptance of the tender or during the currency of the contract.
8. The rate to be quoted by the tenderer shall be firm and shall cover and include all applicable 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. The tenderer shall note that no claim for enhancement rates, on the ground that existing statutory levies have been increased, or that new statutory levies have come into effect after tender, or on any other ground, will be entertained on any account.
9. (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 their quoted rates, once the tenderer has submitted his quotation and during execution of contract in case his tender is accepted.
10. Quantities shown in the schedule are only approximate and are liable to variation without entitling the Contractors to any compensation.
11. 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 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.
12. 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.

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13. 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 effect 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.
14. 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 later case, a copy of the power of Attorney duly attested by the Gazetted Officer must accompany the tender.
15. If in any case, the date of Tender Opening falls on holiday, the Tender will be opened on the next working day.

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16. Unless the contractor whose tender is accepted signs contract agreement within fifteen days (15 days) of the date of the order directing him to do so, the amount of Earnest Money already deposited by him may be forfeited and acceptance of the tender withdrawn.
17. If after opening of tenders a tenderer revokes his tender or increase his 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 him will be forfeited and acceptance of his 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 forfeited will be based on value of the contract so awarded.
18. 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 there of. In the case of acceptance of a part of tender, the time for completion may also be reduced to the extent considered approximately by the accepting authority.
19. Conditional and Unsigned tenders, tender containing absurd rates and amounts, tenderer 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.
20. The Contractors not borne on the approved list of Contractors of this organization must submitted the following testimonials simultaneously with their tender superscribed. These testimonials shall be signed by the person(s) issuing the same indicating their name designation and full address  
.....  
.....
  1. A certificate to establish that the tenderer is an independent contractor working on his own.
  2. At least 2 certificate from the responsible Officer of Government or Firms of repute, regarding the tenderers capacity to undertake and carryout the work tendered for similar work satisfactorily.
  3. A certificate from the Bank of standing or magistrate regarding the tenderer financial position.Note: (a) Copies of testimonials unless attested by a Gazetted Officer will not be accepted.  
(b) Non submission of the above testimonials simultaneously with the tenders may result in the tenders being rejected.

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21. The tenders should be accomplished by a list of Contractors already held by the Contractor 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.
22. Tenders submitted by the post should be sent by “Registered Post with acknowledgement due”. These should 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.
23. The Contractors responsibility under this contract shall commence from date of receipt of the order or acceptance of tender.
24. If tenderer expires after the submission of the tender or acceptance of his tender, the BHEL, may at their discretion cancel such tender.  
If a partner of a firm expires after the submission the tender, after the acceptance of tender, BHEL, may cancel such tenders at their discretion unless the firm retains its character/s.
25. THE BHARAT HEAVY ELECTRICALS LIMITED will not be bound by any power of Attorney granted by the tenderer or changes in the composition firm made subsequent to execution of 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.
26. If the tenderer deliberately gives wrong information on his tender, the BHEL reserves the right to reject such tender at any stage.
27. Words imparting the singular number shall also be deemed to include the plural number and vice-versa where the context so require.
28. The General and Special Conditions are complementary to each other and where they are in conflict, the special condition shall prevail.
29. The expenses for completing the stamping agreement shall be paid by the contractor.

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30. Unless or otherwise stated above tendered work includes supply, erection, testing and commissioning of equipments as agreed to in the contract.
31. After completing of the job, the contractor has to furnish actual drawings of work done in consultation with Engineer-in-charge.
32. Any covering letter and comments of the Contractor should be submitted in duplicate along with the offer.
33. Cement for carrying out Civil Works will be supplied by Contractor.
34. 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.
35. Should a tenderer or a contractor on the list of approved contractors has a relative or in the case of firm or Company of Contractors any of its share holders relative is employed in a Gazetted Capacity in the Electronics Division of Bharat Heavy Electricals Limited, Banalore-26, 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 come to light, the relevant provisions of the General Conditions of Contract will apply.
36. These 'INSTRUCTIONS TO TENDERERS' & 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. In cases of variation between the two in any matter, the conditions in the 'THE INSTRUCTIONS TO TENDERERS' shall prevail. Extracts of some of the important clauses of BHEL G.C.C are enclosed (Annexure containing extracts of clauses 20, 38 and 58 of BHEL G.C.C).
37. 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 equipments to be brought by the tenderer. Suitable power point will be provided and tapping from the power point equipment shall be done using proper size of cables equipments and after getting approval of connections from our Engineer-in-charge.

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38. The Contractor shall comply with the all statutory provisions concerning works contracts while executing the works at the site.
39. The Contractor shall do all the formalities covering the required registration under labour laws and other statutory rules and also do the needful to satisfy compliance to filing of returns and other documentations to the appropriate authorities as required under Acts/Laws of government.
- 41.1. If any action is brought in by authorities on BHEL for the work done by the Contractor for his labourers regarding deficiencies in complying with stipulations/rules etc., the Contractor shall defend the case on behalf of BHEL and / or reimburse BHEL the expenses so incurred.
- 41.2. 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.
40. 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.
41. 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.
42. Contractor shall produce necessary records, documents, explanation whenever he is called upon to do by any Government Agencies like ESI, PF etc.

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-9-

**BHARAT HEAVY ELECTRICALS LIMITED**  
ELECTRONICS DIVISION MYSORE  
ROAD, BANGALORE-560 026

**GENERAL CONDITIONS OF CONTRACTS**

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 which has been read and accepted by me/us.

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CLAUSE 20 OF GENERAL CONDITIONS OF CONTRACT LABOUR

The Contractor shall employ labour in sufficient numbers either directly or through sub-contractors to maintain the required date of progress and of quality to ensure workmanship of the degree specified in the contract and to the satisfaction of the Engineer-in-charge. The contractor shall not employ in connection with the works any person who has not completed his eighteen years of age.

The contractor shall furnish to the Engineer-in-charge at the intervals specified by him, A distribution return of the number and description by trades of the work people employed on the works. The Contractor shall also submit on the 4<sup>th</sup> and 19<sup>th</sup> or every month to the Engineer-in-charge a true statement showing in respect of the second half of the preceding month and the first half of the current month (I) the accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them and (ii) the number of female workers who have been allowed maternity benefits as provided in the maternity benefit Act, 1961 or Rules made there under and the amount paid to them.

The contractor shall pay to labour employed by him either directly or through sub-contractors wages not less than fair wages as defined in the contractors Labour Regulations.

The Contractor shall in respect of labour employed by him either directly or through sub-Contractors comply with or causes to be complied with contractors labour Regulations in regard to all matters provided therein.

The Contractors shall comply with the provisions of the payment of wages Act, 1936, Minimum Wages Act, 1948, Workmen's Compensation Act 1923, Industrial Disputes Act, 1947, Maternity Benefit Act 1961 or any modifications there of or any other law relating there to and rules made there under from time to time.

The Contractors shall do the needful to satisfy the provisions of statutory laws governing labour welfare. All documentation and registrations applicable for complying with these provisions shall be the responsibility of the contractor and if required he shall produce the records if called to do so.

The Contractor shall be liable to comply with statutory requirements in respect of remittances as per rules and regulations in respect of all labour employed by him for the execution of the contract.

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The Engineer-in –charge shall on a report having been made by an Inspecting Officer as defined in the Contractors Labour Regulations have the power to deduct from the moneys due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non fulfillment of the conditions of the contract for the benefit of workers, non - payment of wages or of deductions made from him or their wages which are not justified by the terms of the contract of non observance of the said contractor’s Labour Regulations.

The Contractors shall indemnify the BHEL against any payment to be made under and for observance of the Regulation aforesaid without prejudice to his right to claim indemnity from this sub-contractors.

In the event of the contractor committing a default or breach of any of the provisions of the aforesaid contractors Labour Regulations, as amended from time to time or furnishing any information or submitting or filling any form/Register/Slip under the provisions of these Regulations which is materially incorrect then on the report of the Inspecting Officers as defined in the Contractors Labour Regulations, the contractor shall without prejudice to any other liability pay to the BHEL a sum not exceeding Rs.50/- as liquidated damages for every default breach or furnishing, making, submitting, filling materially incorrect statement as may be fixed by the Engineer-in-chare and in the event of the contractor’s default continuing in this respect, the liquidated damages may be enhanced to Rs.50/- per day for each day of default subject to maximum percent of the estimated cost of works put to tender . The contractor shall defend the case by himself any action brought in by such Government Agencies for non-compliance of any Labour Regulations and / or reimburse the expense incurred by BHEL in this regard.

The Engineer–in-charge shall deduct such amount from bills or security deposit of the contractor and credit the same to the welfare fund constituted under Regulations. The decisions of the Engineer-in-charge in this respect shall be final and binding.

#### MODEL RULES FOR LABOUR WELFARE

The Contractor shall at his own expense comply with or cause to be complied with model Rules for Labour Welfare as appended to these conditions or rules framed by Government from time to time for the protection of health and for making sanitary arrangements for workers employed directly or indirectly on the works, In case the Contractors fails to make arrangements as aforesaid the engineer-in-charge shall be entitled do so and recover the cost thereof from the contractor.

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## SAFETY CODE

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

1. Before commencing the work, contractor submit a “SAFETY PLAN” to the authorised 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 authorised 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 authorised BHEL officials: -
  - (i) Safety Helmets conforming to IS-2925: 1984.
  - (ii) Safety Belts conforming to IS-3521: 1983.
  - (iii) Safety Shoes conforming to IS-1989: 1978.
  - (iv) Eye and Face protection devices conforming to IS-8520: 1977 and IS-8940: 1978.
  - (v) 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 authorised BHEL official who shall have the right to ban the use of any item.

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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 authorised 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 authorised 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's or agency's. 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.

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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 authorised 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 authorised 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 authorised 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.

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**CLAUSE 38 OF BHEL GENERAL CONDITIONS OF CONTRACT**

**INSURANCE OF WORKS AGAINST DAMAGE AND LOSS DUE TO FIRE, STRIKE, TEMPEST, FLOODS, EARTHQUAKE, RIOT AND AGAINST DAMAGE BY AIRCRAFT**

The Contractor shall, within one month after the date of acceptance of the contract, insure the work against loss and damage by fire, tempest, floods, earthquake, riots, strike & against damage by aircraft with an insurance office approved by the Accepting officer from the date of acceptance of work or actual commencement of work whichever is earlier. Such insurance shall be effected in the name of BHEL and shall be for the full value of the contract sum. The contractor shall lodge with the BHEL the policies and receipts of the premiums for such insurance and shall maintain such policies in force until the entire completion of the work as certified by the Senior Engineer.

If the contractor fails to comply with the terms of this condition the Accepting Officer may insure the work and may deduct. The amount of premium from any money that may become payable to the contractor or may at his discretion refuse payment of any advance to the contractor until the contractor shall have complied with the terms of this condition.

Such insurance whether effected by the Accepting Officer or the Contractor shall not be a limit or bar to the liability and obligation of the contractor to complete the entire work in all respects as certified by the Senior Engineer.

In case of such a loss or damage as aforesaid, the money payable under any such insurance shall be received and may be retained by the BHEL until the work is finally completed and shall then be credited to the contractor in the final statement of accounts in the event of the contract not having been previously cancelled under these conditions after taking into account the delay in completion, settlement to his workers for damages, damage to BHEL property etc.

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## 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 of all Civil Engineering works as detailed in specifications and drawings, which forms part of this Contract. The scope of work also includes cleaning/removing all debris beyond 200mtrs. or as stipulated in the item schedule from building location and leveling the areas as per direction of the Engineer-in-charge.

The scope of work under this contract shall cover supply of all materials, labour, tools, plants etc., unless otherwise specified in the specifications, descriptions of items or in foregoing clauses.

### 3. SITE CONDITIONS

**Before tendering the Contractor shall get himself/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.

CONTRACTOR

EMPLOYER



#### **4. SITE FACILITIES:-**

##### **4.1. 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 conditions. In case of any failure by the contractor, the employer will get inside cleared at risk and cost of the Contractor

##### **4.2. POWER AND WATER SUPPLY**

Power and water required at site for execution of the works shall be arranged by the contractor at his expense and risk. BHEL is not responsible for any failure of water/electricity supply and the contractor will have to make his own arrangements for the same, without claiming any extra rate.

##### **4.3. 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.

**5.0** a) The 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 he shall bear all the costs arising or ensuring there from.

CONTRACTOR

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

c) The work shall be carried out as per detailed drawings supplied by the employer. Only two copies of the working drawings shall be supplied progressively to the contractor free of cost. The contractor shall keep one set of drawings fully cloth back at his own expenses always available at site for reference of Engineer-in-charge and other representatives.

In case the contractor desires to obtain additional copies of drawings, the same shall be supplied by the Employer on payment of charges as fixed by the Engineer-in-charge.

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 he 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.

CONTRACTOR

EMPLOYER

#### **6.0 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.

#### **7.0 SAFETY PRECAUTIONS**

The contractor shall at times observe the safety code enclosed 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.

#### **8.0 RATES**

The rates to be quoted are intended to provide for works duly and properly completed in accorded 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 shall be deemed include the above services and no separate payments shall be made towards these.
- b) The cost of all superintendence and labour materials, tools, plants, equipments, 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.

CONTRACTOR

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- 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 revise payable on the transactions.
- d) Watching and lighting arrangements as required for satisfactory performances.
- e) Settings out of works profiles etc., and of construction repair and up-keep of all center lines, bench marks and levels and page there of including provisions of masonry/concrete pillars showing the center line of structure/gridlines and levels and maintenance and protection of the some including providing fencing etc., through out the period of contract.
- f) Brooting, maintenance and removal of temporary works and buildings.
- g) Supply of complete, Moulds, cost of testing of materials etc.
- h) Working in all conditions including in/under water liquid, conditions etc., and shall also include boiling or pumping out water from the foundations, basements or any other sources of whatsoever deslushing and allied operation at any stage of work including all suspension period and delays whatsoever. Cost of curing including pumping and curing water whatever necessary.
- i) 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.
- j) Diversion and draining works, protection works, temporary facilities, bridges, gangway.
- k) Work at all depth in foundation below the ground level and in superstructure upto all height above ground level including all lifts and dissents involved at any other place of work and disposed/barrow areas.
- l) Unless otherwise specified in the specification schedule cost of all loads.
- m) Provision of centering, scaffolding, strutting props etc.,
- n) All materials and labour required for fencing is an protection against risk of accidents and for providing necessary/planking strutting with hand rails, gum boots, helmets, safety belts etc., during the progress of work.
- o) All prevention on compensation for trespass of barrier arrangements for the safety of the public or employees during the provision of works.

CONTRACTOR

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- p) Works in all shapes inclined or curved and all sizes as shown or as are required.
- q) Cleaning the site after the completion of work of all debris, left out construction materials, machine equipment's, temporary offices, stores, work shop etc., including microdressing the area in neat and clean shape.
- r) Such other incidental charges or contingencies as may have been provided for in the specifications.

**09 LABOUR COLONIES: -**

No labour camp will under any circumstances be permitted within the KPCL 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. 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 necessary.

**12. EXTRA ITEMS**

No extra items of work shall be carried out by the contractor other than those authorised to do so in writing by the Engineer. For any such items of work executed as per instructions of Engineer-in-charge/Civil Engineer. The rates will be fixed on the basis indicated under clause 50 of BHEL GCC.

The schedule of rates to be followed in this case will be CPWD schedule of rates.

CONTRACTOR

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**13. 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.

**14. 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 for deviation subject to minimum of (-) 20% and maximum (+) 20% of the total value of work awarded. Deviation beyond the above limits is subject to the standard terms and conditions of BHEL.

**15. Materials**

(a) Supply by Employer :

Unless otherwise specified, BHEL will not supply any materials.

CONTRACTOR

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**16. SUPPLY OF CEMENT AND STEEL IS TO BE MADE BY CONTRACTOR**

**17. SUPPLY BY CONTRACTOR**

- i) The work is for a completed job including labour and supply of all materials except those otherwise specified in the bid document.
- ii) All materials supplied by the contractor according to the contract conditions shall be subject to inspection and passing by the Engineer or his representatives from time to time, the contractor providing all facilities for such inspection 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 Senior Engineer/Civil Engineer/Civil consider as 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 Senior Engineer/Civil shall be final and conclusive) the contractor shall on demand, in writing from the Sr.Engineer-civil specifying the stores and 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 Sr.Engineer/Civil Engineer/Civil and in the event of his failing to do so within a period to be specified by the Senior Engineer/C,E/C, in his demand aforesaid, the Sr.Engineer/Civil Engineer/Civil 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 extended beyond the maintenance period aforesaid except as regards stores or materials which the Sr.Engineer/Civil Engineer/Civil shall have previously given notice to the contractor to replace (Maintenance, period for any work under this organisation will be six months from the date of actual completion of the particular work and handing over to BHEL).

## **18.0 INTERRUPTION TO THE WORKS: -**

In 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.

### **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 7,9 and 41 of BHEL General Conditions of Contract.

## **19.0 COMPLETION OF WORK AND MEASUREMENT**

- a) All work shall be carried out according to authorised dimensions and measurement will be restricted to those authorised dimension even though the Contractor may for convenience of this work exceed the authorised 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 thereon 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 authorised 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 handed over to BHEL to their satisfaction. Remaining 50% of Security Deposit shall be released subject to the stipulation in our GCC after 6 months from the date of completion of the building.

CONTRACTOR

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## 20.0 **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 the his bills/dues.

## 21.0 **SECURITY DEPOSIT (if applicable)**

Upon acceptance of the tender, the successful tenderer shall within the time specified in the letter of intent deposit with the Bharat Heavy Electricals Ltd.,

Successful tenderer is to be remitted Security Deposit. The rate of Security Deposit will be as below:

Upto Rs.10 lakhs	10%
Above Rs. 10 lakhs upto Rs.50lakhs	1 lakhs + 7.5% of the amount exceeding Rs. 10 lakhs
Above Rs.50 lakhs	Rs. 4 lakhs + 5% of the amount exceeding Rs. 50 lakhs

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

- 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.

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viii) 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 clause 16(IV) of GCC.

## **22.0 RUNNING ACCOUNT PAYMENTS (if applicable)**

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.

### **ADVANCE (not applicable)**

23.0 75% of the value of imperishable materials brought to site for incorporation in the work subject to production of supporting vouchers indicating the value of materials and hypothecation of the company.

The advance shall be paid subject to the materials so brought to site are adequately stored and/or protected against damage by weather or other causes but which not at the time of payment of advance incorporated in the work. Payment of such advance however, shall be recovered from the bills pro-rata according to the quantity billed for.

No other advance will be paid.

No such materials shall be removed from the work site by the contractor without the written permission of the Engineer-in-charge.

## **24.0 STATUTORY DEDUCTION TOWARD INCOME TAX WILL BE MADE as per rules.**

25.0 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.

CONTRACTOR

EMPLOYER

- 26.0 The Contractor is required to take an 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 clause 20 of BHEL GCC.

27.0 **TIME OF COMPLETION**

The date of commencement of work shall be counted from the date of handing over the site to the contractor. The contractor shall plan the work in such a manner that all roofs are laid before the start of the rainy season and the work is not hampered due to rain. 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.

- 28.0 The Contractor has to pay the Works Contract Tax (Under Sec.19A of the KST Act 1957) of their own on Monthly basis.

- 29.0 The managements 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 non compliance 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.

CONTRACTOR

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## 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

IS 1200-1974, Method Part I Earthwork, Measurement of Building, and Civil Engineering works, and chapter No.2 of CPWD/specification 1977.

2. MORTAR (PLASTERING)

- 1) IS 2394-1965. Code of practice for application of lime plaster finish.
- 2) IS 1661-1972. Code of practice for application of cement lime plaster finish.
- 3) IS 2402-1963. Code of practice for external rendered finishes.

3. CONCRETE WORK & RCC WORK

- 1) IS 456-1964. Code of practice for plain and reinforced concrete.
- 2) IS 432(part 1) –1966. Mild steel and medium tensile steel bars.
- 3) IS 1766-1866-Cold twisted steel bars for concrete reinforcement.

4. BRICK WORK

- 1) IS 2212-1962-Code of practice for brick work.

5. STONE WORK

- 1) IS 1597-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.

CONTRACTOR

EMPLOYER

7. STEEL WORK

- 1) IS 800-1962-Code of practice for use of structural steel in general building construction.
- 2) IS 1308-1975-Steels doors, windows and ventilators
- 3) IS 1081-1960-Code of practice for fixing glazing of metal (steel & aluminium doors, windows & ventilators)
- 4) IS 1161-1968-Steel tubes for structural purposes.
- 5) IS 4351-1967-Steel doorframes.
- 6) IS-6245-5245-1971-Metal rolling shutters and rolling grills.

8. FLOORING

- 1) IS 2114-1962-Code of practice for laying in situ tarrazo floor finish.
- 2) IS 2571-1971-Code of practice for in situ cement concrete flooring.
- 3) IS 5313-1969-code of practice of lying of flexible P.V.C. sheet & tiles flooring.

9. ROOFING

- 1) IS 3007(pt-I)-1964-code of practice of laying of corrugated cement sheets.

10. FINISHING

- 1) IS 133-1975-Enamel, Interior (a) under coating (b) Finishing colour as required.
- 2) IS 348-1966-French Polish.
- 3) IS 427-1965-Distemper, dry colour as required.
- 4) IS 425-1969-Distemper, oil emulsion as required.
- 5) IS 5410-1969-Cement paint, Colour as required.
- 6) IS 5011 (pt.1)-1969-Plastic emulsion paint for interior use.
- 7) IS 6278-1971 code of practice for white washing & colour washing.

11. DEMOLITION AND DISMANTLING.

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

12. SAFETY CODE

- 1) IS 5915-1970-Safety code for construction including use of hot bituminous materials.
- 2) IS 4130-1970-Safety code for demolition of building.
- 3) IS 3754-1966-Safety code for excavation works.
- 4) IS 3606(Pt-I)-1966-Safety code for Scaffolds.

CONTRACTOR

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13. ELECTRICAL STANDARDS

- 1) IS: 2705- Current Transformer
- 2) IS: 3156 – Voltage Transformer
- 3) IS: 9921- A.C. disconnectors (isolators) and Earthing switches for voltages above 1000 V
- 4) IS:7098 (Part -II) - Specification for Cross linked polyethylene insulated PVC sheathed cables. Part-II: For working voltages from 3.3 KV upto and including 33 KV.
- 5) IS:7098 (Part -I) - Cross linked polyethylene insulated PVC sheathed cables for working voltages upto and including 1100V.

CONTRACTOR

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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 else wherein 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.

CONTRACTOR

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## CLAUSE 58 OF GENERAL CONDITIONS OF CONTRACT

### ARBITRATION:

Except where otherwise provided for in the contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions herein before mentioned as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of the Executive Director/General Manager of BHEL and if the Executive Director/General Manager is unable or unwilling to act to the sole Arbitration of some other person appointed by the Executive Director / General manager willing to act as such Arbitrator. There will be no objection if the arbitrator so appointed is an employer of BHEL or an employer of any other unit of BHEL and that he had to deal with the matters to which the contract relates and that in the course of its duties as such he had expressed views on all or any of the matters in dispute or difference. The Arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason, such Executive Director / General Manager as aforesaid at the time of such transfer vacation of office or inability to act, shall appoint another person to act as arbitrator in accordance with the terms of the contract. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by such Executive Director/General Manager or an employee appointed as arbitrator as aforesaid should act as arbitrator and the arbitrator shall give reasons for the award.

Subject as aforesaid the provision of the Arbitration Act, 1940 or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause.

CONTRACTOR

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It is a term of a contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

The arbitrator(s) may from time to time with consent of the parties extend the time, for making the publishing the award.

The work under the contract shall, if reasonably possible, continue during the arbitration proceeding and no payment due or payable to the contractor shall be withheld on account of such proceedings.

The arbitrator shall be deemed to have entered on the reference on the date he issued notice to both the parties fixing the date of the hearing.

The arbitrator shall give a separate speaking award in respect of each dispute or difference referred to him.

The venue of arbitration shall be such place as may be fixed by the arbitrator in his sole discretion.

The award of the arbitrator shall be final, conclusive and binding on all parties to this contract.

CONTRACTOR

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**PRICE BID ENCLOSURE:(To be filled up and sent in separate sealed envelope):**

**RFQ REF:EDN:PVSE:KPCL:NCT&FOUR POLE:001**

**DUE 14-03-2016**

SI No	DESCRIPTION	UNIT	QTY	RATE PER UNIT IN Rs	AMOUNT IN Rs
1	Supply of NCT structure.	lot	1		
2	Foundation of NCT structure.	AU	1		
3	Erection, testing and commissioning of NCT.	AU	1		
4	Concrete pole 9 m height.	nos	4		
5	11kv,10ka Lightning arrestors.	nos	3		
6	75x40x6 mm long MS channel for LA mounting.	nos	2		
7	Support clamp for above.	nos	4		
8	Cable support channel 75x40x6 mm ,3m long	nos	4		
9	Cable support clamp	nos	8		
10	AB switch mounting channel 75x40x6mm MTR long	SET	1		
11	AB switch mounting clamp	nos	4		
12	AB switch supporting bracing 35x35x5 mm	SET	1		
13	AB switch operating pipe	SET	1		
14	Danger board	nos	1		
15	Pipe earthing	lumpsum	1		
16	50x50x6 mm for cross bracing	nos	4		
17	PG clamps	nos	6		
18	11kv pin insulators	nos	3		
19	11kv string insulator + tension clamp fittings	nos	6		
20	ACSR conductor(Drake)	lumpsum	1		
21	20mm gravel spreading	lumpsum	1		
22	Excavation,Concreting and work completion.	lumpsum	1		
	<b>Total</b>				
	<b>Taxes on the above</b>				
	<b>Net Total</b>				

**Total in words:**



**TECHNICAL SPECIFICATION FOR SUPPLY  
ERECTION, TESTING AND COMMISSIONING OF NCT  
AND FOUR POLE STRUCTURE AT 10MW SPV  
PLANT, KPCL-SHIVASAMUDRAM**

PS-439-1014

REV NO: 00

PAGE: 1 OF 4

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**TECHNICAL SPECIFICATION FOR SUPPLY, ERECTION, TESTING AND  
COMMISSIONING OF NCT AND FOUR POLE STRUCTURE AT 10MW SPV PLANT,  
KPCL-SHIVASAMUDRAM**



**TECHNICAL SPECIFICATION FOR SUPPLY  
ERECTION, TESTING AND COMMISSIONING OF NCT  
AND FOUR POLE STRUCTURE AT 10MW SPV  
PLANT, KPCL-SHIVASAMUDRAM**

PS-439-1014  
REV NO: 00  
PAGE : 2 OF 4

**1 INTRODUCTION:**

BHEL has supplied, installed and commissioned 10MW Solar PV plant for KPCL at Shivasamudram, Karnataka. The power generated is fed to the grid through 66kv switchyard. The power generated by the solar array is stepped upto 11kv using transformers connected to the inverters. At the 66kv switchyard, a 12.5 MVA transformer further steps up this voltage to 66kv and then fed to the grid. This power transformer is provided with REF (restricted earth fault) protection for which installation of Neutral CT(NCT) is essential. This specification provides details for supply and installation of NCT structure(NCT will be supplied by BHEL) and four pole structure.

**2 DETAILS OF THE WORK TO BE CARRIED OUT:**

The vendor has to carry out the following activities:

1. Supply of four pole structure along with all accessories as indicated in the BOM (Drawing ref: BH- KP10-060).
2. Erection of four pole structure in the 66kv switchyard (Drawing ref: BH- KP10-060).
3. Termination of cables at four pole structure through bus formation for each phase.
4. Supply of structure for Neutral CT (Drawing ref: BH- KP10-NCT).
5. Erection and wiring of NCT structure.
6. All necessary wiring of NCT, testing and commissioning of NCT to ensure REF protection.

**3 TERMS AND CONDITIONS:**

1. The vendor shall ensure least generation loss from the solar plant while carrying out installation and commissioning activity.
2. The vendor shall furnish item wise price in his offer as per RFQ sent.
3. The vendors quote shall include materials required for the above work, transportation and works to be carried out at site.
4. The vendor shall possess valid service tax registration number and PAN card. The same shall be furnished along with the offer.
5. The vendor shall complete the work specified above within 8 weeks from the date of work order.
6. The vendor shall have valid super grade electrical license.



**TECHNICAL SPECIFICATION FOR SUPPLY  
ERECTION, TESTING AND COMMISSIONING OF NCT  
AND FOUR POLE STRUCTURE AT 10MW SPV  
PLANT, KPCL-SHIVASAMUDRAM**

PS-439-1014

REV NO: 00

PAGE : 3 OF 4

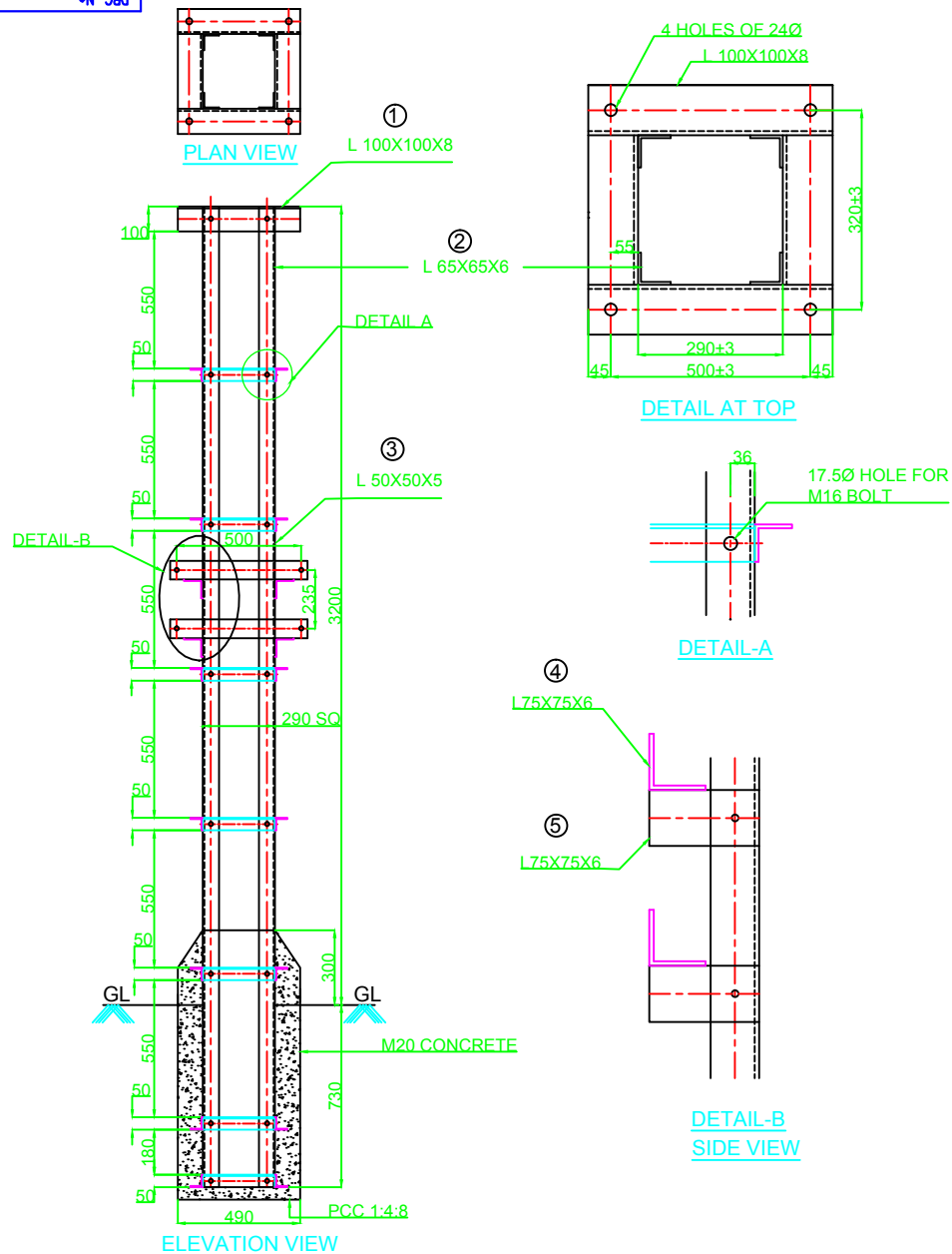
**4 PAYMENT TERMS:**

Within 30 days from the date of completion of the works as mentioned in point 2 of this specification.

Revision details :R 00	Prepared	Approved	Date
	 BKC	 SLR	02-03-2016



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## BILL OF MATERIAL

Part No	Description	Length	Qty	Weight(Kgs)
1	L 100X100X8	490	2 Nos.	11.85
	L 100X100X8	290	2 Nos.	7
2	L 65X65X6	3930	4 Nos.	93.9
3	L 50X50X5	290	28 Nos.	27.39
4	L 75X75X6	550	2 Nos.	7.48
5	L 75X75X6	150	4 Nos.	4.2
6	M-16 HARDWARE	40	68 Nos.	9.66
			<b>TOTAL WEIGHT</b>	<b>161.48</b>

### NOTE:

1. ALL DIMENSIONS ARE IN MM.
2. ALL HOLES ARE OF 17.5Ø FOR M-16 BOLTS AFTER FABRICATION.
3. WEIGHT AND DIMENSIONS INDICATED ARE SUBJECT TO TOLERANCE OF +/- 10%.
4. ALL STEEL MEMBERS SHALL CONFIRM TO IS:2026 GRADE 'A'. MINIMUM THICKNESS OF GALVANISATION SHALL BE 85 MICRONS.

REV.	DATE	ALTERED CHECKED APPROVED	REV.	DATE	ALTERED CHECKED APPROVED	NAME	SIGN	DATE
			00					
FIRST ISSUE						DRAWN	-	Sd/-
						CHECKED	-	Sd/-
						APPROVED	-	Sd/-



DEPT. CODE  
SC&PV 439

BHARAT HEAVY ELECTRICALS LIMITED.  
ELECTRONICS DIVISION, BANGALORE

TITLE: DETAIL OF MOUNTING STRUCTURE FOR 66KV NEUTRAL CURRENT TRANSFORMER		No. OF SHTS	01
SITE: 10MW,SPV PLANT,KPCL-SHIVASAMUDRAM		SHT No.	01
M.O. No.	DRG. No.	REV	00