

**NATIONAL INSTITUTE OF TECHNOLOGY**  
**(Under the Ministry of HRD, Govt. of India)**  
**Kurukshetra-136119 (Haryana)**

**NIT Construction Cell**  
**Kurukshetra**



**PERCENTAGE/ITEM RATE TENDER**  
**AND**  
**CONTRACT FOR WORKS**

***General Rules and Directions for the Guidance of  
Contractors***

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**NATIONAL INSTITUTE OF TECHNOLOGY**  
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**TENDER NOTICE**

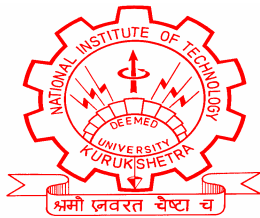
**Advertisement No. 31 /2008**

Sealed percentage rate tenders on prescribed tender documents for the below noted work(s) are invited from the contractors borne on the approved list of contractors with Central/ State Govt., Public Sector undertakings/ registered Coop. L&C Societies for appropriate category. The Contractor should have a valid certificate of enlistment by Competent Authority of Water Supply & Sanitation Department for the work listed at Sr. No.1 only

Sr. No	Name of Work	Estimated Cost (Rs.) (In Lacs)	Earnest money (Rs.)	Time Limit	Date of opening of Tender	Cost of tender document (Rs.) (Non-refundable)
1.	Providing, installing and commissioning of 2 No tubewell, Construction of 2 No pump chambers and boundary walls, and all other works contingent thereto at NIT, Kurukshetra	20.61 Lacs	42,000/-	3 months	15-09-2008	1,000/-
2.	Reconstruction of damaged/cracked/tilted compound walls and Provision of Stores in G-Type Houses at NIT, Kurukshetra	60.60 Lacs	1.22 Lacs	6 months	15-09-2008	5,000/-

**(Note:- Conditional tender will not be accepted).**

**Director**



**CHAPTER-I**  
**NATIONAL INSTITUTE OF TECHNOLOGY**  
 (Under the Ministry of HRD, Govt. of India)  
**KURUKSHETRA-136119 (Haryana)**

**TENDER NOTICE**

**Advertisement No. 31/2008**

Sealed percentage rate tenders on prescribed tender documents for the below noted work(s) are invited from the contractors borne on the approved list of contractors with Central/ State Govt., Public Sector undertakings/ registered Coop. L&C Societies for appropriate category (i) having a valid certificate of enlistment by Competent Authority of Water Supply & Sanitation Department for work at Sr. No.1 below. (ii) Contractor having 'A' Class Licence from Chief Electrical Inspector are only eligible for work at Sr. No.2 below. Tenders will be received upto 15-09-2008 at 3:00 PM at N.I.T. KKR and will be opened at the same time and date in presence of the contractors or their authorized representatives who may like to be present at that time. The detailed notice inviting tenders and drawings can be seen in the office of the Executive Engineer on any working day during office hours. The tender documents can be obtained from NIT, office on any working day from 9 A.M. to 5 P.M. and sale of tender documents will close at 1:00 PM on 15-09-2008.

If any holiday falls on the due date (s) then tenders will be received on the next working day. Earnest money of the works may be deposited with the undersigned in the shape of Bank Draft/ Deposit at Call in favour of the Director N.I.T. Kurukshetra payable at any scheduled Bank at Kurukshetra. Details can be seen on Institute web-site [www.nitkkr.ac.in](http://www.nitkkr.ac.in).

Sr. No	Name of Work	Estimated Cost (Rs.) (In Lacs)	Earnest money (Rs.)	Time Limit	Date of opening of Tender	Cost of tender document (Rs.) (Non-refundable)
1.	Providing, installing and commissioning of 2 No tubewell, Construction of 2 No pump chambers and boundary walls, and all other works contingent thereto at NIT, Kurukshetra	20.61 Lacs	42,000/-	3 months	15-09-2008	1,000/-

**NOTE:-**

1. Conditional tender will not be accepted.
2. Quote one rate of percentage i.e. (HSR + CP) ± %
3. Tender documents will be issued only after cost of tender document is deposited with the Institute cashier and proof there of is shown to the tender issue committee.
4. The validity of tender should be at least Ninety days.
5. Earnest money in cash shall not be accepted.
6. Tenders will be received by hand; telegraphic tenders will not be accepted.
7. Earnest money in shape of bank draft/deposit at call in favour of Director N.I.T. Kurukshetra payable at any scheduled bank at Kurukshetra will only be accepted.
8. Tender documents will not be issued on postal or telegraphic request.
9. The tenderer will be required to give the proof of his/their registration with any of the above departments for appropriate category before tender documents are issued to him/them.
10. Application for tender documents must accompany with attested copy of registration certificate of the contractor.
11. The rates must be quoted according to prevailing H.S.R. (1988).
12. The tender must be accompanied with earnest money if any, in a separate envelope.
13. Ten percent (10%) security including earnest money subject to a maximum of 5% of the agreement amount will be deducted from each bill of the contractor and it will be refunded 12 months after the work has been completed i.e. finally measured/paid after making necessary recovery if any.
14. Coop. L&C societies will be issued tenders only after permission from the Coop. Deptt. Haryana is produced.
15. 4% sale tax and 2% income tax + surcharge and 1% Labour Cess as applicable or all taxes as applicable from time to time will be deducted from gross amount of each bill of the agency/ contractor

.....  
 Executive Engineer  
 For Director N.I.T. Kurukshetra

## Schedule-I

**Name of work :- Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto. (App. Cost Rs. 20.61 lacs.)**

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### **GENERAL INSTRUCTIONS TO THE TENDERER**

1. Tender form will be issued to contractors who are borne on the approved list of contractors with Central/ State Govt., Public Sector undertakings/ registered Coop. L&C Societies for appropriate category. The Contractor should have a valid certificate of enlistment by Competent Authority of Water Supply & Sanitation Department, especially for turnkey jobs for drilling of Tubewells including related Civil works, laying of pipe line , installation of Machinery and electric control panel at least up to DNIT amount, as on date of issue of tender form

2. **RATES TO BE QUOTED IN WORDS & FIGURES: -**

The Tenderer shall quote in English/Hindi both in figure as well as in words the rate & amount tendered by him in the schedule of prices (Schedule No.1) The amount for each item should be worked out, entered and requisite total given of all items, both in figures and words. The tendered amount for the work shall be entered in the tender and duly signed by the tenderer.

**In case the rate of any item is not quoted it will be presumed that tenderer has opted to supply/fix that particular quantity of items mentioned in the DNIT, free of cost.**

3. **DOCUMENTS/PREPARATION OF TENDERS :**

The tender documents to be submitted will consist of the following:-

a) Complete Set of tender documents as sold duly filled in and signed by the tenderer as prescribed in different clauses of the tender document in two separate sealed envelopes, containing the documents as under: -

i). **Sealed envelope A** shall depict clearly on top right hand corner of the sealed cover (**Technical offer**). This sealed envelope shall contain the tender documents and technical information/data of the offer along with Annexure A. It shall not contain Schedule No. I.

ii). **Sealed envelope B** shall depict clearly on top right hand corner of the sealed cover, (**Price Bid**). This envelope shall contain the amount payable for complete job as per schedule No.I of the tender document, duly filled in and signed by the tenderer. On the notified date of opening of tenders only envelope A, relating to technical offer shall be opened. In case some clarification/modifications are required to be given to all the bidders at common parameters/platform, the same shall be obtained by Executive Engineer-in-Charge. The Executive Engineer-in-Charge may call all the bidder to finalise the technical common parameters to bring all the bidders at the same common parameters/platform. The common parameters so arrived will be notified to all the bidders by Engineer-in-Charge. If a party does not agree to these requirement/modification then their envelope B shall be unopened. The contractor/firm shall be allowed to modify the rates in view of modifications etc. if required. The envelope B containing modified price bid, shall be opened on a date to be notified subsequently and decided by the Executive Engineer-in-Charge. If the technical offer of any bidder is found to be technically viable but the bidder fails to submit modified price bid by due notified date then original price bid shall be opened & shall be considered to be valid for all intent & purpose.

After the bidders who submit their modified price bid, their original price bid will be returned to them.

a. No conditional price bid will be accepted and shall liable to be rejected.

b. Power of Attorney in original or a true copy thereof duly attested by a Gazetted Officer shall be produced in case an authorized representative has signed the tender, as required in general.

c. The financial bid as received above will be evaluated and work will be awarded to the lowest competitive offer.

**4. COMPLETENESS OF OFFER :-**

The contractor shall ensure that their offers are complete in all respects for proper and complete execution of work as per the scope of work mentioned hereinafter. If any item is not included in the DNIT specifications and is required for completion of work the same shall be included in their offer and with separate mention of the same with full justification and cost of the same shall be quoted separately.

**5. SCOPE OF WORK:-** The scope of work under this tender is as under:-

**a) Tubewell**

Providing and installing 2 Nos. tubewell in the NIT, Kurukshetra.

The Tubewells to be installed with reverse rotary rig circulation method shall include supplying and fixing ERW housing pipe, Blind pipe, LCG cage type, V-wire wound screen / MS Slotted pipe, development of tubewell with compressor & pump and all other ancillary items required for complete job. The size of various housing pipes, LCG screen and required discharge from the tubewell have been mentioned hereinafter.

**b) Pump Chamber and Boundary wall**

Construction of 2 Nos. pump chambers for the tubewells as mentioned at 'a' above and construction of boundary wall with iron gate etc. The size and specifications of the pump chamber, boundary wall has been mentioned hereinafter as per the attached Drawings. The electric fitting required for tube lights, fans, power plugs & flood lights etc. is also included.

**c) Pumping machinery and electrical equipment / control panel**

Providing and fixing clear water Submersible pump sets, Submersible cable for pump sets, G.I. column pipes, M.S. clamps, Electric control panel for pump sets, Sluice valves, Non return valves, CI/DF pipe required for delivery within the pump chamber up to 1.5 Mtr. from outer wall of pump chamber. Automatic dual mode electric panel, star delta oil immersed starter, Main switch with HRC fuse, Voltmeter, Amp. Meter, Capacitors, Indicating lamps, Single phase preventor, Timer switch, wiring in panel, GI pipe earthing for pump set & panel board and wiring from UHBVN/DHBVN supply to Electrical control panel board.

**d) Pipeline :-**

Excavation of earth work, laying, jointing, cutting, testing of AC/CI/DI pipeline from pump chamber to existing distribution system / boosting station. The cost of CI specials required to lay the pipeline and also to make the connection with the existing system are included in the scope of work.

**e) Electro magnetic diaphragm, dozing system for disinfection :-**

Supply and erection of Wall Mounting type, Solenoid driven, motor less electro magnetic diaphragm dozing/ metering pump working on single phase with electric control suitable for minimum dozing capacity 0 to 5 liter per hour at 8 bar back pressure with voltage stabilizer and one No. 300 liter capacity HDPE storage tank for each tube well suitable to use Sodium Hypochloride / Twin Oxide for use as disinfectant.

**f) Commissioning of complete installations: -**

The Machinery & Tubewell after installation of said work shall be commissioned to the entire satisfaction of Engineer in charge. The machinery with complete scope of work shall be kept on test run for a period of 3 months from the commissioning for which payment will be made as per accepted terms & conditions of payment. In case electric connections which are to be got released by the Institute are not released within 15 days from the date of completion, then contractor will be required to get the tubewell / machinery & pipeline tested with the help of D.G. set atleast for continuous 15 days. The cost to arrange D.G set would be borne by the contractor but Diesel, actually consumed, will be supplied by Institute to contractor, free of cost. Cost of all other consumables except Diesel will be met by contractor.

All the manpower, consumables required to operate, maintain & repair except Electric charges, during the test run period will be borne by the contractor. The staff employed shall be such that at least one person is available at each

tubewell for all the 24hrs./day during test running period. Each tubewell shall be operated **at least 8 hrs/day** or as directed by Engineer-in-Charge during test run period.

**Sodium hypo chloride** shall be used for disinfection of water being supplied from each tubewell. The quantity used shall be such as ensure a dose of 2ppm at the tubewell at all the time of operation / working hours of tubewell.

The contractor will maintain the area within boundary wall in a neat & clean manner position & will also maintain it during test running period.

**6. SPECIFICATIONS :-**

- i) All item of work shall be executed as per specifications mentioned in schedule II and make of items to be supplied shall be as per schedule No.III.
- ii) Any item of work, required for execution of work, for which specification and makes have not been mentioned in schedule II or III shall be mentioned by the firm/contractor in his tender, otherwise the same will be as per decision of Engineer-in-Charge.

**7. DRAWINGS / TECHNICAL INFORMATION WHILE TENDERING :-**

The contractor shall supply all technical details and design requirements of various items of works covered in the scope of work.

.....  
Executive Engineer  
For Director N.I.T. Kurukshetra

Name of work :- Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto. (App. Cost Rs. 20.61 lacs.)

**SCHEDULE NO.I(A)**

**PRICE BID**

**A) SCHEDULE ITEMS BASED ON HARYANA SHEDULE OF RATES 1988**

at *		
	In figures	In Words
<p>Percent above/ below the ceiling rates worked out as per contract Schedule of Rates and the Schedule of Ceiling Premium read with rule 1 of the standard tender form (Part of documents) and in accordance, in all respects, with the specification drawings and instructions in writing referred to in the said rule 1 and with such material as are provided for by the Engineer-in-Charge, in all respects and in accordance with such conditions, so far as applicable.</p>		

\* Enter the rates, both in words and in figures, only in the space. In the event of the variation of rates in, words and figures, the tender may be rejected or otherwise, only the lower value shall be considered.

.....  
Executive Engineer  
For Director N.I.T. Kurukshetra

## SCHEDULE-II

### GENERAL CONDITIONS OF CONTRACT

#### 1. **DEFINITION :**

The term "work" means the complete scope of work covered in this DNIT as per the specification mentioned hereinafter which may be let out on contract. The term "Engineer-in-Charge" means the Executive Engineer of the Institute under whose jurisdiction the work will be carried out from time to time. The term "Contractor" means the person or firm, whose tender for the work is accepted and the term 'Contract' means the contract covered by the contract agreement to be entered into by the said contractor for carrying out and completion of the said work with the Engineer-in-Charge.

#### 2. **CONSIDERATION FOR CONTRACT AND EXTENT OF WORKS:**

- a) The contract price payable to the contractor in respect of various items of work shall be the consideration for all and every description of work done, executed and performed in and about and incidental to the work described or mentioned in this schedule and in the drawings or be intended so to be whether the same shall be incidental or necessary to the ultimate completion or only for the temporary purposes of the said work or be required for carrying out of such precautions as the Engineer-in-Charge may require for the protection of the public, workmen and the work and also existing building etc., or as set out in the conditions of the contract. It also includes other incidental item or work, materials and things required to make the work satisfactory in all respects and complying with the contractor's guarantee as incorporated hereinafter.
- b) Commissioning of installation will be responsibility of the contractor. All the installations / machinery will be tested for trouble free running minimum for a period of 3 months to the satisfaction of Engineer-in-Charge with the staff arranged by contractor at his own risk and cost. In case electric connection is not provided by HVPN, Generating set of the required capacity will be arranged by the contractor at his own cost for 15 days. The Deptt. will not be liable to any type of claim for commissioning of installations what so ever it may be.
- c) The contractor shall be fully responsible to carry out the repair/replacement of any item of work executed under this agreement during test run period at his own cost.
- d) All the installations & civil works after completion of test run period will be handed over to Engineer- in -Charge in good working condition.

#### 3 a) **Terms & conditions of payments:-**

Payment will be made as per actual work executed at site @ the accepted rates.

#### b) **Release of security:-**

Ten percent (10%) security including earnest money subject to a maximum of 5% of the agreement amount will be deducted from each bill of the contractor. The security so deducted shall be released after the complete work executed under this NIT is handed over to Engineer-in-Charge after completion of test run period or 6 months after commissioning of work whichever is later.

#### 4. **POSSESSION OF THE SITE :-**

The Engineer-in-charge shall, as soon as practicable, after the acceptance of the tender or the execution of the contract agreement as the case may be give possession of the site to the contractor for use of the site for the work covered by his contract so as to enable him to commence and continue the execution of the work included in his contract, but the non-delivery or use of such site or sites or any part thereof shall not effect the use of such contract or the specification and it shall not entitle the contractor to any increased allowance in respect of

money or otherwise. Time for the completion of the work may be extended in proportion to the delay involved on the application by the contractor but this will not entitle him to any extra payment what so ever it may be.

5. **REINSTATEMENT AND CONTRACTOR TO SATISFY HIMSELF ON ALL POINTS:-**

All land, property, fencing likely to be disturbed or damaged during the execution of the contract work, shall be made good by the contractor at his own expense, to the satisfaction of the authorities and owners concerned.

The contractor shall be deemed to have satisfied himself as to the dimensions, levels, character and nature of all the works, buildings, roads lands, safe bearing capacity, spring level and other things with regard to any connection they may have with the works of the contract, and shall be deemed to have obtained his own information on all matters which could in any way influence his tender.

No claim for extra work or otherwise shall be allowed in consequence of any misunderstanding, error or incorrect information on any point or if any inaccuracies in reference thereto which may appear in the specification, nor shall the contract be nullified in consequence of any such misunderstanding, error, incorrect information or inaccuracies.

6. **STORAGE OF MATERIAL:-**

All materials, supplies, machinery or equipment which may be exposed to the weather shall be suitably protected to the satisfaction of the Engineer-in-charge.

7. **REJECTED MATERIALS:-**

Any material including that required for civil works or articles, fittings or plant delivered to the site of work by or under the order of the contractor which the Engineer-in-charge shall find to be unsuitable or of a specification or description inferior in his opinion to that required for the purpose of work shall not be used thereon but shall be removed by the contractor at his own cost and charges, from the site of work, within 24 hours of notice to that effect in writing by the Engineer-in-charge or his representative.

8. **LOCAL TAXES :-**

All toll, octroi, terminal taxes, sale tax, VAT, excise duty & 1% Labour Cess, import duty or any other Municipal taxes shall be paid by the contractor on all tools & plants and materials imported or taken delivery by him including all goods and material delivered to him free on rail and those transported by him into the Town/Village from outside and he shall not be entitled to reimbursement for any payments made on account of such octroi, or terminal tax charges. This applies to materials issued from stores of the Engineer-in-charge as well. If any fresh tax of any kind is levied at any stage or any existing tax is subsequently enhanced after the date of the contractor's tender, the same shall be paid by the contractor and no extra allowances shall be given to him by reason of such fresh or enhanced taxes, octroi, terminal tax or other having been levied.

9. **IMPORT LICENSE AND FOREIGN EXCHANGE:-**

Import license and foreign exchange, if required, will have to be arranged by the successful tenderer himself and this is solely his responsibility.

10. **Services and Notices on the contractor:-**

Any notice, order, required or instruction which the Engineer-in-charge may wish or require to give in relation to works, shall be deemed to be duly served on the contractor, if recorded in the order book kept on the work, or if it shall be delivered personally to the contractor or any of his agent or sent by post to his office, and notice of such office and of the contractor's address shall be given by the contractor to the Engineer-in-charge.

11. **WORK EXECUTED OUTSIDE WORKING HOURS :-**

If the contractor shall execute any works outside ordinary working hours during the absence of the Engineer-in-charge or his authorized representative and without having previously given him sufficient notice in writing that such work was about to be executed he will be required to take up and reconstruct any work so executed, if ordered to do so by the Engineer-in-charge in writing under his hand.

12. **ENGINEER-IN-CHARGE AND HIS ASSISTANTS TO HAVE ACCESS TO WORK AND STORE:-**

The Engineer-in-charge with his Assistant Engineer, Junior Engineer, Inspection Work Mistries, Munshies, Inspectors and all other persons authorised by him shall at all times have full access to the works and the contractor's workshop and factories, stores, brick fields, godowns and all other places where materials are collected or stored for the works and shall have full power to send workman upon the work to execute any other works not included in the contract and for those operations the contractor shall afford every reasonable facility during the working hours, provided that such operation shall be carried on in such manner as not to impede the progress of the work included in the contract, but the department shall not be held responsible for any damage which may happen to be occasioned by any such other works.

13. **PUMPING AND DEWATERING:-**

The contractor shall at his own cost and charges at all times during the period of contract, provide and maintain in good working order and repair, and shall operate by day and night adequate number of pumping plants and equipment with all accessories of suitable capacity and design to full satisfaction of the Engineer-in-Charge and shall keep the sub soil water level in trenches and other excavation lowered to a sufficient extent at all times and shall provide and construct all drains and channels required to enable the work to be completed in a proper and sound manner to the satisfaction of the Engineer-in-Charge. The provision for maintenance repair and operation of all pumping arrangements and all other works for keeping down sub soil water level through de-watering and draining water from the work and for the disposal of such water in a manner to be approved by the Engineer-in-Charge shall be deemed to be temporary works incidental to the construction work. The full cost thereof be included in the price of the contract and no other payment shall be made to the contractor in respect of any work he may carry out or any expenditure he may incur in compliance with the term and conditions of this clause.

14 **INTERFERENCE WITH OR DAMAGE TO OTHER WORKS:-**

The contractor shall not cause any interference with the work of any other contractor engaged for the construction at site of work and shall take all due precautions to prevent his work people from causing the damage to the work of other contractor while in course of execution of the work covered in the scope of work or otherwise.

15. **LOCATION:-**

The location, where the work is to be executed is shown on the plan attached with the DNIT.

16. **AUTHORITY FROM MANUFACTURER:-**

In case the pumps, motor, pipes, sluice valve, non return valve of make required as per N.I.T. are not manufactured by the tenderer, then authority letter from the manufacturer in the name of tenderer authorizing to quoted for their product with committed delivery period and quantity offered should be attached with the Tender.

17. **SPECIFICATION FOR TUBEWELL :-**

- i) Tubewell will mean the satisfactory completion of :-

- a) Drilling of bore holes, which include drilling in all kinds of strata including hard rock, such as ballast or granite etc.
- b) Installation of casing complete with slotted and Blind pipe.
- c) Development with the aim of stabilizing the gravel pack and of producing the best possible discharge from the aquifers available at an average depression head of 6.00 meters. The well shall be developed according to clause 9.3 of ISI specification No.2800-1991, Part-I, as amended upto date. The final discharge at working depression obtained at the well should be free from sand during the operating test run with a maximum tolerance of twenty parts of sand in one million parts of water by volume after 20 minutes of starting the pump and 50 PPM at any time at a depression of 6.00 meters or a discharge of 800 LPM per hour (Forty Eight Thousand liter per hour) which ever is obtained earlier.

ii). **Drilling procedure**

The contractor will employ reverse rotary drilling method which shall be understood to include reverse circulation rotary type of drilling and prior concurrence of the Engineer-in-Charge shall be obtained, if any method other than reverse circulation is to be used.

iii). The Engineer-in-Charge may direct the contractor in writing, to do drilling to a depth as found suitable to obtain the required discharge. In all cases, the Government representative will remain at site to select the final depth of the well and the aquifer to be used. He will also pin-point the site on which drilling is to be done. The contractor shall drill the hole upto a depth which will provide maximum good water bearing formation or as directed by the Engineer-in-Charge.

iv). Irrespective of the depth drilled, the payment of drilling shall be restricted to the lowering of Assembly only.

v) **Pipes**

All pipes shall be free from harmful defects and of good, commercial finish and free from loose scale and rust. These should be of standard size and as per IS:4270-1992, as amended upto date. The pipes should be anti corrosion coating. The pipe size will be as below as per IS:8110:2000 as amended upto date.

Sr. No.	Outer dia	Thickness
1	273.10mm	8mm for blank pipe 8.38mm for slotted pipe
2	219.10mm	6.40mm for blank pipe 8.00 mm for slotted pipe

vi) Slotted pipe will be 273.10/219.10 outer dia as fully specified in item No. 4 of the attached schedule of item of work. The design of slots shall be as per ISI specifications No.2800-1991 (Part-I) as amended upto date. The size of slots and percentage of opening will be as per 8110-2000 as amended upto date and to the requirement of the Engineer-in-Charge. Low carbon galvanized steel pipe (LCG) cage type-V wire would screen conforming to IS:8110-2000, IS:4270-1992 with composition of material as per ISI 1012 of OD 221mm equivalent thickness 6.62/8.00mm, ring thickness 8mm, slot opening 0.75mm, open area 25% as per item No.4 to the requirement of Engineer-in-Charge

vii). **Housing Joints**

Supplying, fixing and lowering reducing socket as per IS : 226/1975 as amended upto date 273.10 mm Outer dia, into 219.10 mm outer dia with 8 threads per inch or 25.40 mm, to be made out of M.S. plate with interior



During this process, back washing will also be done at intervals of one or two hours but will not be allowed for more than 5 minutes at a time. The compressor should be capable of developing a pressure, which should be commensurate with the depth of the borehole and will be worked out as directed by the Engineer-in-charge.

The development will be carried out till:-

- (a) The well ceases to absorb further gravel.
- (b) The depression ceases to improve.
- (c) The discharge ceases to improve.
- (d) The water is reasonably sand free i.e. the sand is not more than 20 parts in one million parts of water by volume after 20 minutes of starting the pump. The price for development will be paid as per item of the attached schedule of item of works. The electric power required will be provided by the contractor at tubewell site at his own cost. The electric charges consumed will be paid by the contractor and the watering devices will also be arranged by the contractor out of his own resources.

The development of tubewell shall be carried out in the presence of an official of the department of the rank not less than J.E. or any other nominee of the Engineer-in-Charge. However, during the final stage of development, the Asstt. Engineer (Civil) concerned shall be present at site and personally verify the successful completion of development, including the number of hours during which the development was done by the compressor. In order to optimize the development process, the same shall be done during day time only.

**xi) Acceptance Test**

Productivity test of tubewell will be done by the contractor at his own expenses with the pump used for the development immediately after the completion of development as detailed in clause 9.4 and 12.1 of IS: 2800-1991 (Part-I) as amended upto date for a maximum period of 8 hours.

1. Acceptance test shall be verified by the Engineer-in-Charge after fully satisfying himself about the drilling of bore, development and the verticality of the tubewell as per procedure given in IS:2800-1991 (Part-I) and IS:2800-1979 (Part-II) as amended upto date.
2. All payment shall be released after the completion of acceptance test to the satisfaction of the Engineer-in-Charge.

**Note :**

1. All the arrangements for the transportation of boring and lowering equipments to the site of work and its operation viz Katcha track, water, electricity etc. if so required, shall be made by the contractor at his own cost.
2. The contractor shall provide geological data of the well according to the method described in clause 12.2 and 12.2.1 of ISI specification No.IS;2800-1991 (Part-I) as amended upto date and prepare strata chart giving the details of different strata as received from the bore according to the instruction of the Engineer-in-Charge of the work and nothing extra for the same will be payable. He shall locate strainer as per strainer location to be approved by the Engineer-in-Charge.
3. Drilling log book shall be kept at the site of the tubewell for filling of data described in clause 12.2 and 12.2.1. of ISI specification IS:2800-1991 (Part-I) as amended upto date and nothing extra for the same will be payable.
4. All gold, silver, oil and other materials or any relics, antiques and other similar things which may be found in or upon the site shall be the property of the Institute and the contractor shall deliver the same to such persons as the department may from time to time appoint to receive the same.

5. The work shall be carried out by the contractor strictly and in accordance with attached contract specification and ISI specification No. IS: 2800-1991(Part-I) and IS:2800-1979(Part-II) as amended upto date.
6. Material such as gravel, boulders or any other material like gradient etc. which may come up during excavation of trenches/sumps etc. will be the property of the Institute and if any misappropriation thereupon is made by the firm/contractor the recovery of Rs.200.00 (Rupee Two Hundred) per cum will be made from the bill of the contractor/firm.
7. The site of the tubewell can be changed at later stage to some other site as deemed fit, if required by the Engineer-in-Charge, with the prior approval of the concerned competent authority Nothing extra will be payable to the contractor for the change of site by the Institute or due to collapse of tubewell during the drilling operation.
8. Water connection, if available at site of tubewell will be given to the contractor and ½%(half percent) charges of the gross amount of work done including cost of material shall be deducted from his bill, otherwise the contractor will make his own arrangement himself for the availability of water and no condition in this respect will be entertained.
9. No claim will be entertained from the contractor in case any mistake in the description of units or rates occurs or any of the items taken in this schedule while composing this schedule or on account of typing, comparison or over-writing occurs. In case of any mistake, the same will be rectifiable at any stage as per ISI specifications, by the Engineer-in-Charge alongwith the amendments of the same received from time to time.
10. Site of tubewell will be checked for water availability by contractor by resistivity survey and rate for the same may be quoted in the schedule of rates.
11. To carry out at start of conditions of contract the successful tenderer will have to sign an affidavit that he has no relation and connection with the firm/contractor black-listed by any Department from time-to-time.
12. The inspection of ERW steel pipe LCG/MS screen and gravel to ensure that the material conforms to required specification as per DNIT will be carried out by the Engineer-in-Charge or his authorized representative himself and will also issue the inspection note there of before it's lowering and installation.
13. The payment for depth of drilling for Tube Well will be restricted to the length of ERW MS pipe & LCG screens/MS screens. Extra drilling shall not be payable to the contractor which is required to be done for take care of caving etc. The contractor shall quote the rate accordingly.
14. Drilling of tubewell will be taken in hand only if the resistivity survey indicates the availability of good quality and sufficient quantity of water based on the resistivity survey carried out by the firm/contractor. In case the resistivity survey indicates the availability of sufficient quantity and good quality of water but after drilling of tubewell, sufficient quantity and good quality of water is not available as per requirement of this DNIT, no payment shall be made to the firm who will be responsible for the same. This clause is applicable only if resistivity survey is got done from the contractor.
18. **SPECIFICATION OF CLEAR WATER SUBMERSIBLE PUMPING SET:-**

The pump will be ISI marked according to ISI 8034-1989 (with upto date amendment). The design of the impeller must be of bronze/Turbine type enclosed dynamically balanced having seal rings on their hubs ensuring deviation and hunting free performance. Pump casing shall be capable to with stand hydraulic pressure equal to twice the maximum pressure or 1.5 times of the shutoff pressure, whichever is higher. Pump shaft shall be guided by bearing provided in each bowl and have suitable suction case with strainer.

Suitable coupling arrangement shall be provided and non-return valve shall be provided on the pump discharge case.

The tenderer must furnish complete information on Annexure-A regarding pumping machinery and will submit specifically as below:-

1. Make of the pump with model number.
2. Make of motors.
3. Guaranteed over all efficiency of complete pumping set including pump efficiency at duty point and the neighbouring head and motor efficiency at full load  $\frac{3}{4}$  load and  $\frac{1}{2}$  load. The discharge efficiency and horse power at - 25% and + 10% of working head be stated in the tender at duty point.

The following accessories also be supplied with pump.

- (i) Two sets of erection clamps of suitable size for each set.
- (ii) Joint less flat water proof double cable for star delta starter of adequate size and length of 50 meter (double length) for each set.
- (iii) Cable clips: Suitable for each set.

1) **Thrust Bearing:**

The thrust bearing shall be of adequate size to with stand weight of all rotating parts as well as imposed hydraulic pressure.

The motor should be provided with a specials self align thrust bearing to accommodate the vertical loads of motor and pumps shaft assembly and is water lubricated.

2) **Impellers:-**

The impeller should be made out of high quality wear resistant bronze and is enclosed type perfectly balanced dynamically.

3) **Shaft:-**

The pump shaft should be made out of superior grade stainless steel duly ground and polished to close tolerance.

4) **Stage Bowls:-**

The stage bowls should be made of close-grained grey iron castings and treated with epoxy paint for longer life.

5) **Suction Chamber:-**

The pump suction chamber should be provided with a performed strainer to prevent the entry into the impellers of any suspended material in water.

6) **Motor core:-**

The motor body should be made of stainless steel tube treated with epoxy coating.

7) **Solid core:-**

The motor laminations should be supported with solid end rings on both ends to prevent any mechanical damage.

8) **Rotor:-**

The solid rotor should be dynamically balanced and treated with epoxy paints.

9) **Winding:-**

The motor winding should be a non edging water proof dense PVC insulation which should also be resisted to chemical effects having an extremely high percussion strength.

10) **Non Return Valves :-**

The non return valve should be fully stream lined with minimum friction for each pumping set, flanged type and as per ISI specifications.

11) **Bearing:-**

The motor and pump shafts should be supported in water lubricated leaded bronze plain bearing bushes.

12) **Reflex valves and Sluice valves (Heavy duty ISI Marked) :-**

These shall be heavy duty flanged type with Gun metal sheets and of reputed make ISI marked and shall be provided on the delivery side for each of the pumping set. Sluice valve should be as per IS 780 and non return valve as per IS-5312

**19. SPECIFICATION OF ELECTRIC PANEL BOARD**

Providing and fixing of box type panel board at site made of 14 gauge M.S. Sheet supported on angle Iron frame with angle iron stand made of 50x50x6mm comprising of star delta fully automatic air break starter 440 volts, 3 phase 1 No. main switch with HRC fuse type 440 V. One No. voltmeter 0-500 V. One No. Amp. Meter of Havells of equally good make of adequate range, One No. Voltage selector switch, One No. single phase preventer and One No. capacitor of suitable range, 1 No. earth leakage detector. 3 No.. indicating lamps all fitted in box duly painted wall/floor mounting for motor of suitable capacity including cost of cable etc.

i) **DETAIL OF ACCESSORIES OF PANEL BOARD :-**

1) **Starter of suitable capacity**

This shall conform to IS 1822-1967 category AC and shall be suitable for motor supplied. The starter shall be fully automatic star delta air break type.

2) **Voltage Drops**

In motor circuit the conductor shall be so chosen that the voltage at the terminals of motor when running under full load conditions is not less than 90% of the voltage at the main bus bar.

Sizes of the cables shall be such that it should be possible to run all the pumping sets satisfactorily.

3) **Volt Meter**

Each pumping set shall be providing with a voltmeter with 3 ways and On/Off selector switch as per IS 1248.

4) **Amp meter**

Each pumping set shall be provided with amp-meter to suitable range with 3 way and off selector switch as per IS 1248.

5) **Main Switches**

Incoming feeder, comprising of TPN switch fuse uDNIT with HRC fuse of specified make & rating.

6) **Indicating Lamps**

One set indicators for each pump of red, yellow, blue phase indicating lamps with piano type switches and fuse for the incoming supplies for giving indication of respective incoming line feeder.

7) **Voltage Selector Switches**

1 No. VSS of reputed make shall be provided.

8) **Single phase preventor**

The motor should trip even if one out of three phases goes off.

9) **Overflowing of OHSR, Prevention device**

The starter should trip when the OHSR is filled up so that no water over flows (if applicable).

10) **Submersible Cable**

Only Finolex make submersible cable 50 meter double length joint free PVC flexible sheathed flexible 3 core flat with copper conductors for continuous use under water and air conforming to and duly marked IS-694/1977 (as amended upto date) for rated out put of motor required for pumps as per Annexure-A should be fixed to the discharge casing through guard provided on the pump cases. The size of the cable shall be as under:-

Rates Output of Motors conductor.	Min. Size of cable copper conductor
Upto 10 KW	= 2.5mm <sup>2</sup>
Above 10 KW to 14 KW	= 4mm <sup>2</sup>
Above 14 KW to 22 KW	= 6mm <sup>2</sup>

11. **Earthing**

All the electrical equipment such as LT panel etc. shall be provided with double loop earthing with thimble connection. All lighting equipment shall be provided with single loop earthing. All connection shall be by means of soldered thimbles of approved quality. The earthing shall be done in accordance with para 7 of IS-732-1968 and IS 3043-1996 (code in practice in earthing) all connections of the earthing system shall be visible for periodical inspection and testing.

It is absolutely essential that the entire earthing system should be designed with regard to likely earth fault and Current based on the rating of equipments installed. All wiring and earthing shall be as per I.E. 1956 rules and shall be got approved from Electrical Inspector Haryana.

- (a) Earthing with G.I. earth pipe 4.5 mm long and 40 mm dia with masonry enclosures on the top charcoal or coke and salt for pipe earth along with earth connections from earth electrode with 4mm dia G.I. wire in 15mm dia G.I. pipe from earth electrode as required.

## 12. Capacitor

The capacitors of suitable capacity

Voltage	:	400/440 Volt Ac
Frequency	:	50 HZ
No. of fuses	:	3
Insulation level	:	3000 Volt AC
Equipped with internal	:	Provided in the form of suitably rate copper wire.fuse tinned
Externally	:	Provided with discharge resisters.

## 20. ERECTION OF PUMPING MACHINERY:

### (i) Safeguarding & Protection

All machinery, equipment, pipes, specials accessories, name plates, gauges etc. supplied by the contractors shall be safeguarded by him untill completely erected, tested and handed over to and taken over by the deptt. All openings shall be protected to prevent entry of foreign matter, by blinds/plugs. The machinery shall be carefully handed over. case of loss or damage to any machinery or to any part thereof, the contractor shall bear the responsibility and loss.

The machinery shall be protected by the contractor against weather conditions and other chances of deterioration. If required by the Engineer-in-Charge, these shall be covered with tarpaulins and with tin or G.I. Sheets.

The components, parts etc shall be thoroughly cleaned before assembly and assembled as per drawing and instructions contained in the supplier's booklets and literature for installation or as per instructions by the Engineer-in-Charge. The contractor shall be responsible for checking levels and orientation plan of all foundation diameter length and disposition of anchor bolts in accordance with above instruction well in advance of taking up the actual erection of machinery. In case of any variation in levels, etc. the contractor shall do the necessary rectification at his own cost.

After completion of pre-erection works to the satisfaction of the Engineer-in-Charge, the contractor shall commence the erection of machinery or foundations.

### (ii) General

The contractor shall supply the manufacturers recommendations and instruction for installation and operation so as to ensure proper erection of machinery and its operation. These instructions and directions of the manufactures shall be studied and checked up at site before final grouting is taken in hand.

The contractor shall provide all tools and gauges for erection and alignment. The contractor for the purposes of erection shall employ, at his own cost, suitable lifting saddles, cranes and skilled men, to the satisfaction of the Engineer-in-Charge. The contractor shall himself provide huts , sheds or godown for storage of his materials and labour etc.

The contractors shall be responsible for arranging and executing the work of centering scaffolding, staffing, planting, timbering, strengthening, shoring, pumping fencing, watching and lighting at night as well as in day.

The contractor shall give all necessary personal superintendence during the execution of the work and as long thereafter the Engineer-in-Charge may consider necessary, until the expiration of the "Guarantee Period" stated in a separate sheet attached herein.

After erection and alignment in accordance with the drawings, specification and instructions, a report shall be submitted to the Engineer-in-Charge who will check and accord approval before taking up grouting of bolts and final dressing of foundations base. Grouting shall be as per drawings, specifications and instructions of the Engineer-in-Charge and shall form part of erection work.

Final alignment, as specified by the manufacturer, shall be carried out after piping connections are made. Tolerances specified by the manufacture shall be added to ensure that no stresses are induced on the pumps by piping. The contractor shall again check the alignment by disconnecting the piping or in the working condition or in both conditions.

The drilling of holes in the base plate for fixing motors, fixing of couplings on shafts etc. and dowelling including provision of dowel pins or similar arrangement for retaining the alignment shall be carried out by the contractor as part of the erection work.

The contractor shall fix up pressure gauge, lubricants grease cup and all other accessories as part of the unit. All machinery before erection shall be cleaned, even if opening of some of the parts is required, to bring it in its original condition. No extra payment for such work shall be made.

## **21. OTHER ITEMS:**

### **i) Assembly/column pipes for lowering pump set in tubewell.**

These shall be ISI marked. Medium class GI column pipes conforming to IS-1239 (Pt.1) in length of 3 meter each duly welded with heavy quality MS flanged and both ends to make flanged joints for lowering submersible pump set in the tubewells including cost of flanges, nuts, bolts and rubber insertion complete. The flanges shall be provided with a groove for passing and securing submersible cable.

### **ii) Chlorine Dozing Systems.**

Supply & erection of Chlorine Dozing System includes the supply erection, commissioning & testing of chlorine dozing pump and one No. 300 liter capacity ISI marked HDPE storage tank of Sintex or other reputed and approve make.

'Chlorine Dozing System' shall comprise of "Wall Mounting type, Solenoid driven, motor-less electromagnetic diaphragm dozing/metering pump of reputed brand like Fontus, Toshkon, Jesco, Bhask or other equivalent and

approved make/brand working on single phase 220/240 V 50 Hz electric supply with standard electronic controls suitable for minimum dozes capacity 0 to 5 LPH of Sodium Hypo Chlorite solution at 8 bar back pressure with adjustable stroke length from 0 to 100% having EPDM diaphragm with PTFE quoting on the side in contact with the medium, complete with PP pump head and connectors, on/off switch, flow rate adjustment mechanism, foot valve/strainer assembly, back pressure injection valve assembly, clear flexible suction discharge tubing size 6mm x 4 mtr each and bleed valve discharge tubing, tank or shelf mounting brackets and other necessary accessories complete.

iii) **CI Double Flanged Pipes.**

These shall be horizontally cast iron double flanged pipes class-B conforming to IS-7181-1986 as amended upto date and bearing ISI certification marks in maximum length upto 2.75 meter each or shorter lengths/pieces as per site requirements. Supply and erection of the same shall include cost of labour and material required for fabrication for double flanged smaller piece lengths and jointing the delivery lines with flanged joints, inclusive of cost and labour for other material like nuts, bolts, rubber insertion etc. as per site requirements.

iv) **C.I Specials.**

The D/F and other CI specials will be supplied by the contractor and fixed/erected at site as per requirements. The CI specials shall confirm to IS-1538-1993 (Part 1 to 24) as amended upto date, suitable for centrifugal, cast (spun) pressure pipes conforming to IS-1536.

v) **Non return valve and Sluice valve**

The sluice valve and non return valve of the require sizes shall be supplied and erected by the contractor, which shall be flanged type of PN 1.6 type and duly ISI marked.

vi) **Pressure gauges**

Pressure gauges with siphon cock as per ISI 3624 having dial gauge of 150mm dia will be provided with the pump set and suitably fixed at site.

vii) **Painting Schedule**

All parts of the electrical equipments and pumping machinery, base plate, accessories, piping and other iron or steel work not finished shall be filled and painted with three coats of approved paint which shall be applied after erection.

viii) **Performance**

(i) The material supplied & fixed by the contractor shall be subject to no tolerance and the result shall be obtained during the official tests on the plant. If less satisfactory result then those guaranteed are obtained, the Engineer-in-Charge reserves the right to reject the same.

ix) **Manual Instructions**

Six copies of comprehensive manuals for the use by the Engineer-in-Charge before and during the erection and subsequent operation and maintenance of the plant shall be furnished after the approval of the drawings. The contractor shall furnish and install in the pump house neatly prepared set of operating instructions, securely framed and planned and shall also furnish tracings.

x) **Guarantee**

The tenderer shall submit with the tender guarantee certificate as given in Schedule VIII.

xi) **Inspection**

The inspection of electric equipments and pumping machinery before supply shall be inspected by PDIL / RITES / WAPCO and the inspection charges payable to PDIL / RITES / WAPCO will be paid by the department.

Executive Engineer  
For Director N.I.T. Kurukshetra

## **ADDITIONAL CONDITIONS OF CONTRACT :**

1. The work will be carried out strictly in accordance with the PWD book of specification edition 1990, which forms a part and parcel of this contract agreement.
2. In this contract schedule of rates only essential portion of description of item has been written but it will deem to cover the entire items as fully described in Haryana PWD. Schedule of rates, 1988.
3. The Engineer-in-Charge shall be entitled to order work against any item of work shown in this contract schedule of rates hereinafter called the schedule to any extent and without any limitation where-ever as may be required in his opinion for the purpose of work, irrespective of the fact that the quantities are omitted all together in the schedule or are shown more or less than the work ordered to be carried-out.
4. The rate for any item of work not provided in the Haryana PWD Schedule of rates 1988 but executed at site will be decided by the competent authority and the decision will be binding upon the contractor.
5. All the items in this contract schedule of rates are subject to foot notes/notes given in this Haryana PWD. schedule of rates 1988 regarding these items.
6. Approximate quantities are given in the contract Schedule of rates and may vary at the time of execution of work. The payment will however be made for the actual work done by the contractor. No extra claims whatsoever will be admissible to the contract on account of variation, alteration or deletion of any item over the quantities depicted in this contract schedule of rates.
7. All amendments issued in the Haryana PWD Schedule of rates 1988 as appended in the DNIT will be applicable on the contract schedule of rates.
8. The contractor will have to make his own arrangement of bricks and all other materials required for successful execution, completion and operation and maintenance of the work.
9. Any other item not included in this contract schedule of rates and got done at site of work will be paid according to relevant item of Haryana PWD schedule of rates @ rates accepted in the allotment letter and approval issued by the competent authority against this contract.
10. No claim will be entertained from the contractor in case any omission in description of rates and DNIT which might have occurred in any of these items taken in schedule while comparing this schedule or on account of typing/comparison or over writing in case of any error, the same shall be rectifiable at any stage as per Haryana PWD Schedule of rates 1988 along with the amendments on the same received from time to time.
11. The premium should be quoted above or below the contract schedule of rates and no condition should be given. In case, any condition is tendered, this will be considered as Null and void and only the premium or discount quoted by the tenderer shall be accepted. In case, any tenderer refuses to accept this, his earnest money will be forfeited.
12. No premium shall be payable on N.S. items.
13. The contractor will dispose off the excavated surplus soil if any, at his own cost to a place as directed by the Engineer-in-Charge , but shall by all means, clear the site from the extra earth. No extra lead, lift, wet earth, loading, unloading and carriage will be paid to the contractor who will have no claim on the same at anytime later. Further, the contractor will quote his rate taking into account the rebate of the surplus earth which will be disposed off by him at his own cost.
14. All the reinforcement shall be Fe-415 grade duly ISI marked confirming to relevant BIS and shall be procured by the contractor at his own cost. In case when provision of through rates of steel reinforcement has been made in the DNIT, the contractor shall submit the test certificate of the steel brought by him to the site of work and also the sample of steel may be got tested by the Engineer-in-Charge. The steel shall be ISI marked.

15. The rates included in the contract cover the cost of filling of the water retaining structure, testing for water tightness, to the full satisfaction of the Engineer-in-Charge and emptying the same if desired.
16. Minimum 40mm clear cover be provided on the reinforcement on the inner side of the structure. The contractor shall give structurally safe and water proof structure.
17. Contractor shall be fully responsible for structural safety in all respect of the structures existing and under construction as per scope of work of the DNIT.
18. Quality check register will be maintained at site and regular sampling of work executed every month shall be recorded in the same.
19. Construction of Pump Chamber, Boundary wall and installation of Machinery shall be taken up only after ensuring satisfactory installation of tubewell to the satisfaction of Engineer-in-Charge. Any Civil work/ Machinery work carried out without satisfactory installation of tubewell, as above shall be the responsibility of contractor and nothing will be paid on this account.
20. All the material brought at site by the contractor will be got tested in the Institute and the cost for the same will be born by the contractor.
21. 4% sale tax and 2% income tax + surcharge and 1% Labour Cess as applicable or all taxes as applicable from time to time will be deducted from gross amount of each bill of the agency/ contractor

.....  
Executive Engineer  
For Director N.I.T. Kurukshetra

**ANNEXURE 'A'**

(INFORMATION TO BE GIVEN BY TENDERER DULY CERTIFIED AND SIGNED)

Discharge =      LPM /      Head =      Meter

1. Make of pump
2. Model of the pump
3. Name of manufacturer
4. Efficiency of pump only at duty point.
5. Overall efficiency of set at duty point.
6. Shut off Head (Meters)
7. Discharge at (-) 25% Head
8. Efficiency at (-) 25% Head
9. Discharge at (-) 10% Head
10. Efficiency at (+) 10% Head
11. No. of stages
12. Max. overall diameter including cable guard in mm of pumping set
13. Input at duty point(KW)
14. Input at (-) 25% Head (KW)
15. Input at (+) 10% Head (KW)
16. Suitability of set at + 6%(-) 15% Volts Yes/No
17. Suitability of set at +3% variation Yes/No  
    - in frequency Yes/No
18. Guarantee as per DNIT
19. Performance curves (All three characteristics) to be attached Yes/No
20. Wt. Of Motor pump set (Kg.)
21. Mimimum bore well size (MM) required.
22. ISI License No. & date and validity
23. Make of cable – only Finolex made
24. Size of cable (MM2) in square mm
25. Rate per set with accessories Yes/No
26. All accessories as per DNIT
27. FOR
28. ST/Excise duty
29. All technical details as per DNIT Yes/No

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Executive Engineer  
For Director N.I.T. Kurukshetra

Annexure-“B”

Name of work :- Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto.  
(App. Cost Rs. 20.61 lacs.)

SCHEDULE NO.III

LIST OF APPROVED MAKES

1. Submersible pump
  - a) KSB
  
2. Starters:
  - a) L & T
  - b) Siemens
  - c) BCH
  - d) Bentex (SKM)
  
3. Non-Return Valve
  - a) ISI Marked
  
4. Sluice Valves
  - ISI Marked
  
5. Main Switch
  - a) L & T
  - b) Siemens
  - c) Crompton Greaves
  - d) Hawells
  
6. Capacitors
  - a) Crompton Greaves
  - b) Asian
  - c) Javie
  - d) L&T
  - e) Siemens
  
7. LCG Screen
  - a) Johnson
  - b) Super

8. GI Pipes
  - a) Tata
  - b) Jindal
  - c) Parkash
  - d) Ravindra
  
9. Voltmeter & Amp. Meter
  - a) AE
  - b) L&T
  - c) MEI
  
10. Submersible cable
  - a) Finolex
  
11. Copper wire of Plaza / Havels make for use in Penal Board.
12. ISI marked cable from HVPN supply to Penal Board.
13. HDPE Tank- Make SINTEX
14. DOZER Make FONTUS, TOSHKON, JESCO, BHASK

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Executive Engineer  
For Director N.I.T. Kurukshetra

Name of work :- **Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto. (App. Cost Rs. 20.61 lacs.)**

**Schedule No. IV**

**ADDITIONAL TECHNICAL CONDITIONS**

**1. Test Certificate**

A test certificate form the manufactures shall be handed over to the department before installation of the equipment specifying that the equipment confirm to relevant ISS/PWD specification

**2. Wiring Diagram**

After completion of the work complete drawing showing connections to the various equipment is to be prepared by the tenderer and to be submitted to the deptt. alongwith final bill of the work.

**3. Connections**

Inter connections from the busbar chamber to the different main switches/Air circuit breakers should be through solid copper bars of the required capacity duly insulated for which no extra payment will be made.

4. The rates quoted should be FOR at site of work including cost of installation, freight, octroi taxed and other charges. Nothing extra over and above rates will be admissible.

5. Superfluous conditions and conditional tender will be rejected.

6. Telegraphic tenders and tenders without earnest money in shape of deposit at call will not be accepted.

7. The machinery will be installed as per standard PWD, Specifications and to the entire satisfaction of the Engineer-in-charge.

8. Contractor will also be responsible for getting inspected and passed and approved the whole electrical system from the Chief Electrical Inspector or as the case may be. He will make necessary payments of fee for this purpose to that office. The department however will tender necessary assistance to the contractor. All testing and charges of various electrical equipments required by UHBVN/DHBVN will be borne by the contractor.

9. The quantity of electrical equipments and pumping sets can be increased / decreased by the Deptt.

10. The tender submitted by the firms shall be valid for 90 days(3 months).

11. In case any mistake is found in the DNIT, the same shall be rectifiable even after the opening of the tender and execution of contact agreement as per requirement and site conditions.

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Executive Engineer  
For Director N.I.T. Kurukshetra

Name of work :- Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto.  
(App. Cost Rs. 20.61 lacs.)

**SCHEDULE NO.V**

**CONTRACT DRAWING ACCOMPANYING THE TENDER**

List of drawing and curves to be submitted by the contractor with the tender for electrical equipments and pumping machinery.

General arrangement of the electrical equipments and pumping machinery and other equipment offered.

Witness\_\_\_\_\_

Contractor\_\_\_\_\_

Dated \_\_\_\_\_

Dated\_\_\_\_\_

.....  
Executive Engineer  
For Director N.I.T. Kurukshetra

**Name of work :- Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto. (App. Cost Rs. 20.61 lacs.)**

**SCHEDULE NO. VI**

List of drawings in duplicate to be submitted by the contractor to the Engineer-in-charge for approval during the course of construction of work. completed and final to the scale, foundation plans.

Completed and to the scale, other detailed dimensioned and sectional working drawings to panel board and line diagrams of LT cables and PVC copper wiring and pumping machinery with suction and delivery pipe and line diagrams. Any other working drawing required by Engineer-in-charge from time to time.

**Completion Plans:-**

Three bound sets of above drawings together with the printed instructions, leaflets, characteristics curves and Operations Hand Books of the various equipment installed at the work.

Witness \_\_\_\_\_

Contractor \_\_\_\_\_

Dated \_\_\_\_\_

Dated \_\_\_\_\_

.....  
Executive Engineer  
For Director N.I.T. Kurukshetra

**Name of work :-** Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto.  
(App. Cost Rs. 20.61 lacs.)

**SCHEDULE NO. VII**

The following is the list of drawing attached with the DNIT.

Layout plan showing location of tubewells at \_\_\_\_\_

Line Diagram of Pipes and Specials

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Executive Engineer  
For Director N.I.T. Kurukshetra

**Name of work :- Providing, installing and commissioning of 2 Nos. tubewells, Construction of 2 Nos. pump chambers and boundary walls, and all other works contingent thereto. (App. Cost Rs. 20.61 lacs.)**

**SCHEDULE NO.VIII**

**GUARANTEE :**

I, we hereby guarantee that the electric equipment, pumping machinery, switch gear, distribution board, electric cable etc. or any other apparatus supplied are according to the latest ISI, Specifications, whichever applicable on the date of opening of tender and according to the specification attached to the tender, wherever ISI Specifications do not exist. The performance is guaranteed for the entire work for a period of one year after the date of final acceptance of the work by the Engineer-in-Charge. The guarantee also covers for the same one year, efficient, reasonably free from noise and satisfactory working of the machinery and equipment. If found not to comply with the guarantee, I/We shall at our own cost and expenses renew or replace or do whatever is necessary to remedy the fault as required by the Engineer-in-Charge. I/WE shall during the same period of one year repair promptly at our cost and expenses, all break-downs or failures which may occur in the opinion of the Engineer-in-Charge, due to faulty material and workshop.

Witness \_\_\_\_\_

Contractor \_\_\_\_\_

Dated \_\_\_\_\_

Dated \_\_\_\_\_

.....  
Executive Engineer  
For Director N.I.T. Kurukshetra

## BOQ for construction of 2 Nos. Tubewell Chambers of size (14' x 16') at NIT, Kurukshetra

Sr. No.	HSR No.	Description	Qty.	Unit	Rate (in Rs.)
<b>SUB PART-I: INTERNAL CIVIL WORKS (SCHEDULE ITEMS)</b>					
1	6.6	Earth work in excavation in foundation, trenches etc. in all kind of soils, not exceeding 2 mtrs. depth including dressing of bottom and sides of trenches, stacking the excavated soil, clear from the edge of excavation and subsequent filling around masonry in 15 cm layers with compaction, including disposal of all surplus soil as directed within a lead of 30 mtrs.	15.00	100 Cum	
2	10.39	Cement concrete 1:4:8 with stone aggregate 40mm nominal size in foundation and plinth (upto 1.5m depth)			
		For Foundation	7.50	Cum	
3	10.82 + 10.95 (a)	Cement concrete 1:1:5:3 with stone aggregate 20mm nominal size for reinforced concrete work in slab with inclination not exceeding 25 degree with horizontal, excluding steel reinforcement but including centering and shuttering laid in position complete in all respects.	3.00	Cum	
4	10.89 + 10.95 (a)	Cement concrete 1:1:5:3 with stone aggregate 20mm nominal size for reinforced concrete work in fascias, parapet and other thin vertical sections, not covered by items nos. 10.82, 10.86-10.88 not exceeding 10 cm excluding steel reinforcement but including centering and shuttering laid in position complete in all respects.	1.50	Cum	
5	10.114	Damp proof course 40mm thick of cement concrete 1:2:4 using stone aggregate 20mm nominal size with 2 coats of bitumen 20/30 penetration at 1.65kg per sqm. laid hot and sanded.	7.00	Sqm	
6	11.3	First class brickwork laid in cement sand mortar 1:5 in foundation and plinth.	7.00	Cum	
7	11.8	First class brickwork laid in cement sand mortar 1:5 in first storey upto 4 meter above plinth level.	7.00	Cum	
8	13.13	Terracing consisting of tile 22.86cm X 11.43cm X 3.81cm laid over 87.50 m mud filling on a layer of 25mm mud plaster and an other layer of mud motor for laying , the tiles including two coats of bitumen laid hot at 1.65 kg per sqm on top of RCC slab including grouting with cement sand mortar 1:3 and top surface to be left cleanetc.	30.00	Sqm	
9	13.45	Providing and fixing cast iron rain water non pressure pipe ISI mark with ears with screw and wooden plugs fixed on Well face including filling joints with spun yarn and cement Mortar 1:2 excluding head and shoe etc.a) 100mm i/d pipe	6.00	mtrs.	
10	13.47	Providing and fixing cast iron head for rain water pipe on wooden plugs fixed on wall face including filling the joints with spun yarn and cement plaster 1:2 .	1.00	Each	
11	13.48	Providing and fixing cast iron shoe for 100mm dia rain water pipe on wooden plugs fixed on wall face including filling the joints with spun yarn and cement mortar 1:2 .	2.00	Each	
12	13.50	Top Khurra 0.6 m x 0.6 m for rain water pipe in 25mm thick cement concrete 1:2:4 over 50mm thick cement concrete 1:8:16.	2.00	Each	

13	13.57	Bottom Khurra on ground 1.2m x 0.6m consisting of brick-on-edge laid in cement mortar 1:3 over 75 mm cement concrete 1:8:16 including 12mm thick cement plaster 1:3.	2.00	each	
14	14.1	Base course of floor consisting of 100mm thick cement concrete 1:8:16 and 100mm sand or stone filling	22.00	Sqm.	
15	14.17	40mm thick grey polished flooring cement concrete 1:2:4 topping finished with 1mm thick neat coat of cement rubbed and polished .	22.00	Sqm.	
16	14.18	18mm thick grey polished skirting or dado consting of bottom layer of 15mm thick cement sand plaster 1:3 and finishing with thick topping of neat cement rubbed and polished including rounding off junction with floors	22.00	Sqm.	
17	15.5	12mm thick cement plaster 1:4	90.00	Sqm	
18	15.51	10 mm thick cement plaster 1:3	22.00	Sqm	
19	15.60	Cement pointing 1:2 deep variety on brick and tile work	60.00	Sqm	
20	16.2	Applying pink primer or aluminium priming coat of wood work cluding preparation of surface knotting and stopping etc. (with second quality paint)	60.00	Sqm	
21	16.4	Painting two coats excluding priming coat with ready mixed paint in all shades on new wood work /(with second quality paint )	30.00	Sqm	
22	16.48	White washing three coats	90.00	Sqm	
23	16.50	Colour washing two coats	60.00	Sqm	
24	16.54	Distempering with dry distemper (of approved manufacture) two coats over one priming coat on new work	90.00	Sqm	
25	16.61	Finishing walls with exterior decorative cement based paints such as snowcem robbiacem etc. on new work two coats to give an even shade	60.00	Sqm	
26	18.1	Steel work, fixed independently without connecting plates,including cutting, hoisting and fixing in position in :- (a) RS joints.	3.75	Qtl.	
27	18.34 ©	Pressed steel sheet frames (chowkhats), consisting of 2mm thick steel sheet of the specified section, including iron lugs (hold fasts), iron hinges, conforming to P.W.D. specifications including bolts for fixing stops, lock notch provision for receiving tower bolts and finished with one coat of ready mixed paint red lead non-setting primer of approved quality fixed in position including the cost of cement concrete 1:3:6 for filling in the frame and cement concrete 1:3:6 for lugs complete:-			
	(c )	Size 127mm x 50mm x 40mm wide dobule rebate	30.00	Mtr.	
28	18.22	Cold twisted deformed (ribbed/tor steel) bars for RCC works where not included in the complete Rate of RCC including bending binding and Placing in position complete	7.50	Qtl.	
29	18.38	Providing and fixing fan hooks 80cm long of required shape and size a) 16mm dia	1.00	Each	

## BOQ for Providing & Installation of 2 Nos. Tubewells at NIT, Kurukshetra

Sr. No	HS R No.	Description of Item	Qty.	Unit	Rate (in Rs.)
<b>Schedule-II</b>					
<b>SUB HEAD NO. 1</b>					<b>PUMPING MACHINERY</b>
1		Supplying and fixing submersible pumping set ISI marked of approved KSB make with 1400 LPM discharge with 67 M head 5 stage 35HP (motor HBC/333 & Pump BPHA/333/5) with suitable capacity with complete submersible finolex flat cable 10mm <sup>2</sup> 3 core plain copper double length for lowering of pumping sets with M. S. clamp 4" i/d.	1	Set	
2		Supplying and welding MS flange with GI pipe 100mm & lowering the same in T/W including cost of rubber insertion Nut bolts rate completed Av. Length 3 mtrs. with M. S. flanged welded both sides with rubber insertion and nuts and bolts complete including lowering of pipe. Make : Jindal Hisar, Jai Parkash, TATA of B Class	15	Each	
3		Supplying and erection of D/F sluice valves ISI marked. (i) 100mm i/d	3	Each	
4		Supplying and erection of reflex valve ISI marked. (i) 100mm i/d	1	Each	
5		Prov. and fixing C. I. specials such as flanged tapper / D.F. bend / D.F. tees , tail paics plain etc. including nuts and bolts and rubber insertion complete fixed in position.	200	Per Kg.	
<b>SUB HEAD NO. 2</b>					<b>PANEL BOARD</b>
1		Supply installation testing commessning of 35HP 415V, 50HZ ston delta starter comarisng of following:	1	Each	
	(i)	16 gauge M.S. Sheet, powder coating dust proof panel	1	No.	
	(ii)	MCCB 100A, 415V, 4 Pole, 25KA (L&T/ABB/SIEMENS)	1	No.	
	(iii)	ML-3 contactor for star delta operation (Star Delta & main mode) L&T/BCH make coil voltage 415V	3	Nos.	
	(iv)	Single phasing prenentor minilec make	1	No.	
	(v)	24 Hrs. programmable timer GIC	1	No.	
	(vi)	Overload relay 22-32A L&T/BCH	1	No.	
	(vii)	Control supply fuses			
	(viii)	Voltmeter with selector switch (RY-YB-BR)	1	Set	
	(ix)	Ameter, CT's & selector switch (R-Y-B)	1	Set	
	(x)	RYB supply indication lamps			
	(xi)	Starter ON/OFF indication lamps			
	(xii)	Auto manual selecter switch with manully operation (ON/OFF) of starter			
	(xiii)	ON/OFF puch buttons & overload reset push button	1	Set	
	(xiv)	All internal copper wiring			
	(xv)	02 Nos G.I. pipe earting with connections including all material			
<b>SUB HEAD NO. 3</b>			<b>Drilling of Tubewell</b>		

1	Drilling of 685.8mm dia bore by hydraulic rotary drilling (reverse circulation method) according to ISI specification No. 2800-1991 (Part-I) as amended upto date and modified to extent of the specification attached with this schedule of items of work in all kinds of soils and boulders upto 125mm dia except rocky strata including the cost of all consumable Stores, fuel, oil, soil stabilizing material and transportation of rig and other accessories to the size of proposed bore and back (including cost of lowering of all sizes of casing pipe while boring and extracting the same against earth frictions etc.) complete to the satisfaction of the Engineer-in-Charge			
	0 to 15 mtrs. Bore hole	1x15 mtrs. 15 mtrs.		
	15 to 30 mtrs. Bore hole	1x15 mtrs. 15 mtrs.		
	30 to 45 mtrs. Bore hole	1x15 mtrs. 15 mtrs.		
	45 to 60 mtrs. Bore hole	1x15 mtrs. 15 mtrs.		
	60 to 75 mtrs. Bore hole	1x15 mtrs. 15 mtrs.		
	75 to 90 mtrs. Bore hole	1x15 mtrs. 15 mtrs.		
	90 to 105 mtrs. Bore hole	1x15 mtrs. 15 mtrs.		
	105 to 120 mtrs. bore holes	1x15 mtrs. 15 mtrs.		
	120 to 135 mtrs. bore holes	1x15 mtrs. 15 mtrs.		
	135 to 150 mtrs. bore holes	1x15 mtrs. 15 mtrs.		
	150 to 165 mtrs. bore holes	1x15 mtrs. 15 mtrs.		
	165 to 180 mtrs. bore holes	1x15 mtrs. 15 mtrs.		
	1 x 180mtr.	180	Per mtr.	
2-	Supplying and lowering 273.00 mm (10" inch) outer dia ERW steel pipes as per IS 4270/1992 as amended upto date, duly ISI marked for housing pipe in 4 to 7 mtrs. Random length with 88.90 mm of threaded ends (8 threads to an inch or 25.40mm) manufactured out of 8mm thick M.S. Plates with required number of M.S. socket 177.80mm with inside thread to match the pipe threads and made out of M.S. Plate into borehole in vertical position including cost of all scaffolding, derricks, Jim, poles, tools and plants, ropes gags M.S. clamp embedded in foundation etc. complete in all respect to the satisfaction of the Engineer-in-Charge of the work including, cost of all cutting, threading of pipe welding where required and all sockets.			
	1 X 100 mtrs.	100	Per mtr.	
3-	Supplying and lowering 219.10 mm outer dia ERW steel pipes as per IS 4270/1992 as amended upto date, duly ISI marked for housing pipe in 4 to 7 metres random length with 88.90 mm of threaded ends (8 threads to an inch or 25.40 mm) manufactured out of 6.40 mm thick M.S. Plates with required number of M.S. socket 177.80 mm with inside thread to match the pipe threads and made out of M.S. Plate into borehole in vertical position including cost of all scaffolding, derricks, Jim, poles, tools and plants ropes, gags M.S. clamps embedded in foundation etc. complete in all respects to the satisfaction of the Engineer-in-charge of the work including cost of all cutting threading of pipe welding where required and all sockets.			
	1 X 25 mtrs.	25	Per mtr.	

4-	Lowering 200mm i/d all welded low carbon galvanized steel pipe as per satisfaction of the Engineer-in-charge			
		1 X 20 mtrs.	20	Per mtr.
5-	Supplying, fixing and lowering reducing socket as per IS : 226/1975 as amended upto date 273.10 mm Outer dia, into 219.10 mm outer dia with 8 threads per inch or 25.40 mm, to be made out of M.S. plate with interior threads to be suitable for jointing 273.10mm outer dia pipe and 219.10 mm outer dia ERW pipe as per item no. 2 & 3 above or by cement grouting.			
		1 X 1 No.	1	Each
6-	Providing and fixing in position suitable end plug hook of 219.10 mm as per IS 226/1975 as amended upto date, including the cost of M.S. screwed socket etc. complete in all respects, to the entire satisfaction of the Engineer-in-charge of the work.			
		1 X 1 No.	1	Each
7-	Supplying and packing graded gravel of size as per ISI 4097/1988, as amended upto date and specification attached with this schedule of item of work,. The gravel should be free from dust, dirt or vegetable matters. Packing to be done from the housing pipe to the bottom of liner all around in the bore and will be placed after liner and housing pipes have been lowered and suitably clamped, thickness and size of the gravel packing will be as directed by the Engineer-in-charge strictly as per relevant ISI			
		1 X 60 cum	60	cum
8-	Supplying and fixing well threaded M.S. cap. For 273.00 mm outer dia M.S. pipe as per ISI 226 / 1975 as amended upto date to the satisfaction of the Engineer-in-charge.			
		1 X 1 No.	1	1 No.
9-	Supplying as per IS : 226/1975 as amended upto date deodar wooden box made of 20 mm thick wood size 60mm x 30cm x 75 cm with lid and locking arrangement etc. for preserving the strata samples received from the bore as and when desired by the Engineer-in-charge.			
		1 X 1 No.	1	Each
10	Supplying and fixing 273.00mm (10" inch)M.S. clamp as per 226/1975 as amended upto date for supporting on two girders not less than 100mm x 150mm and two meters long each embedded in suitable foundation as approved by the Engineer-in-charge			
		1 X 1 No.	1	Each
11	Development of tubewell according to clause 9.3 of IS : 2800-1991 (part-I) as amended upto date and specification attached and as directed by the Engineer-in-charge of the work including the cost of all consumable stores, fuel, oil compressors, pumps and machinery etc. as required for this work.			
		1 job	1	Each
12	Providing and stringing S & S centrifugally cast (spun) iron pipes (Class LA) with CI specials, bends, tees, required fittings, lead and yarn etc complete in trenches to the approval of Engineer-in-charge. 150mm dia pipe		20	Mtr.
13	Supply & erection of Chlorine Dosing System includes the supply erection, commissioning & testing of chlorine dosing pump and one No. 300 liter capacity ISI marked HDPE storage tank of Sintex or other reputed and approved make.		2	Set