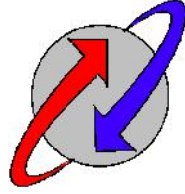


Office of the Sub Divisional Engineer (E),
BSNL Electrical Division Head Post Office
Complex , BSNL CSC, building Dharamshala-176215
Tel.No. 01892-222500



BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

(A)

**NAME OF WORK: - Construction of Type-IV Quarters for Doctors residence at PHC
Complex Banikhet Distt Chamba (HP) (SH :-SITC of Storage water heater
)**

Name of Agency :-

Date of Application :-

Date of issue of Tender
Documents :-

Cost of Tender :- **Rs.171.00**

Date of Opening :-

UNDERTAKING

It is undertaken that we have gone through all the clauses /sub-clauses & terms & conditions of the BSNL EW-6 & BSNL EW -8 forms. We abide by that & we understand that the same shall be part & parcel of the agreement.

Signature of Contractor

Sub Divisional Engineer (E)
BSNL Electrical Sub Division
Dharamshala (HP)-176215

B

**Name of Work :- - Construction of Type-IV Quarters for Doctors residence at PHC Complex
Banikhet Distt Chamba (HP) (SH :-SITC of Storage water heater)**

S.No	DETAILS	PAGE
1	CORRECTION SLIP	1
2	TENDER NOTIFICATION (THROUGH PRESS- IF APPLICABLE)	2
3	WEB NOTIFICATION	3 To 4
4	NIT (FORM BSNL EW – 6)	5 To 7
5	TENDER (FORM BSNL EW 8	8 To 13
6	IMPORTANT NOTE TO CONTRACTOR	14 To 18
7	PERFORMA FOR EMD & PREFORMANCE GUARANTEE,	19 To 21
8	DECLARATION BY CONTRACTOR	22
9	SCHEDULE OF WORK & ABSTRACT OF COST	23 To 24
10	SPECIFICATION	25 -36
11	LIST OF APPROVED MAKES	37 To 38
12	Annexures	39 To 40

This certified that this NIT contains ...40_ pages excluding pages A,B,

CORRECTION SLIP

Addendum/Modification to BSNL EW -8 & BSNL EW -6 Forms Conditions of contract-Definitions:-

All reference to :-

- i) BSNL EW /Public work department/P&T Department./D.O.T. /B.S.N.L
- ii) D.G. works/ Additional Chief Engineer BSNL EW /Chief Engineer of Zone.
- iii) Administrative Head of BSNL EW /P&T Department.
- iv) BSNL EW Circles/Civil Circle.
- v) Ministry of works, Housing & supply.
- vi) Government.

In various clauses shall be taken to mean :-

- i) Bharat Sanchar Nigam Limited.
- ii) Chief Engineer (E), Bharat Sanchar Nigam Limited.
- iii) Administrative Head of Bharat Sanchar Nigam Limited.
- iv) Telecommunications Electrical Circle.
- v) Bharat Sanchar Nigam Limited (Ministry of Communications)
- vi) Bharat Sanchar Nigam Limited

WEB NOTIFICATION

The Sub Divisional Engineer (E) BSNL Electrical Sub Division Dharamshala (HP)-176215 invites on behalf of Bharat Sanchar Nigam Limited sealed item rate tenders for the work of :- Construction of Type-IV Quarters for Doctors residence at PHC Complex Banikhet Distt Chamba (HP) (SH :-SITC of Storage water heater)

Last date of receipt of application up to **07-04-2017 (5.00 P.M.)**

For further details please visit our Web Site. www.hp.bsnl.co.in

**Sub Divisional Engineer (E)
BSNL Electrical Sub Division
Dharamshala (HP)-176215**

(3)

TENDER NOTIFICATION

The Sub Divisional Engineer (E) BSNL Electrical Sub Division Dharamshala (HP)-176215 invites on behalf of Bharat Sanchar Nigam Limited sealed item rate tenders for the work from the eligible contractors satisfying the following conditions as given below :-

Name of work	Estimated cost (Rs.)	Earnest Money Deposit (Rs.)	Time for completion
Construction of Type-IV Quarters for Doctors residence at PHC Complex Banikhet Distt Chamba (HP) (SH :-SITC of Storage water heater)	Rs 38772.00	Rs. 775.00	7 days

A. Eligibility Conditions

The Contractors satisfying the following conditions:

) BSNL enlisted contractor in Electrical category IV (E) and above.

) The Contractor shall have to possess a valid ELECTRICAL LICENCE of appropriate Voltage Issued by any State Govt. Under Clause 45 of compilation of Indian Electricity Rules 1956 or as amended from time to time, provided notification in official Gazette, exempt, on such condition.

The contractor shall also submit and confirm:

- Documentary proof of satisfying the eligibility conditions as above , copy of PAN card, copy of CA certificate for turnover, Original authorization of person quoting the tender from Directors/ Proprietor of the company, Near relative certificate from or on behalf of Directors/ Proprietor of the company.

(All the documents shall be self attested / certified by any BSNL Executive /Notary /Gazetted Officer of Central Govt.).

- The firm should be registered under the Himachal Pradesh Value Added Tax Act 2005 and should further have EPF and ESI registration certificates from appropriate Govt. authorities.
- The firms who claim to be exempted from the ESI & EPF registration need to submit an affidavit on Non-judicial stamp paper for the same as per Performa at **p.no.38** (Annexure-IV).
- If the firms do not have ESI & EPF registration, they will though be allowed to participate in the bid process, but they will have to get the ESI & EPF registration within 7 days from the date of issue of intimation from BSNL regarding intent to accept the tender, else their EMD shall be forfeited absolutely and the firm shall not be allowed to participate in the next tender for the same work. If the firm fails to produce ESI & EPF registration certificate on more than one occasion, the firm shall be barred from participating in all future tenders.
- The contractor who are not registered under Himachal Pradesh Value Added Tax Act 2005 may bid for the contract however such contractors will have to get himself registered within 7 days from the date of issue of intimation from BSNL regarding intent to accept the tender, else their EMD shall be forfeited absolutely and the firm shall not be allowed to participate in the next tender for the same work. The firm shall give an affidavit as per Performa at **page no.39** (Annexure-V) in this regard.

- The Firm should have valid service tax registration.

4

© The tenderer shall submit the tenders in 2 sealed covers marked as cover 1st and 2nd. The first cover should contain the earnest money deposited in the shape of FDR/CDR/Demand Draft/ Pay order/BG from the scheduled Bank or Nationalized Bank/State Bank guaranteed by Reserve Bank of India drawn in favour of **ACCOUNTS OFFICER (Cash) , O/o GMTD B.S.N.L., Dharamshala**, and the second cover should contain the tender documents. In case 1st cover is not annexed or earnest money is not in proper form, the 2nd cover containing tenders will not be opened at all.

© The tender documents and all other relevant information/condition can be had on all working day on payment of Rs. 171/- (One Hundred and Seventy One Only) i/c taxes in DD/Cash (non refundable).

© In case Holiday is declared on the opening date tender will be opened at 3.30 P.M. on next working day.

Note:- Tender documents can also be downloaded from the web site www.hp.bsnl.co.in The firm to quotes on the tender downloaded from web site shall strictly adhere to following procedure :-

1. The tender shall be submitted in two envelope system.

A. First envelope shall contain tender application (if tender downloaded from WEB), tender fee , attested documents proving fulfillment of eligibility criteria as per the tender notice and EMD in proper form. DD should be attached for tender fee, & Bank Guarantee/DD for EMD on Nationalized bank.

B. Second envelope shall contain duly filled tender documents.

The same shall be clearly written on the envelopes

2. The 1st envelope containing tender fee, attested documents providing fulfillment of eligibility criteria and EMD in proper shall be opened first.

In case if:-

i) Tender fee is not submitted in proper form.

ii) EMD is not in proper form.

iii) Firms fails to fulfill eligibility criteria on the basis of documents submitted in envelope.

The second envelope shall not be opened.

3. If any difference /discrepancies found between downloaded. Tender form, Viz a Viz, hard copy issued from Division office / the contents in Draft NIT issued form Div./Circle/CE (E)'s the hard copy /Draft NIT shall be final & binding.

Documentary proof of satisfying eligibility conditions and valid Income Tax clearance certificate or Chartered Accountant Certificate is to be furnished along with the application on printed letter /heads.

The tenders of contractors who do not deposit earnest money in the prescribed manner are liable to be rejected.

© **TENDER DOCUMENTS SHALL NOT BE SENT BY POST/COURIER.**

© **TENDERS RECEIVED BY POST/COURIER SHALL NOT BE OPENED /ENTERTAINED.**

© **CONDITIONAL TENDERS OR TENDERS WITH CONDITIONAL REBATES SHALL BE SUMMARILY REJECTED.**

Last date of receipt of application : 07-04-2017[5.00 P.M.]

Last date of issue of tender document : 08-04-2017 [4.00 P.M.]

Last date of submission of tender document : 10-04-2017 [3.00 P.M.]

Date of opening of tender document : 10-04-2017 [3.30 P.M.]

© Validity of tender shall be for **90 days** from the date of opening of tender.

**Sub Divisional Engineer (E)
BSNL Electrical Sub Division
Dharamshala (HP)-176215**

BHARAT SANCHAR NIGAM LIMITED**B.S.N.L EW.- 6****NOTICE INVITING TENDER**

Item rate tenders are invited on behalf of the **Bharat Sanchar Nigam Limited** from eligible contractors for the work "**Construction of Type-IV Quarters for Doctors residence at PHC Complex Banikhet Distt Chamba (HP) (SH :-SITC of Storage water heater)"**

The work is estimated to cost **Rs 38772.00**

(This estimate, however is given merely as a rough guide)

- 1- Tenders will be issued to eligible Contractors.
- 2- Agreement shall be drawn with the successful tenderer on prescribed Form No. 8 which is available as a Govt. of India Publication; Tenderer shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
- 3- The time allowed for carrying out the work will be 7 days after the date of written orders to commence the work or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any indicated in the tender documents.
- 4 The site for the work is available.

OR

~~—The site for the work shall be made available in parts:-~~

5. Receipt of applications for issue of forms will be stopped by 17:00 Hrs. on 02-11-2016 & issue of tender forms will be stopped by 16:00 Hrs. on 03-11-2016

Tender documents consisting of plans, specifications, the schedule of quantities of the various classes of work to be done and the set of terms and conditions of contract to be complied with by the contractor whose tender may be accepted and other necessary document can be seen in the office of the **SDE (E) B.S.N.L ELECTRICAL Sub DIVISION, Head post office complex BSNL CSC Building, Dharamshala-176215** between hours of 11.00 A.M. & 04.00 P.M. every day except on 2nd Saturday, Sunday and Public Holidays. Tender documents, excluding standard form No. 8 will be issued from this office, during the hours specified above on payment of **Rs.171.00 inclusive of sale tax** (non- refundable) in cash/DD .

Note:- Tender documents can also be downloaded from the web site

www.hp.bsnl.co.in

(6)

- 6- The tenders must produce a Chartered Accountant certificate in the revised form as modified under Ministry of Finance CDBT circular No. 153/191/2002-TPL dated 13-02- 2003 as amended from time to time before papers can be sold to him.
- 7 - The tender, which should always be placed in sealed envelope with the name of work and due date written on the envelopes, will be received by the **SDE (E) B.S.N.L ELECTRICAL Sub DIVISION, Head post office complex BSNL CSC Building, Dharamshala-176215** upto 03.00 P.M. on **10-04-2017** and will be opened by him or his authorised representative in his office on the same day at 03.30 P.M.
- 8- The tender shall be accompanied by earnest money, (unless exempted) of **Rs. 775.00** in Receipt Treasury Challan/ deposit at Call Receipt of a scheduled Bank/FDR issued in favour of **Account officer (Cash) , O/o GMTD B.S.N.L., Dharamshala** the amount being credited to Nationalized Bank.

The description of the work is as follows :- “Construction of Type-IV Quarters for Doctors residence at PHC Complex Banikhet Distt Chamba (HP) (SH :-SITC of Storage water heater)”

Copies of other drawings and documents pertaining to the work will be open for inspection by the tenderers at the office of the above mentioned officer. Tenderer are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity, access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plants, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

- 10- The competent authority on behalf of the **B.S.N.L.** does not bind himself to accept the lowest or any other tender, and reserves to himself the authority to reject any or all the tenders received without the assigning any reason. All tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected.

Conditional tenders or tenders with conditional rebate shall be summarily rejected.

- 11- Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.

12- The competent authority on behalf of the **B.S.N.L.** reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.

(7)

13- The contractor shall not be permitted to tender for works in the B.S.N.L Electrical Zone (Responsible for award and execution of contracts) in which his near relative is posted in any capacity in BSNL in that zone. He will also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any person employed in BSNL, in that zone. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of BSNL.

14- No Engineer of gazetted rank or other gazetted officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as contractor for a period of two years after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the tender or engagement in the contractors' service.

15- The tender for the works shall remain open for acceptance for a period of **Ninety (90)days** from the date of opening of tenders. If any tenderer withdraws his tender before the said period or makes any modifications in the terms and conditions of the tender which are not acceptable to the B.S.N.L., then the B.S.N.L. shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid.

16- The Notice Inviting Tender shall form a part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the accepting authority, shall within 7 days from the stipulated date of start of the work sign the contract consisting of :-

a) The Notice Inviting Tender, all the documents including additional conditions, Specifications and drawings, if any, forming the tender as issued at the time of invitation of Tender and acceptance thereof together with any correspondence leading thereto.

b) Standard BSNL EW Form-8

17. TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR:

Without prejudice of any of the rights or remedies under this contract, if the contractor dies, the Engineer-in-charge on behalf of the BSNL shall have option of terminating the contract without compensation to the contractor.

18. INDULGING CONTRACTOR IN CRIMINAL/ ANTISOCIAL ACTIVITIES AND CASES UNDER INVESTIGATION / CHARGE SHEETED BY CBI OR ANY OTHER GOVERNMENT AGENCIES ETC. :

If the CBI/ Independent External Monitor (IEM)/ Income Tax/ Central Excise/ Custom Departments recommends such a course- Action will be taken as per the directions of CBI or concerned department.

(9)

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

I/We agree that should I/we fail to commence the work specified in the above memorandum, an amount equal to the amount of the earnest money mentioned in the form of invitation of tender shall be absolutely forfeited to the B.S.N.L. and the same may at the option of the competent authority on behalf of the B.S.N.L. be recovered without prejudice to any other right or remedy available in law out of the deposit in so far as the same may extend in terms of the said bond and in the event of deficiency out of any other money due to me/us under this contract or otherwise.

Dated.....

Signature of Contractor

Postal Address:--

Witness:

Address:

Occupation:

ACCEPTANCE

The above tender as modified by you (contractor) and as provided in the letters mentioned hereunder is accepted by me for and on behalf of the Bharat Sanchar Nigam Limited for sum of Rs. _____

(Rupees _____)

The letters referred to below shall form part of this contract Agreement:-

- a)
- b)
- c)

For & on behalf of the B.S.N.L.

Signature _____

Dated.....

Designation _____

PROFORMA OF SCHEDULES
(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities (as per BSNL -8) As Per Page No. 23 to 24

SCHEDULE 'B'

Schedule of material to be issued to the contractor.

S.No.	Description of item	Quantity	Rates of figures & works at which the material will be charged to the contractor	Place of issue
1	2	3	4	5
1.	-----	Nil	-----	

SCHEDULE 'C'

Tools and plants to be hired to the contractor

S.No.	Description	Hire charges per day	Place of issue
1	2	3	4
		-----	NIL

SCHEDULE 'D'

Extra schedule for specific requirements/documents for the work, if any.

----- **NIL** -----

SCHEDULE 'E'

Schedule of component of Materials, Labour etc. for escalation.

CLAUSE 10CC

Component of materials expressed as percent of total value of work. "X" = NIL

Component of labour expressed as percent of total value of work. "Y" = NIL

Component of P.O.L. expressed as percent of total value of work. "Z" = NIL

SCHEDULE "F"

Reference to General Conditions of contract.

Name of Work:- Construction of Type-IV Quarters for Doctors residence at PHC Complex Banikhet
Distt Chamba (HP) (SH :-SITC of Storage water heater).

Estimated cost of work: **Rs 38772.00**Earnest money: **Rs. 775.00**

Performance guarantee: 5% of Contract Value in the form of bank guarantees (of a Nationalized / Schedule Bank in a standard format)/CDR/FDR/DD within two weeks from the date of issue of award letter. The validity period of the performance bank guarantee shall be One Year from the date of actual completion of work (**Ref. Page no. 86 of BSNL EW-8 for individual work**)

Security Deposit : In addition to performance guarantee a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the Contract value of the work. The amount shall be refunded after One Year from the actual date of completion of work.

GENERAL RULES: Officer inviting tender Sub Divisional Engineer (E)

& DIRECTIONS Maximum percentage for quantity of items of work to be executed **beyond** which rates are to be determined in accordance with Clauses 12.2 & 12.3.

As per clause **12** of Important Note For Contractors (page 15)

Direction :

2(v) Engineer-in-Charge

Sub Divisional Engineer (E)
BSNL Electrical Sub Division
Dharamshala (HP)

2(viii) **Accepting Authority****SDE (E) BSNL ESD Dharamshala (HP)**

2(x) Percentage on cost of materials and labour to cover all overheads and profits.

15%

2(xi) Department

Bharat Sanchar Nigam Ltd.

2(xii) Standard Schedule of Rates

DSR-2014

9 (ii) Standard CPWD Contract form

BSNLEW form 7/8 as modified & corrected upto date

Clause 2

Authority for fixing
Compensation under clause 2.

Superintending Engineer (E.)

Clause 5

Time allowed for execution of work.

7 days from 10th day after the date of written orders to commence the work .

Authority to give fair and reasonable
Extension of time for completion of work

Executive Engineer (E)

(12)

Clause 7

Gross work to be done together with net payment/ adjustment of advance for materials collected, If any, since the last such payment for being eligible to interim payment.

FIVE THOUSAND

Clause 11

Specifications to be followed for execution of work.

AS PER SPECIFICATION ATTACHED & CPWD

Clause 12

12.1(ii) Schedule of rates for determining rates for additional, altered or substituted items that cannot be determined under 12.1(i) & (ii)

DSR-2016

12.1 (iii) Plus/minus the % over the rate entered in the schedule of rates.

-----do-----

12.1(v) A Deviation Limit beyond which sub-clauses (i) to (v) shall not apply and clauses 12.2 & 12.3 shall apply

25% and can be extended up to 50% in urgent nature as per clause 13(a) & (b)
Page16

12.1(vi)B

(a) Limit for value of any item of any individual trade beyond which sub-clauses (i) to (v) shall not apply and clauses 12.2 & 12.3 shall apply

-----do-----

Clause 16

Competent Authority for deciding reduced rates.

S.E.(E), B.S.N.L., Electrical Circle, SHIMLA.

Clause 36

(i) Minimum Qualification & experience required for Principal Technical Representative.

(a) For works with estimated cost put to tender more than
(i) Rs. 10 Lacs for Civil work
(ii) Rs. 5 Lacs for Elect./Mech. Works

Graduate or retired AE possessing at least recognised diploma.

(b) For works with estimated cost put to tender
(i) More than Rs. 5 Lacs but less than Rs. 10 Lacs for Civil Works.
(ii) More than Rs. 1 Lacs but less than Rs. 5 Lacs for Elect./Mech. Works.

Recognised Diploma holder.
Elect / Mech

(c) Discipline to which the Principal Technical Representative should belong.

Elect/ Mech

(d) Minimum experience of works.

3 years.

(e) Recovery to be effected from the contractor in the event of not fulfilling provision of clause 36(i)

Rs. 4,000/- p.m. for Graduate
Rs. 2,000/- for diploma holder

Clause 42

- (i) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates ___ printed by C.P.W.D. -----N.A.-----
- (ii) Variations permissible on theoretical quantities.
- (a) i) Cement for works with estimated cost put to tender not more than Rs. 5 Lacs. N/A.
- ii) for works with estimated cost put to tender more than Rs. 5 Lacs. N/A.
- (b) Bitumen all works. N/A
- (c) Steel Reinforcement and structural steel sections for each diameter, section and category. N/A.
- (d) All other materials. Nil

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl. No.	Description of item	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond permissible variation	less use beyond the permissible variation
1.	Cement		
2.	Steel Reinforcement		
3.	Structural Sections	----- N.A. -----	
4.	Bitumen issued free		
5.	Bitumen issued at stipulated fixed price.		

IMPORTANT NOTE FOR CONTRACTORS

1.0 Tax and Duties:-

- 1.1 All taxes, Levies, duties etc. in respect of this contract (**i/c service tax**) payable by the vendor & BSNL will not entertain any claim in respect of the same.
- 1.2 BSNL shall deduct statutory taxes and duties like income tax, works contract tax etc. from payment due to the firm as per rule of the State. Central Government. The Accounts Officer of the concerned SSA shall issue certificates for such deductions to the firm.
- 1.3 As per Govt. of India Service Tax (Determination of Value) Rules 2006, Service Tax for original works is applicable on 40% of the total amount charged for the works contract. At present, the rate of Service Tax is @15% and shall be applicable as being modified by Govt. Of India time to time.

2.0 Work Contract Tax:-

The rates offered by the firm shall be inclusive of the works contract tax as applicable in the state. The Department shall deduct works contract tax from payments due to the firm as per rules of the state Government. Certificates for such deductions shall be issued to the firm by the Accounts Officer of the concerned SSA.

3.0 Octroi Certificate: - “No octroi exemption certificate will be issued by the department”.

4.0 OPERATION OF CONTRACT:-

Operation of contract shall be governed as under:-

- (i) An exclusive letter of intent (L.O.I.) shall be issued for individual specific site along with a schedule of work and quantity in respect of each work.
- (ii) A formal work contract agreement will be made between the EE (E) and the contractor on the basis of Master agreement and schedule of works supplied. **The period of completion for each work shall be One Month for individual site after the date of written orders to commence the work.**
- (iii) The individual agreement so executed in (i) above containing all the terms and conditions of master agreement shall be treated as an independent agreement and any action if required to be taken as per this individual agreement.
- (iv) **Department reserves the right to accept the quantities in full or in parts.**

5.0 SPLITTING OF WORKS: The Department also reserves the right to split the work quantities of item of work (Schedule of work) to more than one agency. Maximum of the agencies to agree to the Rate decided by the lowest by entering into parallel agreement with one or more tenderers as may be necessary. The work amongst the two lowest firms' shall be split up, the proportion of work distribution shall be as follows:-

1. 70% to the First lowest tenderer
2. 30% to the second lowest tenderer

Note: -- a. In case the tenderer participation is not more than two firms, then 100% work shall be awarded to the lowest tenderer.

b. In case of second lowest tenderer does not agree to bring down the rates equal to L-1, then 100% work shall be awarded to lowest tenderer.

.6.0 (a) “SALES TAX AND OTHER TAXES”

Tendered rates are inclusive of taxes and statutory levies payable under the respective statutes (I/C SERVICE TAX). However pursuant to the constitution (Forty Six Amendment) Act 1982, if any further tax or levy is imposed by statute after the date of receipt of tenders and the contractor (s) thereupon necessarily and properly pays taxes or levies the contractor (s) shall be reimbursed the amount also paid provided such payment if any is not in the opinion of SE (whose decision shall be final and binding) attributable to delay in execution of work within the control of the contractor (s).

- 6.0(b) The contractor (s) shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of Government and shall furnish such other information/documents as the Engineer-in -charge may require.
- 6.0(c) The contractor (s) shall within a period of 30 days of imposition of any further tax or levy pursuant to the constitution (Forty Six Amendment) Act 1982 give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition together with all necessary information relating thereto.

NOTE: - No additional condition whatsoever will be accepted for turnover tax/sales tax on works contract. In case of additional conditions for the payment of such claims by the contractor the tender may be liable to be summarily rejected by the accepting authority. (Standing order No. 258)

7. EARNEST MONEY:- Firm has option to deposit earnest money in the of demand draft/pay order/FDR/CDR of schedule bank of nationalized bank /state bank guaranteed by reserve bank of India drawn in favour of Account Officer, BSNL, Shimla.

8 Performance guarantee: 5% of Contract Value in the form of bank guarantee (of a Nationalized / Schedule Bank in a standard format)/CDR/FDR/DD within two weeks from the date of issue of award letter. The validity period of the performance bank guarantee shall be One Year from the date of actual completion of work. **[Applicable in respect of works with estimated cost put to tender exceeding Rs 6 Lakhs]**

9 Security Deposit: In addition to performance guarantee a sum @ 10% of the gross amount of the bill shall be deducted from each running bill of the contractor till the sum along with the sum already deposited as earnest money, will amount to security deposit of 5% of the Contract value of the work. The amount shall be refunded after Six Months from the actual date of completion of work. **[Applicable in respect of works with estimated cost put to tender up to Rs 6 Lakhs]**

10. TERMS OF PAYMENT:-

- a) **80% of prorate of the approved price break-up of contract value on receipt of equipment at site.**
- b) **10% of prorate of the approved price break up of contract value after successful installation**
- c) **10 % of the approved contract value after successful completion of the testing and Commissioning**

11. Deviation:-

- a) **The ordering quantity can be increased/decreased up to the extent of 25%(deviation limit) without the consent of the firm within the currency of contract. The firm shall execute such quantities at the rate quoted in the tender without any change in terms and conditions of the contract.**
- b) **In exceptional situation where the requirement is of an emergent nature and it is necessary to ensure continued supplies from the existing vendors, the purchaser reserves the right to place repeat order up to 50% of the quantities of goods and services contained in the running tender/contract within a period of twelve months from date of award of work at the same rate or a rate negotiated (downwardly) with the existing vendors considering the reasonability of rates based on prevailing market conditions and the impact of reduction in duties and taxes etc.**

12. Guarantee & Defects Liability Period

The guarantee shall be valid for 12 (twelve) months after successful installation testing and commissioning. The contractor shall guarantee that all the equipment shall be free from any defect due to the defective materials and/ or bad workmanship and also the equipment shall work satisfactorily with performance and efficiencies not less than the guaranteed values.

- a) Any parts found defective during the guarantee period shall be replaced free of cost by the contractor. The services of the contractors personnel, if required during this period shall be made available free of cost to the department.
- b) The representative of department and firm shall prepare a joint report regarding the nature of defect and remedial action required. Time schedule for such action shall be also finalized.
- c) In case the contractor fails to depute his representative within 36 (thirty six) hours of notification of defects or fails to cause remedial measure within a reasonable time as decided during joint inspection, the department may proceed to do so at the contractor's risk and expenses without prejudice to any other right.

13. COMPENSATION FOR DELAY

If the contractor fails to maintain the required progress or complete the work and clear the site on or before the contract or extended date of completion, he has to pay the compensation for delay which is limited to 0.5% per week of work order value for the first 10 weeks and 0.7% per week for next 10 weeks and thereafter subject to a maximum of 12% of the work order value for the location where work is delayed and the firm is found responsible for the same. Flow chart of the procurement process/contract shall be supplied by the contractor and approved by Executive Engineer concerned.

14:- Participation of near relatives of the BSNL employees

All near relatives of BSNL Employees either directly recruited or on deputation are prohibited from participation in tenders and execution of works in the different units of BSNL., The detailed guidelines in this regard are given in the following paragraphs :-

I) The near relatives for this purpose are defined as:

- a) Members of a Hindu Undivided family.
- b) They are Husband and wife.
- c) The one is related to the other in the manner as father, mother, son(s) & son's wife (Daughter-in-law). Daughter (s) & daughter's husband (son-in-law). Brother (s) & brother's wife sister (s) & sister's husband (brother-in-law).

II)

As per Government of India's CCS Conduct rule 4, no Government servant shall in the discharge of his official duties deal with any matter or sanction any contract to any company or for any other person if any member of his family is employed in that company or firm or under that person or if he or any member of his family is interested in such matter or contact to his official superior. This clause is applicable to all BSNL employees and in view to this as soon as any BSNL employee becomes aware of the above aspect, he must intimate this to the prescribed authority.

For non executive employees this authority is SSA Head/Circle Head/Chief Engineer/ Chief Archt./ Corporate office under whom he is posted. For executive employees (at present some of them are called as Gazetted officers) the prescribed authority for this purpose is Circle Head/Chief Engineer/Chief Archt. Corporate office under whom he is posted.

- III) (a) The company or firm or any other person is not permitted to tender for works in BSNL Units in which his near relative(s) is (are) posted. The unit is defined as SSA/Circle/Chief Engineer /Chief Archt. /Corporate office for non executive employees and all SSA in a circle including circle office /Chief Engineer/Chief Architect/Corporate office for executive employees (those called as Gazatted officers at present). Therefore, it has been decided by the competent authority that a clause must be added in the tender and other related documents that the tenderer should give a certificate that none of his /her such near relative is working in the units as defined above where he is going to apply for tender/work. In case of proprietorship firm certificate will be given by all the partners and in case of limited company by all the Directors of the company. Any breach of these conditions by the company or firm or any other person, the tender/work will be cancelled and earnest money/security deposit will be forfeited at any stage whenever it is so noticed. The department will not pay any damages to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.

ANNEXURE-I

MODEL FORM OF BANK GUARANTEE

Whereas _____ (hereinafter called "the Contractor(s)
"has submitted its Tender dated _____ for _____)
(Name of Work) _____

KNOW ALL MEN by these presents that WE _____
_____ of _____ having our registered office at
_____ (hereinafter called "the Bank") are bound unto _____
_____ (hereinafter called "the B.S.N.L.") in the sum of
_____ for which payment will and truly to be made of the said B.S.N.L., the Bank binds
itself, its successors and assigns by the these presents.

THE CONDITIONS of the obligation are :

- 1- **If the Contractor(s) withdraws its tender during the period of _____ Tender validity specified on the Tender Form, or**
- 2- **If the Contractor(s) having been notified of the acceptance of its Tender by Bharat Sanchar Nigam Limited during the period of Tender validity.**
 - a) **Fails or refuses to execute the Contract.**
 - b) **Fails or refuses to furnish Security Deposit in accordance with the conditions of Tender document.**

We undertake to pay to Bharat Sanchar Nigam Limited upto the above amount upon receipt of its first written demand, without B.S.N.L. having to substantiate its demand, provided that in its demand B.S.N.L. will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions specifying the occurred condition or conditions. The guarantee will remain in force as specified in the Tender Document upto and including Thirty (30) days after the period of the Tender validity, and any demand in respect thereof should reach the Bank not later than the specified date/dates.

Name of witness
Address of witness

Signature of the Bank
Signature of the Witness

ANNEXURE-II

MODEL FORM OF PERFORMANCE GUARANTEE

I) BANK GUARANTEE BOND FOR PERFORMANCE GUARANTEE FOR ELECTRICAL INSTALLATION/O & M/ AIR CONDITIONING, DIESEL ENGINE ALTERNATOR, LIFTS AND SUB-STATION WORKS etc.

_____ for _____
_____(Name of work) and

Whereas ----- (here in after called" the Contractor(s)" has submitted its Tender dated _____ for _____(Name of work) and

Whereas----- (here in after called" the Contractor(s)" has been communicated the acceptance of its tender dated _____ for _____(Name of work)vide letter No. _____ dated _____ BSNL.

KNOWN ALL MEN by these presents that We _____ of _____ having our registered office at _____(here in after called "The bank")are bound up to _____(here in after called "the BSNL") in the sum of _____ for which payment will and truly to be made of the said BSNL,the Bank binds itself, its successors and assigns by these presents.

i) We (name of the bank) _____ do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the BSNL by reason of breach by the said contractor(s)'of any of the terms or conditions contained in the said Agreement or by reason of the contractor(s)'failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee where the decision of BSNL in these counts shall be final and binding on the bank. However, our liability under this guarantee shall be restricted to an amount not exceeding _____.

ii) We under take to pay to the BSNL any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/supplier(s) in any suit or proceeding pending before any court or tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment there under and the contractor(s)/supplier(s) shall have no claim against us for making such payment.

iii) We (name of the bank) _____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the BSNL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till _____(office/Department) BSNL certifies that the terms and conditions of the said Agreement have been fully or properly carried out by the said contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the expiry of TWO/TWO AND HALF/THREE YEARS(as specified in the agreement) from the date hereof, we shall be discharged from all liabilities under this guarantee thereafter.

- iv) We (name of the bank)_____ further agree with the BSNL that the BSNL shall have the further liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time to postpone for any time or from time to time any of the powers exercisable by the BSNL against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the BSNL or any indulgence by the BSNL to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
- v) This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s)/supplier(s).
- vi) We (name of the bank)_____ lastly undertake not to revoke this guarantee during its currency except with the previous consent of the BSNL in writing .

Dated _____ day of _____

For _____
(Indicate the name of bank)

DECLARATION TO BE GIVEN BY CONTRACTOR

I.....

S/o.....

R/o.....

hereby certify that none of my relative (s) as defined in the tender document is /are employed in BSNL unit as per details given in tender document. In case at any stage, it is found that the information given by me is false/incorrect. BSNL shall have the absolute right to take any action as deemed fit/ without any prior intimation to me”.

DATED: -----

Signature of contractor

Schedule of work

Name of work:- Construction of Type-IV Quarters for Doctors residence at PHC Complex Banikhet Distt Chamba (HP) (SH :-SITC of Storage water heater)						
Sr.No	Description Of Items	Qty		Rate	Unit	Amount
	Supplying ,Installation, testing and commissioning of following type rating and size Geyser, suitable for single phase AC supply , including supplying of two no flexible connection pipes for water connection and suitable size PVC insulated, copper conductor, three core flexible wire for power supply connection etc. as required.					
1	a) 25 Ltrs. Capacity Energy efficient Storage water Heater with thermostat control and preset thermal cutout ,CRS tank and having 5 star rating (Make Havells MONZA or S.S make)	3	Nos.		Each	
2	Providing & Fixing following sizes of PVC casing & capping on surface as required.					
	a) 15 mm x 10 mm	15	Mtrs.		Mtr	
3	Supplying and fixing suitable size G.I.box with modular plate and cover in front on the surface or in recess, including providing and fixing 3pin 5/6 Amps & 15/16 Amps modular socket outlet and 15/16 Amps modular switch connection etc. as required.	3	Nos.		Each	
4	Supplying and drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required.					
	a) 3 x 4 sq. mm	15	Mtrs.		Mtr.	

Total Rs.=

(Signature with Seal of Firm)

Sub Divisional Engineer (E)
BSNL Electrical Sub Division
Dharamshala - 176215

ADDITIONAL SPECIFICATIONS FOR THE WORK (E.I. & FANS)

1. The work shall be done as per CPWD specifications for electrical works as amended from time to time and Indian Electricity Rules as amended up to date
2. The work shall be supervised by a qualified over-sear.
3. The layout of the work will be given by the Engineer-in charge or the duly authorised representative, at the site work.
4. The following wiring shall be done in separate circuits.
 - A) Power plug wiring.
 - B) Light and fan point wiring.
 - C) Emergency light and fan point wiring.
 - D) Telephone wiring.
 - E) Circuit wiring.
 - F) Sub main wiring.
5. The number of power plug points shall be one per ckt. As in H.P. heater are used on each ckt.
6. The earthing sets shall be provided in the presence of the Engineer-in-charge or his authorized representative.
7. The contractor will have to submit the completion plan to scale in triplicate in ammonia printed i.e. Blue prints before finally paid, failing which 2.5% of the value of work subject to a ceiling of Rs. 2500/- will be recovered from his final bill.
8. **The contractor will have to give the following tests at his cost and intimate test results before final bills are paid. Nothing extra will be paid to him on this accounts.**
 - A) Earth Test.
 - B) Polarity Test.
 - C) Insulation Test.
 - D) Earth continuity test of the recessed conduit pipes.
9. Any damage done to the building by the contractor during the execution of work shall have to made good at his cost and risk. If he does not do it himself within a reasonable time determined by the Executive Engineer (Elect) then the same will be get done at his cost departmentally after giving notice to him.
10. The outlet box is for switches and pipes or conduits etc. For different categories of conduits runs catering for different type of electric wiring as mentioned in clause(4) above shall be painted inside with different colors each signifying the different categories mentioning so as to avoid mixing of various circuits and their wiring and nothing extra will be paid for this account.

11. At the time of laying conduit pipe in the slab and in recess the contractor will keep fish wire of 14 S.W.G. (G.I.) wire through conduit/pipe and will have to take special care so that the conduits do not pass through air conditioning nuts grills, columns, beams etc. If any such necessity is foreseen special written permission of E.E. (Elect) will be obtained before such work is carried out, in case of failure the contractor will not be paid this account. Successful tenderer should recess the conduit in the walls before they are plastered and in collaboration with the cost of the contractor. The conduit/pipes should be mechanically and electrically continues.
12. The Bakelite covers of the tumbler switches, plug & sockets etc. shall not be removed or broken for taking connections. It shall be done at their backs by providing suitable wooden rider in the I.C. boxes, where found necessary. All I.C. boxes for switches, plugs and regulators etc. shall be provided with thick bakelite sheet covers.
13. The runs of various circuits wiring at various places shall be kept minimum by taking the runs on walls, where crossing column is not necessary. This has to be decided before the casting of slab, so that unnecessary length of conduits is not laid therein.
14. All the I.C. distribution boards, sub main boards and their complete fittings shall be sign written, clearly indicating the number of distribution boards, the socket load it is serving and the number of circuits contained in the distribution box.
15. Underground cables both of 220v and 1.1kv grade should be subjected to pressure/insulation tests before and after laying the same in the ducts. In case of unsatisfactory tests, the cost of all repairs and replacements and all extra work of removal and relaying will have to be done by the contractor at his own risk and cost.
16. The contractors will have to use metal clad witches/MCB's/Isolators/MCB distribution boxes and metal clad distribution as given in the schedule of work.
17. A termination of all connections of main boards/sub-main boards/sub-distribution boards will be done by crimping and nothing extra will be payable on this account.
18. Inter-connection between bus-bars and switches i/c and above 100Amps. sub main boards connections, will be done with solid copper conductor with PVC sheathing.
19. For the conduit already laid, recovery shall be made on the basis of DSR-2012 rates plus abatement of this tender on linear basis.
20. The Department shall not supply any tools and plants .
21. The work is to carry out according to the drawings issued, kept in the office of Engineer-in-charge who reserves the right to change the layout as and when required according to changed site conditions at any stage .The wiring and conduit routes are to be marked at site first and got approved by the Engineer-in-charge for commencement of actual work. No extra payment shall be made on this account.
22. The electrical works shall be carried out in close with the civil work in such a way that at no stage the electrical works lacs behind the civil works.
23. No compensation shall be payable to the contractor for any damage caused by

rain, fire, wind, storm. flood, or otherwise and no claim on this account shall be entertained.

28

24. The contractor shall maintain in good condition all work executed till the completion of work allotted to him.
25. No sharp edges of conduit shall be left unrounded.
26. The 5A/15A sockets should be multiple pin type
27. All the material to be used on the work shall be (S) marked and if ISI marked is not manufactured the confirmation to ISS shall be used. The same shall be approved by Engineer-in-Charge before use .All rejected material is to be removed from the site of work immediately at contractor's on cost.

SPECIFICATION FOR PANEL

1. CUBICAL PANEL SHALL BE INDOOR TYPE FLOOR MOUNTING SUITABLE FOR THREE PHASE 415 VOLTS 50 HZ AC SUPPLY.
2. PANEL SHALL BE FABRICATED OUT OF 16SWG M.S. SHEET HAVING SEPARATE COMPARTMENT FOR SWITCHES BUSBAR & CABLE ETC.
3. PANEL SHALL BE COMPLETE WITH INTERCONNECTIION WITH LUGS FERRULES, RUBBER GASKET, SIGN WRITTING DANGER NOTICE PLATE.
4. VENTILATION SPOUT WITH WIRE MESH INSIDE SHOULD BE PROVIDED.
5. PANEL SHOULD HAVE 2 NOS EARTHING POINTS WITH 25 X 5MM COPPER / G.I.STRIP FOR ENTIRE WIDTH OF PANEL.
6. PROVISION SHALL BE MADE FOR TOP & BOTTOM ENTRY FOR INCOMMING AND OUTGOING CABLE IN CABLE ALLEY.
7. NECESSARY CLAMP/C CHANNEL SHALL BE PROVIDED IN CABLE ALLEY FOR FIXING CABLE/WIRES ETC.
8. COLOUR CODE TO CONNECTION WIRE OF SWITCHES/BUSBARS ETC. SHALL BE MADE IN PANEL.
9. AGENCY SHOULD SUBMIT THE DETAILED DRAWING A/W BOQ AS PER SCHEDULE BEFORE MANUFACTURING / FABRICATION OF THE PANELS & GET THE APPROVAL OF ENGINEER-IN-CHARGE.
10. ALL METERS SHOULD BE OF 96X96MM SIZE WITH SELECTOR SWITCH OF E/IMP/RISHAB SELECTOR SWITCHES OF M/S KAYCEE/RISHAB.
11. REQUIRED CT'S OF CLASS'A' FOR METERING PURPOSE WITH SUITABLE FIXING ARRANGEMENT (M/S AE/IMP).
12. KNOBS SHOULD BE OF CAM TYPE.
13. INDICATING LAMP SHOULD BE LED TYPE (HAVING THREE LED'S IN EACH LAMP).
14. PANEL SHALL BE SEVEN TANK PROCESSED/POWER COATED.
15. ON INDICATION FOR OUT GOING SWITCHES.
16. FOR SWITCHES ABOVE 100A RATING, SOLID CONNECTION USING BUSBAR SHALL BE BROUGHT OUT IN CABLE ALLEY FOR INCOMING/ OUTGOING CONNECTIIONS.
17. FOR SWITCHES 100 A AND LESS THAN 100A, CONNECTION FROM BUSBAR TO CONNECTOR IN CABLE ALLEY SHALL BE PROVIDED WITH COPPER WIRE.
18. THE PANEL COLOUR SHALL BE PREFERABLY SIEMEN GRAY COLOUR.

SPECIFICATION FOR EARTHING

1.0 SCOPE:-

This chapter covers the essential requirement of earthing system components and their installation. This shall be read with which lays down criteria for their design. For details not covered in these specifications, IS Code of Earthing (IS : 3043-1987) shall be referred to.

1.1. APPLICATION:-

- (i) The electrical distribution system in the department is with earthed neutral (i.e., neutral earthed at the transformer/generator end). In addition to the neutral earthing, provision is made for earthing the metallic body of equipment's and non-current carrying metallic components in the sub-station, as well as in the internal/external electrical installations.
- (ii) Earthing system is also required for lightning protection, computer installations and for functional reasons.
- (iii) Earthing requirements are laid down in Indian Electricity Rules, 1956, as amended from time to time, and in the Regulations of the Electricity Supply Authority concerned. These shall be completed with.
- (iv) Though this chapter form part of the Specifications for Internal EI works, these requirements shall be complied with in works of earthing for other applications also.

1.2. MATERIALS.

1.2.1. EARTH ELECTRODES.

1.2.1.1. TYPES:-

The type of earth electrode shall be any of the following, as Specified (For selection criteria in designs)

- (a) Pipe earth electrode.
- (b) Plate earth electrode.
- (c) Strip or conductor earth electrode.

1.2.1.2. Electrode materials and dimensions:-

- (i) The materials and minimum sizes of earth electrodes shall be as per table VIII.
- (ii) GI pipe electrodes shall be cut tapered at the bottom, and provided with holes of 12mm dia, drilled not less than 7.5cm from each other upto 2m of length from the bottom.
- (iii) The length of the buried strip or conductor earth electrode shall be not less than 15m. This length shall suitably be increased if necessary, on the basis of the information available about soil resistance, so that the required earth resistance is obtained. Prior approval of the Engineer-in-charge shall be taken for any such in-crease in length.

1.2.2. EARTHING CONDUCTOR:-

- (i) The earthing conductor (protective conductor from earth electrode upto the main earthing terminal/earth bus, as the case may be) shall be of the same material as the electrode, viz, GI or copper, and in the form of wire or strip as specified.
- (ii) The size of earthing conductor shall be specified, but this shall not be less than the following (For calculating the size of the earthing conductor in design).
 - (a) 5mm dia (6SWG) for GI, or 4mm dia (8SWG) for copper wire.
 - (b) 25mmx4mm in the case of GI strip, or

- (c) 20mmx3mm in the case of copper strip.
- (iii) Earthing conductor larger than the following sectional areas need not be used, unless otherwise specified.
- (a) 150 Sq.mm. in case of GI in case of GI,
or,
- (b) 100 Sq.mm. in the case of copper strip.

1.2.3. EARTH BUS:-

- (i) Two copper strips, each of size 50mmx5mm shall be provided as earth bus in a 11KV sub-station and/or diesel generating station irrespective of the capacity of the transformer or the D.G. set. Each of these strips shall be connected to an independent earth electrode. The two earth leads from the body of each transformer/panel/generating set etc. shall be connected to these two strips of earth bus. The two strips of the earth bus shall be bonded together.
- (ii) The neutral earth leads of the transformer and/or generator alternator shall not be connected to this earth bus. They shall be connected directly to individual earth electrodes.

1.2.4. HARDWARE ITEMS:-

All hardware items used for connecting the earthing conductor with the electrode shall be of GI in the case of GI pipe and GI Plate earth electrodes, and forged tinned brass in case of copper plate electrodes.

1.2.5. PROTECTIVE (Earth continuity Loop Earthing) CONDUCTOR:-

- (i). The material and size of protective conductors shall be as specified.(For criteria in design of these)
- (ii). The minimum cross sectional area of a protective conductor (not contained within a cable or flexible cord) shall be:-
 - (a). 2 mm dia (14 SWG) in case of copper.
 - (b). 2.5 mm dia (12 SWG) in case of GI,or.
 - (c). 2.24 mm dia (13 SWG) in case of Aluminum.
- (iii). Unless otherwise specified, GI conductor should not be ordinarily used as protective conductor within any circuit, beyond a DB down stream.

1.3. LOCATION FOR EARTH ELECTRODES:-

- (i). Normally an earth electrode shall not be located closer than 1.5 m from any building. Care shall be taken to see that the excavation for earth electrode does not affect the foundation of the building, in such cases, electrodes may be located further away from the building, with the prior approval of the Engineer-in-charge.
- (ii). The location of the earth electrode will be such that the soil has a reasonable chance of remaining moist as far as possible. Entrances, payments and road ways, should be avoided for locating earth electrodes.

1.4 **INSTALLATION.**
1.4.1. **ELECTRODES.**

1.4.1.1. **Various types of electrodes:-**

- (i) (a) Pipe electrode shall be buried in the ground vertically with its top at not less than 20cm below the ground level.
(b) In locations where the full length of pipe electrode is not possible to be installed due to meeting a water table, hard soil or rock, the electrode may be to reduced length, provided the required earth resistance result is achieved with or without additional electrodes, or any alternative method of earthing may be adopted, with the prior approval of the Engineer-in-charge. Pipe electrodes may also be installed in horizontal formation in such exceptional cases.
- (ii) Plate electrode shall be buried in ground with its faces vertical, and its top not less than 3 m below the ground level.
- (iii) When more than one electrode (plate/pipe) is to be installed a separation of not less than 2m shall be maintained between two adjacent electrodes
- (a) The strip or conductor electrode shall be buried in trench not less than 0.5m deep.
(b) If conditions necessitate the use of more than one strip or conductor electrode, they shall be laid as widely distributed as possible, in a single straight trench where feasible, or preferably in a number of trenches radiating from one point.
- (c) **If the electrode cannot be laid in a straight length, it may be laid in a zig-zag manner with a deviation upto 45 degrees from the axis of the strip. It can also be laid in the form of an arc with curvature more than 1m or a polygon.**

1.4.1.2. **Artificial treatment of soil:-**

When artificial treatment of soil is to be resorted to, the same shall be specified in the schedule of work. The electrode shall be surrounded by charcoal/coke and salt as indicated. In such cases, excavation for earth electrode shall be increased as per dimensions indicated in these figures.

1.4.1.3. **Watering arrangement:-**

- (i) In the case of plate earth electrodes, a watering pipe 20mm dia, medium class pipe shall be provided and attached to the electrodes as shown in gif. 4 and 5. A funnel with mesh shall be provided on the top of this pipe for watering the earth.
- (ii) In the case of pipe electrodes, a 40mm x 20mm reducer shall be used for fixing the funnel with mesh.
- (iii) The watering funnel attachment shall be housed in a masonry enclosure of size not less than 30cm x30cmx30cm.
- (iv) A cast iron/MS frame with MS cover, 6mm thick, and having locking arrangement shall be suitably embedded in the masonry enclosure.

1.4.2. **EARTHING CONDUCTOR (Main earthing lead):-**

- (i) In the case of plate earth electrode, the earthing conductor shall be securely terminated on to the plate with two bolts, nuts, check nuts and washers.
- (ii) In the case of pipe earth electrode, wire type earthing conductor shall be secured using a through bolt, nuts and washers and terminating socket.

A double C-clamp arrangement shall be provided for terminating tape type earthing conductor with GI watering pipe coupled to the pipe earth electrode. Galvanized "C" shaped strips, bolts, washers, nuts and checkouts of adequate size shall be used for the purpose

- (iii) The earthing conductor from the electrode upto the building shall be protected from mechanical injury by a medium class, 15mm dia. GI pipe in the case of wire, and by 40mm dia, medium class buried at least 30cm deep (to be increased to 60cm in case of road crossing and pavements). The portion within the building shall be recessed in walls and floors to adequate depth in due co-ordination with the building work.
- (iv) The earthing conductor shall be securely connected at the other end to the stub/earth bar provided on the switch board by:
 - (a) Soldered or preferably crimped lug, bolt, nut and washer in the case of wire, and,
 - (b) Bolt, nut and washer in case of strip conductor.

In the case of substations or alternators, the termination shall be made on the earthing terminal of the neutral point on the equipment and/or the earth bus, as the case may be.

1.4.3. EARTH BUS AND MAIN EARTHING TERMINAL:-

- (i) In the case of substations and generating stations, two numbers copper/GI (as specified) earth bus shall provided, duly connected to two numbers of independent electrodes, exclusively for equip0ment (body) earthing of substation or generating station equipments.
- (ii) In all other installations, main earthing terminal shall be provided at the main switch board. This may be in the form of earth stud or single earth bar depending on the type of the switch board.
- (iii) Following conductors shall be terminated on to the main earthing terminal.
 - (a) Earth connection from electric supply company (where provided).
 - (b) Earthing conductor from electrode.
 - (c) Protective conductors.
 - (d) Equipotential bonding conductors.

1.4.4. PROTECTIVE(Loop earthing/earth continuity) CONDUCTOR:-

- (i) Earth terminal of every switch board in the distribution system shall be bonded to the earth bar/terminal of the upstream switch board by protective conductor (s).
- (ii) Two protective conductors shall be provided for a switch board carrying a 3 phase switch gear thereon.
- (iii) All the mountings of industrial type switch boards shall be bonded to the earth stud/earth bar using a protective conductor looping from one to another. Loop earthing of individual units will not be however necessary in the case of cubicle type switchboards.
- (iv) The earth connector in every distribution board (DB) shall be securely connected to the earth stud/earth bar of the corresponding switch board by a protective conductor.
- (v) All metallic switch boxes and regulator boxes and regulator boxes in a circuit shall be connected to the earth connector in the DB by protective conductor (also called circuit protective or loop earthing conductor), looping from one box to another upto the DB.
- (vi) The earth pin of socket outlets as well as metallic body of fan regulators shall be connected to the earth stud in switch boxes by protective conductor. Where the switch boxes are of non-metallic type, these shall be looped at the socket earth terminals, or at an independent screwed connector inside the switch box. Twisted earth connections shall not be accepted in any case.
- (vii) Double earthing strips in rising mains, bus trunking etc. shall be securely connected to the earth bar/earth stud at the sending end switch board. In the case of overhead busbar systems, protective conductor shall be provided in addition to feeder cable armouring connection.

1.5. EARTH RESISTANCE:-

- (I) The earth resistance at each electrode shall be measured. No earth electrode shall have a greater ohmic resistance than 5 ohms as measured by an approved earth testing apparatus. In rocky soil the resistance may be up to 8 ohms.
- (II) Where the above stated earth resistance is not achieved, necessary improvement shall be made by additional provisions, such as additional electrode (s), different type of electrode, or artificial chemical treatments of soil etc., as may be directed by the Engineer-in-charge.

- (III) In addition to the above (I) The earthing is to be got A/T'ed in the presence of representatives of A/T wing or any other nominated authority as per A/T Schedule till the final results are achieved. The testing equipment required that at site shall be arranged by the contractor without any extra charges.

1.6 MARKING:-

- (i) Earth bars/terminals at all switch boards shall be marked permanently, either as "E" or as.
- (ii) Main earthing terminal shall be marked "SAFETY EARTH- DO NOT DISCONNECT".

1.7. USE OF RESIDUAL CURRENT DEVICES (RCDs):-

An extract on selection and application of RCDs (also known as RCBs) from IS:12640-1988 is given Appendix H. Provision of RCD shall be specified in individual cases keeping in view the type, use, importance, system of earthing and nature of electrical installations to be protected by the RCCBs, requirements of the local electric supply company, etc. The sensitivity shall be 30mA, 100mA, 300mA, or 500mA as specified.

**TABLE VIII
MATERIALS AND SIZES OF EARTH ELECTRODES
[Clause 1.2.1.2(i)]**

Type of Electrode	Material	Size
Pipe	GI Medium Class	40 mm dia 4.5 m long (Without any joint)
Plate	(i) GI	600 mm x 600 mm x 6 mm thick
	(ii) Copper	600 mm x 600 mm x 3 mm thick
Strip	(i) GI	100 Sq.mm section.
	(ii) Copper	40 Sq.mm section
Conductor	(i) GI	5 mm dia (6 SWG)
	(ii) Copper	4 mm dia (8 SWG)

Note:- Galvanization of GI items shall conform to class IV of IS: 4736-1986

Specification for Chemical Earthing :-

Maintenance free Chemical earth stations should be joined through 25 mm x 3 mm copper strip with adjustable clamp to achieve the earth resistance not greater than 5 ohms as measured by an approved earth testing apparatus. In rocky soil the resistance may be up to 8 ohms, with the following specifications :-

- A.** minimum 1743mm long, 17 mm (nominal size) copper bonded rod for each station (minimum 250 micron copper cladding)
- B.** Soil Improvement Materials or GEL =60 kg for each earth station)
- C.** 25 mm x 3 mm copper strip for connectivity of two each pits i.e. minimum 2 meters.
- d.** Adjustable clamp along with clamping hardware (2 Nos.)
- e.** All the nuts and bolts shall be of G.I. or Brass.

LIST OF APPROVED MAKES- BSNL ELECTRICAL WING

S. No.	Item	Makes
1	Engine	Ashok Leyland /Cummins/ Cater pillar / KOEL/ Volvo Penta / Mahindra & Mahindra (up to 40 KVA) /Escorts (up to 30 KVA)/ Eicher (up to 20 KVA)
2	Alternator(Brushless)	Crompton Greaves (AL. series) / KEC / Leroy Somer / Stamford/Jyoti Ltd
3	Battery (Lead Acid / Mntc. Free)	Amara Raja / AMCO / Farukawa / Hitachi / Exide/ Prestolite / Standard
4	HV Switchgear (Vacuum Circuit Breaker/SF6)	Biecco Lawrie / Crompton / Kirloskar / MEI / Jyoti Ltd
5	Transformer (Oil filled / Dry type)	ABB / Schneider Electric /Andrew Yule / Bharat Bijlee / Crompton / EMCO / Kirloskar /Siemens
	a) Above 400 KVA / b) Up to 400 KVA	In addition to above makes, Uttam/Automatic Electric Gear(AEG)/Patson/Rajasthan Transformer and Switchgear
6	Air Circuit Breaker	L&T/ Schneider Electric / Siemens
7	MCCB(Ics=Icu)	L&T/ Schneider Electric / Siemens
8	SDF units	L&T/ Schneider Electric / Siemens/ HPL/Havells
9	Power Contactors	L&T/ Schneider Electric / Siemens/ Lakshmi(LECS)
10	Change Over Switch	HPL / Havells / H-H Elcon
11	Intelligent APFC Relay	L&T/EPCOS(Siemens)/ Schneider Electric / Neptune Ducati/Syntron/ABB
12	Bus Bar Trunking/ Sandwiched Bus Duct	Moeller/L&T/Schneider Electric/ABB/Legrand/Zeta
13	Power Capacitors (MPP/APP)	L&T/EPCOS(Siemens)/ABB/Crompton/ Schneider Electric/Neptune Ducati
14	Digital/ KWHr meter	Schneider Electric/ AE/ Digitron / IMP/ Meco / Rishabh / Universal/HPL/L&T/ABB
15	Cold shrink HT/LT Cable Joint	Denson / 3M(M-Seal)/ Raychem
16	Rubber Matting	ISI mark
17	MCB/ Isolator/ELCB / RCCB/ Distribution Board	Crompton / Havells / Indokopp / MDS Legrand/ L&T / Schneider Electric/ Siemens / Standard/ C&S/ABB/HPL
18	MS/ PVC Conduit	ISI mark
19	Cable Tray	MEM/Bharti/Ratan/Slotco/Profab
20	HT/LT Cables	ISI mark
21	PVC insulated copper conductor wire	ISI mark

22	Centrifugal Pump	Amrut / BE / Beacon / Batliboi / Crompton / Jyoti / Kirloskar / KSB / Mather & platt / WASP/Grundfos
23	Submersible Pump	Crompton/Amrut / BE / Calama / Kirloskar / KSB
24	Motors	ABB/ Bharat Bijlee / Crompton Greaves /Schneider Electric / HBB / KEC / Siemens/Jyoti Ltd
25	Fresh Air Fans	GE / Khaitan/Almonard/Crompton
26	Starter	ABB / BCH / Schneider Electric / L&T / Siemens /
27	Single Phase Preventer	L&T / Minilec / Siemens / Zerotrip
28	GI/MS Pipe	ATC / ATL / BST / GSI / ITC / ITS / IIA /JST / Jindal /TTA / Tata/Zenith
29	Foot Valve	ISI mark
30	Gate Valve	Advance/Audco/Johnson Controls/Zoloto/Annapurna / Fountain / Kirloskar / Leader / Sant / Trishul
31	Compressors	Carrier/Emerson copeland/York/Danfoss (for chillers only)
32	Resin Bonded Glass wool	Fibre Glass / Pilkington / UP Twiga
33	Expanded Polystyrene	BASF(India) Ltd.
34	Gauge	Feibig / H.Guru / Pricol
35	Controls	FLICA / Honeywell / Indfoss / Penn- Danfoss / Ranco / Ranutrol / Sporland
36	Fine Filters	Anfiltra Effluent / ARW / Athlete/ Airtake/ Dyna / Kirsloskar/ Puromatic/ Purafill/ Purolator / Tenacity
37	GI Sheet Essar/Notifier	HSU Jindal / National / Nippon Denro / Sail / Tata
38	Heat Detector	Appollo / Chemtron/ Edward / Fenwal/ Hochiki / Nitton /System Sensor/ Wormald/Honeywell
39	Ionization Detector	Appollo / Cerebrus / Edward/ /Fenwal / Hochiki / Nitton / System Sensor / Wormald
40	Photo Electric Smoke Detector	Appollo / Cerebrus / Edward / Fenwal/ Hochiki / Nitton / Wormald
41	Fire Panel (Microprocessor based)	Agni Instruments / Agni Devices/ Aruna Agencies/ Carmel Sensor / Ravel Elect./Honeywell Essar/Notifier/Navin Systems
42	Sprinkler/ Hose Reel & Hose Pipe	ISI mark
43	Fire Extinguisher	ISI mark
44	Lift	OTIS, Kone, Mitsubishi , Schindler,Johnson

NOTE:- Items which are approved from O/o PGM(E) BSNL New Delhi till last date of sale of tender, shall also be accepted.

ANNEXURE-IV
PROFORMA FOR AFFIDEVIT REGARDING EPF/ ESI PROVISIONS
(To be uploaded with Eligibility conditions)

I.....son of.....

Resident of hereby give an undertaking that:

(I) * EPF and Miscellaneous provisions Act, 1952 (amended upto date) is not applicable to my / our establishment.

* I / We have registered as per the EPF and Miscellaneous provisions Act, 1952 and our Registration no. isWe undertake to keep it valid during the currency of contract.

* I / We shall produce EPF registration certificate within 7 days, from the date of issue of intimation from BSNL regarding intent to accept the tender. In case I / We fail to produce the said document within the prescribed time frame, BSNL shall have the right to forfeit the whole Earnest Money and cancel the tender and further I / We will not participate in the next tender for the same work.

(II) * ESIC Act, 1948 (amended upto date) is not applicable to my / our establishment.

* I / We have registered as per the ESIC Act, 1948 (amended upto date) and our Registration no. is We undertake to keep it valid during the currency of contract.

* I / We shall produce ESIC registration certificate within 7 days, from the date of issue of intimation from BSNL regarding intent to accept the tender. In case I / We fail to produce the said document within the prescribed time frame, BSNL shall have the right to forfeit the whole Earnest Money and cancel the tender and further I / We will not participate in the next tender for the same work.

In case at my stage, it is found that the information given by me is false / incorrect, BSNL shall have the absolute right to take any action as deemed fit, without any prior intimation to me.

* (Strike out whichever is not applicable)

(Dated Signature of contractor)

(Seal of the firm)

ANNEXURE-V

**PROFORMA FOR AFFIDEVIT REGARDING registration under Himachal Pradesh Value
Added Tax Act 2005**
(To be uploaded with Eligibility conditions)

I.....son of.....

Resident of hereby give an undertaking
that:

I / We shall get registered under the Himachal Pradesh Value Added Tax Act 2005 in the prescribed format within 7 days, from the date of issue of intimation from BSNL regarding intent to accept the tender. In case I / We fail to produce the said document within the prescribed time frame, BSNL shall have the right to forfeit the whole Earnest Money and cancel the tender and further I / We will not participate in the next tender for the same work.

(Dated Signature of contractor)

(Seal of the firm)