

## Notice Inviting On-line Tender

### Details about Tender:

Department Name	BHUJ NAGAR PALIKA, BHUJ
Circle/Division	BHUJ NAGAR PALIKA, BHUJ
IFB No / Tender Notice No.	2025-26
Name of Project	
Name of Work	Re-Drilling of Tube well (300 mm dia x various depth) by D.R.Method at Kukma-Narmada No. - 4 Kukma-Narmada No. - 5, Kukma-Narmada No. - 9, Bhujodi No. - 1, Gayatri No. - 8, Gayatri No. - 9, Dhorava No. - 9, Dhorava No. - 10
Estimated Contract Value (INR)	Rs. 10715973.64
Period Of Completion(in Months)	9 month
Bidding Type	Open
Bid Call (Nos)	1
Tender Currency Type	Single
Tender Currency Settings	Indian Rupee (INR)
Joint Venture	Not Applicable
Rebate	Not Applicable

### Amount Details

Bid Document Fee :	Rs. 3600.00/ In form of Demand Draft Only
Bid Document Fee Payable To :	Chief Officer , Bhuj Nagar Palika, Bhuj
Bid Security/EMD (INR) :	Rs. 1,07,160.00– Only Nationalized Bank will be accepted. (Exemption Certificate Not Allowed)
Bid Security/EMD In Favour Of :	Chief Officer Bhuj Nagar Palika, Bhuj
Total Security Deposit	1. Total 10% of Estimated Cost

### Tender Dates

Bid Document Downloading Start Date	Automatic System Generated
Bid Document Downloading End Date	As per Online NIT
Pre Bid Meeting	N.A.

Last date of submission of Price bid	<b>As per Online NIT</b>
Bid Validity Period	120 Days, from price-bid opening date.
Remarks	<ol style="list-style-type: none"> <li>1. Price Bid is to be fill up online.</li> <li>2. Contractor shall have to deposit Tender fee in form of DD and EMD in form of FDR issued by Nationalized Bank Only.</li> <li>3. The scanned copy of the DD (Tender Fee), FDR (EMD), PAN Card, Bank solvency of 20 Percentage of the tender amount of the current year, experience certificate will have to be uploaded with all necessary documents and also to be submitted in hard copy at Nagar Palika along with Physical Submission.</li> <li>4. Submission of original EMD, Tender Fee, registration copy &amp; Other Document during office hours up to <b>As per Online NIT</b> at BHUJ Nagar Palika, BHUJ upto Office Hours by R.P.AD Only in Sealed Cover Only.</li> </ol>
Bid Opening Date	<b>As per Online NIT</b>

#### Other Details

Officer Inviting Bids :	Chief Officer Bhuj Nagar Palika
Bid Opening Authority :	Chief Officer Bhuj Nagar Palika
Address :	Bhuj Nagar Palika, Bhuj
Contact Details :	Phone: 9033401087

#### Eligibility Criteria:-

1. The Contractor whose names are registered in the approved contractors of any State or Central R&B Dept./PWD and the Contractors Registered in **C** and above shall be submitted by a contractor or by a firm of contractors.
2. The scanned copy of the contractor's registration, necessary bank solvency 20% of tender amount of the current year will have to be uploaded with others required documents. No Exemption is allowed in Solvency Certificate.
3. Bidder must have an experience of having successfully completed during last three years should be either of the following amount in Govt. / Semi Govt. / PWD Department & Form 3A for the same must be submitted by contractor online and physical submission.
4. An attested copy of C.A. Certificate and I.T. Return copy of last three years should be enclosed.
5. Attested copy of GST Registration certificate should be submitted.
6. Attested copy of PAN Number should be submitted.
7. Attested copy of EPF Number should be submitted.

### General Terms & Conditions:-

1.	The general Terms & Conditions are as per Tender Documents
2.	The cost of the Tender Document (Tender Fee) will not be refunded under any circumstances.
3.	The offer shall be valid for 120 days from the date of opening of the bid.
4.	Tenderers without tender document fee, EMD and which do not fulfill all any of the condition or submitted incomplete in any respect will be rejected.
5.	Bidder can apply as individual only not more than one tender for single work shall be submitted by bidder.
6.	Conditional tender will be rejected.
7.	BHUIJ Nagarpalika reserves the right to accept lowest responsive offer based on evaluation of package or reject any or all tenders without giving any reasons.
8.	The tenderers are advised to read carefully the instructions and Eligibly Criteria.
9.	The internet site address for E-tender is <a href="http://tender.nprocure.com">tender.nprocure.com</a>
10.	Bidders can avail the benefit of training in participation in online tender on any day in the office of M/s. (n) Code Solution - A Division of GNFC Ltd., at the address mentioned below. MIs. (n)Code Solution- A Division of GNFC Ltd. 301, GNFC Info Tower, Bodakdev, S.G.Road, Ahmadabad, Gujarat-380 054 INDIA Phone No. 079 26857316, 26857317, 26857318. Fax: 073 26857321
11.	Bidders who wish to participate in this E-tender will have to procure valid digital certificate as per information technology act 2000.
12.	Bidders shall upload the tender documents, tender fee and EMD and other supporting documents in electric form on the website.
13.	The tender documents for these work are available only in electronic format which bidder can download from website free of cost.
14.	Bidder shall submit their offer in Electronic format on above mentioned website on or before the scheduled date and time as mentioned after Digitally Signing the same. No offer in the physical form will be accepted and any such offer will received at BHUIJ Nagar Palika bidder will be disqualified from the tender.
15.	The technical Bid will be opened on the specified date online on website <a href="http://tender.nprocure.com">tender.nprocure.com</a> Bidders or their representative who wish to participate it online tender opening can log on to above website on the due date and time mark their presence and participate in online tender opening. Bidders who wish to remain present at BHUIJ Nagar Palika premise at the time of tender opening can do so. Only one representative of each firm will be allowed.
16.	Bidders who wish to participate in online tender have to register with the website through the "New User Registration" link provided on the home page. Bidder will create login id & password on their own in registration process.

17.	Bidder who wish to participate in e-tender need to fill data in predefined forms of tender fee, EMD, experience details and Price Bid only.
18.	After filling data in predefined forms bidders need to click on final submission link to submit their encrypted bid.
19.	Bidder also have scan all documents without fail.
20.	FDR for EMD & DD for Tender fee shall be submitted in electronic format only through online (by scanning) while uploading the bid. This submission shall mean that EMD & Tender fee are received for purpose of opening the Bid. Accordingly offer of those shall be opened whose EMD & Tender Fee is received electronically, however for the purpose of realization of DD & FDR bidder shall send the DD & FDR in original through RPAD so as to reach to concerned office as mentioned in the tender document upto As per Online NIT . For not submitting DD & FDR in original bidder shall be banned to participate in any tender of the BHUJ Nagar Palika for period of 3 years as a penalties action.

Contractor Signature

Chief Officer  
Bhuj Nagar Palika,  
Bhuj.

## **TECHNICAL SPECIFICATIONS FOR DRILLING WORK**

### **Item No 1 :--(a) Drilling 250/300mm dia. Pilot Bore hole.**

Drilling 250/300mm dia bore at village specified in Schedule-B up to desired specified depth in Schedule-B in all type of strata by using best quality of sodium based bentonite powder.

The drilling should be done by mud flush direct circulation rotary rig with Hydraulic movements fitted with heavy duty Reciprocating mud pump / Reverse rotary Rig.

All tools and equipment required for drilling operation should be brought to site of work by contractor at his own cost. Arrangement of fresh potable (i.e. not higher than 2000 PPM) water for drilling operation should be done by contractor at his own cost. In unavoidable circumstances drilling water of salinity higher than 2000 PPM may be considered after obtaining the permission of Engineer in charge of work for particular Tube well.

If fresh water (i.e.2000 ppm) is not available in surrounding 2kilometers of the drilling site, the necessary arrangement of departmental water tanker will be arranged by in charge Dy. Ex. Engineer and required charges for the same will be recovered from the bill of the contractor as per departmental norms.

#### **The drilling agency has to collect and furnish following information:**

Samples of drilled cuttings from different strata shall be collected at suitable intervals preferably at every 2 meters. depth drilled and across intervals if a change in the strata is met with the opinion of the Geo-hydrologist of public Health Mech. Circle, shall be binding to the contractor. The samples should be stored preferably in sufficient quantity and should be washed properly as the drilling is in progress. An accurate drilling time log shall be kept indicating the time taken for drilling every two meters. This log will enable interpretation regarding the nature of formation (hard, soft, unconsolidated etc.) which has bearing on the water yielding capacity of the formation.

### **Item No 2,3 & 4: - Reaming of 250/300mm dia. Bore hole.**

Reaming 250/300 mm dia bore hole to 400/450/550/600 mm. dia bore hole up to desired depth is specified in Schedule-B in all alluvial strata/soft and hard rock/Plastic clay by using best quality of bentonite powder. The drilling shall be done by mud flush direct Rotary Rig. including lowering, jointing of ERW / MS pipes/Strainer pipes etc. during welding alignment of pipe should be checked with spirit level. Carting of pipes from store to site including welding, jointing etc. complete as directed by engineer in charge for specified depth and as per pipe assembly given is to be done by the contractor.

If further drilling cannot be done up to specified depth due to encountering the hard formation, blue sticky clay or shale, the drilling will be stopped as per instructions of Hydrologist and payment will be made for the work carried out by the contractor.

In case, Cement sealing is proposed below the total depth of housing, then the upper reaming shall be continued up to the upper limit of cement sealing. The lowering of pipe assembly at required depth of 3 metres more reaming should be carried out beyond the full depth of pipe assembly to ensure the safe lowering against any cutting remaining in the bore hole. No payment will be made for this 3 metres extra drilling.

Borehole of size 400/450/550/600 shall have to be reamed by R.R.cutter before pipe lowering. Contractor shall keep all the required materials i.e. gravel, cement, clay ball etc. ready at site before the commencement of process of pipe lowering.

The pipe assembly (as per the size of tube well) suggested by hydrologist should be lowered as per instruction of Engineer in charge and pipe lowering work shall be started by mutual understanding with in-charge Deputy Executive Engineer, Hydrologist, contractor and a representative of village panchayat, if should be ensured that each joint of pipe assembly perfectly welded.

The required suggested size of casing, strainer pipes etc. shall be brought by contractor from the nearest store of department as per pipe assembly. The pipes should be lowered in a vertical position necessary steel- bedded plates should be brought by contractor. No extra cost for welding rods should be given. During welding of each joint it should be ascertained that there should not be air gap left so that there is no chance of water leakage from outside of pipe assembly throughout welding joints. In housing length of pipe assembly. Welding of each joint has to be done initially by 8 SWG welding rod followed by removal of extra slag / flux there after second line of welding shall be carried out to ensure perfect welding joint, welding rod shall be of reputed make.

If the bore is required to be drilled more than specified depth the contractor shall be bound to carry out such additional works including drilling jointing and lowering casing and strainer pipes etc. as may be necessary. The relevant specifications regarding drilling, lowering, jointing, welding of pipes and strata samples etc. shall also be completed. In case of such additional works would be paid as per tender approved rates of department.

The gravel packing around housing, casing and strainer pipes shall have to be carried out by the contractor at his own cost.

Before gravel packing is started, it should be ensured that the thickness of mud plaster is reduced to minimum and perfect back washing should be carried out.

The tube well should be gravel packed with at least minimum calculated quantity. The gravel packing operation shall be continued till filter is constructed around the slotted pipe or screen. So as to ensure that no sand flows in the tube well under normal operational condition of the tube well. After gravel packing no mud slurry should remain at bottom and it should be cleaned by fresh water.

Record of quantity of gravel packed in the bore should be kept by contractor and should be supplied along with strata chart.

Extra quantity of gravel should be used if required during development of the bore, Clay packing (if required) should be done by the contractor by providing sticky clay balls only as desired by Engineer-in-charge during or after developing the bore with Air Compressor etc.

**Item No 5: -- GRAVELS** Providing of gravel of selected size 4 mm. to 6 mm hard, well rounded uniform particles, free from dust, clay, foreign particles etc. and should be of River.

**CLAY BALLS** Clay balls of required quantity should be supply at site of work by the contractor before the pipe lowering work is started. The clay balls should be prepared from sticky clay only. The size of clay balls should be of 25 mm to 50mm clay balls should be packed as suggested in the assembly given by the Hydrologist.

**TECHNICAL SPECIFICATIONS for Supply of miscellaneous M. S. bore materials.**

**Item No. 6 & 9 :M.S. Bore Clamps:** Clamps shall be manufactured from 10 mm thick MS plate of best quality suitable to 200 mm dia. size MS ERW pipes. Proper bending of MS plate shall be done so as to ensure its fixing on 200 mm size pipe. Overall length of finished clamp shall be 750 mm. Each clamp shall be provided with 03 holes on

either side suitable for 7/8" size bolt. Each pair of clamps shall be provided with 06 numbers of threaded bolts of 7/8" size and of adequate length i. e. minimum 3 inches with hexagonal nut of standard quality. Size of clamps shall be 750 mm x 75 mm x 10 mm. Material shall be coated with Red Oxide to prevent the rusting. Inspection will be carried out by concern Deputy Executive Engineer(Mech).

**Item No.7: M.S. Bore Plugs:** Bore plugs shall be manufactured from 03 mm thick MS plate of best quality suitable to 200,mm dia. size UPVC pipes as the case may be. Circular MS plate of minimum 03 mm thickness shall be welded properly at the 03 mm thick MS plate top. Overall height of plug shall be 100 mm inclusive of top. Bore plug shall have 5/8 "size 03 holes drilled properly equidistant on circumference (periphery of plug) and 5/8" size nuts shall be welded onto the hole. 5/8" size 03 numbers of fully threaded bolt of adequate length of standard quality shall be provided with each bore plug. Material shall be coated with Red Oxide to prevent the rusting. Inspection will be carried out by concern Deputy Executive Engineer(Mech).

**Item No. 8:UPVC Bail Plugs:** Bail plugs shall be manufactured from medium class UPVC pipe of minimum 05 mm thickness as per relevant IS 3589 of best quality suitable to 200 mm and 250 mm dia size UPVC pipes as the case may be. Cone of bail plug shall be made from minimum 05 mm thick UPVC plate & shall be welded properly on to one end of pipe. Overall length of bail plug shall be 450 mm where length of pipe portion shall be minimum 200 mm in length. Material shall be coated with Red Oxide to prevent the rusting. Inspection will be carried out by concern Deputy Executive Engineer(Mech).

**Item No 10: DTH bore  
Water Sampling and Analysis**

A sample of water from the borehole shall be taken at the end of the constant rate test for Physical, chemical and bacteriological analyses. The physical and chemical analysis would determine the following: pH, temperature, color, turbidity, TDS, Calcium, Magnesium, Sodium, Potassium, Total Iron, Manganese, Bicarbonate, Sulphate, Chloride, Nitrate, Nitrite, Fluoride, and Total Hardness. The bacteriological analysis would determine Total Coliform and E. Coliform. All water quality tests shall meet Ethiopian Drinking Water Standards for acceptance

**Item No 10.1: Cleaning and Development of Tube well by Air Compressor.**

Initial development should be carried out by means of compressed Air within one week after completion of gravel packing / cement sealing. Air compressor to be used should be of minimum capacity as stated in Schedule-B and education / drop line should be used for development of zones of the bore.

1. Compressor test shall be carried out as per following procedure. Contractor has to cart all the required materials machinery and accessories like education / drop line, airline, required capacity compressor and accessories required to lower airline, education line / drop line etc. at site of work at his own risk and cost. No carting charges shall be paid for handling such machinery materials and accessories.

2. Contractor has to carryout compressor test in each zone by lowering airline into drop line lowered in each zone by keeping lower end of education / drop line in each zone till sand free discharge is obtained. Thus after cleaning of the first zone the contractor has to carryout compressor test of this zone till sand free discharge is obtained. By this way the contractor has to carryout cleaning and development of each separate zone sequentially.

3. The entire work is to be carried out under strict supervision of concerned geologist / Hydrologist and after completion of work the contractor has to obtain the necessary certificate for satisfactory completion of work from him.

4. To carry out the work show in Paragraph - (2) the contractor has to pull out the air line first and then lower the drop line for each zone. By this way the contractor has to clean all the water bearing zones, sequentially, Cleaning and development of one bore, carried out by this way shall be treated as one full job and payment shall be made for such completed full job.

The test will be carried out as under: --

1) Up to the depth of 60 Mts. 600 CFM/150 PSI capacity of compressor may be used with Air line and education line for zone wise development of water bearing zones if suggested by concerned Hydrologist in pipe assembly and confirmed by Geohydrologist, otherwise Up to the depth of 60 Mts, 600 CFM/150 PSI capacity of compressor may be used without Air line and edunction line. The compressor shall be used for minimum 2 hours or till sand free discharge is obtained whichever is later.

2) For the depth above 60 Mts., 900 CFM/200 PSI capacity of compressor should be used with drop line for minimum 2 hours for 60 mtr depth or till sand free discharge is obtained whichever is later.

### **HANDING OVER THE TUBEWELL**

The housing pipe should be close by a bore cap. The contractor has to clear the drilling site filling the mud pit by clay. The following information should be furnished by the drilling agency in strata chart as per Annexure-III on completion of the tube well.

1. Strata chart of the tube well indicating the different types of soil met with at different depth as per litho log.

2. Samples of strata collected should neatly packed and correctly marked in samples bags.

3. Chart of actual assembly lowered indicating the size of the pipes depth range where housing, casing strainer pipes have been used depth of bore diameter of hole and total depth.

4. Position of every joint in the assembly lowered.

5. Hours of development of tube well carried out by Air compressor 6. Static water level and pumping water level with discharge.

7. Above details should be furnished as per Appendix - A with only signed by Deputy Executive Engineer in charge and Geologist / Hydrologist in charge of work.

8. In any case if tube well drilled by reverse rotary rig is required to be abandoned payment for only pilot bore drilling will be made.

### **11. Pump Specifications**

1. The pump set shall be of compact unitary mono block type construction. The pump casing shall be of high efficiency, bowl diffuser or volute casing type with the impeller mounted directly onto the extended solid motor shaft (without any couplings). Numbers of stages shall preferably be one or two stages. The stages shall be decided as per maximum achievable efficiency as per HIS and / or as prescribed in data sheet.

2. The pump set should be single / two stage type i. e. it should have only one / two impeller (s) & one / two casing – two stages shall not be allowed (except for head  $\geq$  90 m). Pump casing shall be high efficiency, centrifugal volute type.

3. The pumps are to be installed directly into the water body (canal / sump / river or unscreened jack well), so it may suck up lot of silt, clay, pebbles & vegetation. Therefore it should be reliable & robust.

#### **4 Installation**



4.1 The pumps should always be suitable for vertical or horizontal; permanent or portable installation & be interchangeable between these modes throughout their working life time (by suitable use of base frames / auto coupling systems which can be ordered either during the main purchase order or at a later stage).

4.2 The detailed scope of supply & mode of installation shall be as per the specific tender data sheets or as per CDR instructions.

#### 4.3 Possible Installation Arrangements

##### 4.3.1 Horizontal, Portable, Wet (Submerged) Installation:

4.3.1.1 The pump shall be offered with fully portable & robust MS portable base frame.

4.3.1.2 In case the pump is to be installed on a concrete canal bed where vibrations are to be suppressed; the pump should be provided with anti vibration shock pads between the pump & the base frame.

##### 4.3.2 Vertical, Portable, Wet (Submerged) Bottom Rested Installation:

4.3.2.1 The pump shall be offered with a fully portable & robust M S portable base frame which allows for installation of the pump in either vertical or horizontal mode – i. e. both modes should be possible with the same base frame which is rested on the bottom of the water body.

##### 4.3.3 Vertical, Portable, Wet (Submerged) Suspended Installation:

4.3.3.1 The pump shall be offered with a fully portable & robust MS portable base frame which allows for installation of the pump in vertical suspended installation within deep water body. In such a case, the motor shall be at bottom & the pump portion shall be at the top. The delivery column pipe shall be flange bolted on to the pump set flange.

##### 4.3.4 Vertical, Permanent, Wet (Submerged) Installation (Auto Coupling System):

4.3.4.1 The pump set should be coupled to the rising main by an automatic coupling system. The automatic coupling system should have a pedestal (which is bolted on to sump bottom by pre grouted foundation bolts) which is permanently bolted onto the rising main.

4.3.4.2 The automatic coupling system design should be such that a inbuilt bend is integrally cast with the pedestal. This design obviates the need of bolting on a separate duck foot bend to pedestal. Separately bolted CI IS DF bends are not allowed as they are not conducive to replace flange gaskets (between the CI IS DF bend and the pedestal).

4.3.4.3 To prevent swiveling of the pump set (while lowering into & pulling out of sump), larger (with discharge size  $\geq 125\text{m}$ ) & / or deep installed (with installation depth more than 10 m) pumps, the auto coupling system should preferably have two guide elements (either pipes or wires). Single guide element is not acceptable.

4.3.4.4 To "fish out" a vertically installed submerged pump set (even if a chain has not been attached to the lifting hook prior to the pump set being lowered) the pump should have a self centering lifting hook. Its design should be such that the lifting chain's hook can be engaged to the pump's lifting hook without the need for man to enter the wet sump to engage the same.

4.3.4.5 The scope of supply shall include auto coupling system (with integral duck foot bend), SS foundation bolts, alloy steel chain & guide rail pipe / wire (as per depth of sump / jack well).

#### 5 Pump End Design

##### 5.1 Speed

5.1.1 To achieve best efficiency life, the speed of the pump set should be such that the specific speed (Ns) of the pump (calculated as per for single stage, single suction

impeller pumps assuming duty point as the best efficiency point) is to be calculated as follows:

$$\text{Where } N_s = 3.65 N \times \sqrt{(Q \text{ m}^3/\text{s})} / (H \text{ m})^{0.75}$$

$N_s$  = Specific speed

$N$  = The operating speed of the pump in rpm

$Q$  = The rate of flow in cubic meters per second

$H$  = The rated head per stage of the pump in meters

The specific speed shall preferably be in the range of 140 to 200. It should be nearer to 170 as far as possible to achieve best efficiency. However calculation of specific speed for duty parameters given in data sheet (price bid) shall be given by the manufacturers' of the pump.

5.1.2 Further motors rated above 100 HP & / or with pump's duty point flow rate equivalent or in excess of 360 m<sup>3</sup>/hr shall be limited to not more than 1450 rpm.

5.2 The pump shall be capable of developing the required total head at rated capacity for its continuous operation. Pumps of particular category shall be identical and shall be suitable for parallel operation.

5.3 The head capacity curve shall be continuously rising towards shut off with the highest at shut off. The shut off head shall be at least 120 % of the specified duty point head. The impeller shall be of high efficiency multi channel enclosed type (except for specific speed  $\geq 90$  where semi open impellers shall be allowable

**VERTICALITY TEST: (In case of eduction line and airline could not be lowered during compressor test)**

All the pipes shall be installed in shell fashion. So that pipe assembly has minimum possible deviation from vertical plumb.

The vertically test will be performed as under: -- (As per I.S:2800 (Part II)–1979).

1. The deviation up to 10 CMS per 30 metres will be permitted in one plane and one direction only and no deduction in payment will be made.

2. If the deviation is beyond 10 CMS, the bore will be accepted with 10% deduction from the payment of drilling charges provided a submersible pump suitable to above size only in case of availability of power in particular village or turbine pump suitable to bore size and of required capacity should be lowered at required depth and run satisfactorily.

3. If above submersible pump (in case of availability of power in particular village) or turbine pump of required capacity and size could not be lowered and do not run satisfactorily, the tube well will be rejected and no payment will be made. The arrangement for providing, lowering and running of suitable pumping machinery including electric power for condition at (2) and (3) above have to be made by the contractor at his cost. The verticality test will be carried out as per standard practice as per I.S. and as directed by Engineer in charge. In case of artisan tube well, the artisan condition can be removed by fitting piece of pipe (2metres or more as required) above the tube well and eccentricity should be measured.

Otherwise full payment should be made without insisting of measurement of eccentricity.

**13. Cable: -**

1. Scope of Work The work involves providing, supplying, and fixing PVC insulated round submersible copper cable with the specified technical characteristics. The cable must conform to relevant Indian and

international standards and be suitable for use in submersible pump applications.

IS Standard: IS 694 (Indian Standard for PVC insulated cables)

International Standards: IEC 60227 / IEC 60228 (International Electro technical Commission standards for conductors and cables)

**Performance Characteristics:**

**Water Resistance:** The cable should be suitable for use in wet or submerged conditions without deterioration in performance.

**Mechanical Strength:** Must be capable of withstanding mechanical stresses typically encountered during installation and operation.

**14. HDPE pipes: -**

1. **Scope of Work** The work involves the supply, transportation, and installation of ISI-marked High-Density Polyethylene (HDPE - PE-80) pipes with a diameter of 110 mm and pressure rating of 10 kg/cm<sup>2</sup>. The scope includes all activities from procurement to jointing, covering all associated taxes, transportation, and handling charges.

**Supply and Delivery:** The contractor shall supply the pipes in standard lengths, typically 6 meters or as specified, ensuring they are ISI-certified. The supply shall include all local and central taxes, transportation, freight charges, octroi, and inspection charges. Pipes shall be delivered to the department stores or designated site as instructed by the Engineer-in-Charge.

**Lowering:** Pipes shall be carefully lowered into the trench or designated area using appropriate equipment to prevent any damage.

**Jointing:** The pipes shall be jointed using butt fusion or electrofusion techniques, ensuring strong, leak-proof connections.

**Alignment:** Pipes must be laid in straight lines or along smooth curves, with proper support and bedding to prevent stress and ensure long-term durability.

**. ELECTROLOGGING TEST: -**

Department logger as per standard practice conducts this test till. The contractor should inform well in advance to Engineer in charge for the above test after completion of 250/300 mm. dia pilot bore hole. In no Case logging test in pilot bore hole exceeding 300-mm dia size shall be carried out. Pilot bore hole shall be made uniform i.e. finished by R.R. cutter before electrologging. The logging electrode must reach at specified depth of borehole as stated in the schedule. Otherwise logger operator can ask for cleaning the bore hole again and second time logging test should be carried out. The charge for second time logging should be recovered from the contractor, as the full depth of bore hole could not be logged due to not having smooth and clean bore hole as certified by in charge logger operator (Hydrologist / Jr. geologist).

If the logging is not possible in 300mm dia. because of expanding nature of clay, the agency is not required to pay the re-logging charges.

Signature of Contractor

Chief Officer  
Bhuj Nagarpalika