BHAGYANAGAR GAS LIMITED

(A JOINT VENTURE OF HPCL & GAIL)

BID DOCUMENT FOR

Hiring of Contractor for Commercial & Industrial (C&I) Connections DMA Activity, including tapping of PE Pipeline works, Meter Installation and Commissioning in Hyderabad GA

UNDER OPEN DOMESTIC COMPETITIVE BIDDING

e- tender

Bid Document No.: BGL/733/2026-27

VOLUME- II of II

SECTION- 7 SPECIAL CONDITIONS OF CONTRACT (SCC) AND SCOPE OF WORKS (SOW)

SECTION- 8 SCHEDULE OF RATES (SOR)

SECTION- 7
SPECIAL CONDITIONS OF CONTRACT (SCC) AND SCOPE OF WORKS (SOW)

SPECIAL CONDITIONS OF CONTRACT

INDEX

3. VOID
4. CONTRACT PERFORMANCE GUARANTEE
5. TAXES, DUTIES AND LEVIES
6. SUBSEQUENT LEGISLATION
7. STATUTORY VARIATION IN TAXES & DUTIES
8. INCOME TAX & CORPORATE TAX
9. VOID
10. CUSTOM DUTY ON CONSTRUCTION EQUIPMENTS
11. ISSUE OF ESSENTIALITY CERTIFICATE
12. IMPORT LICENCE
13. WITHHOLDING, ACCOUNTING AND TAX REQUIREMENTS
14. INTELLECTUAL PROPERTY
15. FIRM PRICE
16. WORKS CONTRACT
17. PROVIDENT FUND ACT
18. MOBILIZATION ADVANCE
19. TERMS OF PAYMENT
20. DELETED
21. COORDINATION WITH OTHER AGENCIES
22. SETTLEMENT OF DISPUTE BETWEEN TWO PSU'S
23. ROYALTY
24. SITE FACILITIES FOR WORKMEN
25. ARBITRATION
26. PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM
27. CHECKING OF LEVELS
28. STORAGE FACILITIES
29. ABNORMALLY HIGH RATED ITEMS (AHR ITEMS)
30. BANK GUARANTEES
31. CENVAT BENEFITS
32. COMPUTERIZED BILLS
33. ORDER PLACEMENT OF BOUGHT OUT ITEMS
34. REQUIREMENTS FOR CONTRACTOR AT SITE
35. COMPLIANCE WITH LAWS
36. NOTES TO SCHEDULE OF RATES
37. INSURANCE

1, GENERAL

1.0 Special conditions of contract (SCC) shall be read in conjunction with the General Conditions of Contract (GCC). Schedule of rates, specifications of work, drawings and any other document forming part of this contract wherever the context so requires.

1.1 Notwithstanding the sub-division of the document into these separate sections and volumes, every part of each with and into the contract so far as it may be practicable to do so.

1.2 Where any portion of the GCC is repugnant to or at variance with any provisions of the special conditions of contract, then unless a different intention appears, the provision(s) of the special conditions of contract shall be deemed to override the provision(s) of GCC only to the extent that such repugnancies of variations in the special conditions of contract are not possible of being reconciled with the provisions of GCC.

1.3 Wherever it is stated in this Bidding Document that such and such a supply is to be effected or such and such a work is to be carried out, it shall be understood that the same shall be effected/carried out by the contractor at his own cost, unless a different intention is specifically and expressly stated herein or otherwise explicit from the context. Contract value (also referred to as Contract price) shall be deemed to have included such cost.

1.4 The materials, design and workmanship shall satisfy the applicable relevant Indian Standards, the job specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied. In the absence of any Standard/ Specifications/codes of practice for detailed specifications covering any part of the work covered in this Bidding on the contractor.

1.6 In partial modification to Clause No.21.0 of GCC-Works the following shall apply:

In case of contradiction between Indian or other applicable Standards, General Conditions of Contract, Special Conditions of Contract, Specifications, drawings, Schedule of Rates, the following shall prevail in order of precedence:

i) Letter of acceptance alongwith statement of Agreed variations.
ii) Fax / Letter of Intent / Fax of Acceptance
iii) Schedule of Rates as enclosures to letter of acceptance
iv) Particular Job Specifications
v) Drawings
vi) Technical / Material Specifications
vii) Special Conditions of Contract
viii) General Conditions of Contract

ix) Indian Standards
x) Other Applicable Standards

1.7 It will be contractor's responsibility to bring to the notice of Engineer-in-charge any irreconcilable conflict in the contract documents before starting the work(s) of making the supply with reference which the conflict exists.

In the absence of any specifications covering any material, design of work(s) in the same shall be performed / supplies / executed in accordance with Standards Engineering Practice as per the instructions / directions of the Engineer-in-charge, which will be binding on the Contractor.

1.8 The requirements of any statutory body and authority like Indian boiler regulation, Tariff Advisory Committee, Chief controller of Explosives, etc, shall govern where these are more stringent than the requirements specified above.

1.9 Owner's representative means authorized representative of Owner (i.e. M/s BHAGYANAGAR GAS LTD.) and / or Consultant (i.e. M/s VCS).

2.0 **THE WORK**

2.1 **Scope of work**

The scope of work covered in this Contract will be as described in **Annexure-1** to SCC at Particular job specifications, Standard Specifications, Schedule of Rates etc.

2.2 **Scope of Supply**

The scope of supply covered in this Contract will be as described in **Annexure-2** to SCC Particular Job Specifications, Standard Specifications, Schedule of Rates etc.

2.3 **Time schedule**

2.3.1 The work shall be executed strictly as per time schedule given in **Annexure-3** to SCC. The period of completion given includes the time required for mobilization as well as testing, rectifications, if any, retesting, demobilization and completion in all respects to the satisfaction of the Engineer-in-Charge.

2.3.2 A joint program of execution of work will be prepared by the Engineer-in-Charge and Contractor. This program will take into account the time of completion mentioned in 2.3.1 above.

2.3.3 Monthly/Weekly execution program will be drawn up by the Engineer-in-Charge jointly with the Contractor based on availability of materials, work fronts and the joint program of execution as referred to above. The contractor

shall scrupulously adhere to the Targets/Programs by deploying adequate personnel, Construction Equipment, Tools and Tackles and also by timely supply of required materials coming within his scope of supply as per Contract. In all matters concerning the extent of target set out in the weekly/monthly program and the degree of achievement, the decision of the Engineer-in-Charge will be final and binding on the Contractor.

2.3.4 Contractor shall give every day category-wise labour and equipment deployment report alongwith the progress of work done on previous day in the proforma prescribed by the Engineer-in-Charge.

2.4 **Measurement of Works**

In addition to the provisions of Clause 88.1 of the General Conditions of Contract and associated provisions thereof, the provisions of **Annexure – 4** to SCC shall apply.

2.5 **Terms of Payment**

Terms of Payment will be as specified in **Annexure – 5** to SCC.

2.6 **Temporary Works**

All temporary works, ancillary works, enabling works, including dewatering of surface and subsoil water, temporary drains at the work site, preparing approaches to working areas, wherever required, for execution of the work, shall be the responsibility of Contractor.

2.7 **Temporary Fencing**

The Contractor shall, at his own costs and expenses, erect and maintain in good condition temporary fences and gates along the boundaries of the site assigned to him wherever required as per instruction of Engineer-in-charge. Wherever trenching is being done specially at crossing site near habitation and public movement. The contractor shall provide barricading as per sketch enclosed and provide proper night light as per requirement and to the satisfaction of EIC. The Contractor shall, except when authorized by the Engineer-in-Charge, confine his men, materials and plant etc. within the site of which he is given possession. The Contractor shall not use any part of the site for purpose not connected with the works unless prior written permission or consent of the Owner/Engineer-in-Charge has been obtained. Access to site shall be made only through the approved gateways. The Contractor shall maintain sufficient watchmen at site to the satisfaction of the Owner/Engineer-in-Charge.

2.8 **Contractor's Temporary Structure**

The Contractor may, at his own costs and expenses and subject to the approval of the Engineer-in-Charge and statutory authorities, construct offices, stores, workshop and remove the same as per the orders of the Engineer-in-Charge on completion of the contract. Whenever required the Contractor shall furnish such details of his temporary works as may be called for by the Owner/Engineer-in-Charge as to their safety and efficiency. The Owner/Engineer-in-Charge may direct those temporary works which he considers unsafe or, inefficient be removed and replaced in a satisfactory manner. The Contractor shall immediately follow Owner/Engineer-in-Charge's direction/instruction, on maintenance of all the equipments and he shall ensure that they are suitable for the work and is maintained in such a manner as to ensure their efficient working. The Owner/Engineer-in-Charge, may if they deem fit, direct the Contractor to remove from site any equipment which are not efficient and/or prejudicial to the quality of work to be replaced by equipment to their satisfaction. The Contractor shall immediately follow Owner/Engineer-in-Charge's direction/instruction.

2.9 **Statutory Approvals**

2.9.1 All associated activities required for obtaining necessary clearances, permissions, approvals, all licenses from all concerned authorities in respect of pipeline crossing & all related works shall be the responsibility of the Contractor and the cost of the same shall be deemed to have been included in the quoted prices.

The approval from any authority required as per statutory rules and regulations of Central/State Government shall be the Contractor's responsibility unless otherwise specified in the Bidding Document. The application on behalf of the Owner for submission to relevant authorities along with copies of required certificate complete in all respects shall be prepared and submitted by the Contractor well ahead of time so that the actual construction of the work is into delayed for want of the approval/inspection by concerned authorities. The inspection of the works by the authorities shall be arranged by the Contractor and necessary coordination and liaison work in this respect shall be the responsibility of the Contractor. However statutory fees paid, if any, for all inspections and approvals by such authorities shall be reimbursed at actual by the Owner to the Contractor on production of documentary evidence.

Any change/addition required to be made to meet the requirements of the statutory authorities shall be carried out by the Contractor free of charge. The inspection and acceptance of the work by statutory authorities shall however, not absolve the Contract from any of his responsibilities under this Contract.

2.10 **Quality Assurance**

2.10.1 Bidder shall include in his offer the quality assurance programme containing the overall quality management and procedures, which is required to be

adhered to during the execution of contract. After the award of contract detailed quality assurance program shall be prepared by the contractor for the execution of Contract for various works, which will be mutually discussed and agreed to.

2.10.2 The Contractor shall establish document and maintain an effective quality assurance system as outlined in recognized codes.

2.10.3 Quality Assurance System plans/procedures of the Contractor shall be furnished in the in the form of QA manual. This document should cover details of the personnel responsible for the quality assurance, plans or procedures to be followed for quality control in respect of Design, Engineering, Procurement, Supply, Installation, Testing and Commissioning.

The quality assurance system should indicate organizational approach for quality control and quality assurance of the construction activities, at all stages of work at site as well as at manufacturer's works and dispatch of materials.

2.10.4 The Employer/ consultant / Consultant or their representative shall reserve the right to inspect/witness, review any or all stages of work at shop/site as deemed necessary for quality assurance.

2.10.5 The Contractor has to ensure the deployment of quality Assurance and Quality Control Engineer(s) depending upon the quantum of work. This QA /QC group shall be fully responsible to carryout the work as per standards and all code requirements. In case Engineer- in-charge feels that contractor's QA/QC Engineer (s) are incompetent or insufficient, contractor has to deploy other experienced Engineer(s) as per site requirement and to the full satisfaction of engineer-in- charge.

2.10.6 In case contractor fails to follow the instructions of Engineer –in-charge with respect to above clauses, next payment due to him shall not be released unless until he complies with the instructions to the full satisfaction of Engineer –in –charge.

2.10.7 The contractor shall adhere to the quality assurance system as per PNGRB specification enclosed in the bidding document as Annexure-6.

2.11 **Notice and Licenses**

The Contractor shall at his costs and expenses give to the Municipal or Panchayat, Police and other authorities all notices etc., that may be required in law to be given and obtain all necessary permissions and licenses etc., for temporary obstructions, enclosures and pay all fees, taxes charges etc. which may be leviable by such authorities for that purpose. The Contractor shall make good any damage to the adjoining property whether public or private.

2.12 **Working Hours**

Depending upon the requirements, time schedule/ drawn up programs and the target set to complete the job in time the works may have to continue beyond normal working hours to the extent of round the clock and on holidays also for which no extra claim shall be entertained.

2.13 **Responsibility of Contractor**

Preparing approaches and working area for the movement and operation or the cranes, leveling the area for assembly and erection shall also be the responsibility of the Contractor. The Contractor shall acquaint himself with access availability, facilities such as railway siding, local labour etc.

The procurement and supply in sequence and at the appropriate time of all materials and consumables covered under Contractor's scope of supply shall be entirely the Contractor's responsibility. Contractor shall not use any of the equipment or materials issued to him by Owner for temporary works, manufacturing erection aids etc. Misuse of materials will be seriously viewed and deduction at penal rates will be made from the Contractors bill for such quantities that are misused.

Contract Price is deemed to be inclusive of all expenses towards above responsibilities.

2.14 **Additional Works/Extra Works**

Owner reserve their right to execute any additional works/ extra works, during the execution of Work, either by themselves or by appointing any other agency, even though such works are incidental to and necessary for the completion of works awarded to the Contractor. In the event of such decisions taken by Owner, Contractor is required to extend necessary cooperation and act as per the instructions of Engineer-in-Charge

2.15 **Compensation for Idle Time**

The owner shall make every reasonable effort to have the materials and working front available so as not to delay laying activities. No idle time claim shall be entertained under any circumstances.

2.17 Power and Water Connection

The Purchaser/Consultant will not provide any power and water during construction period. Contractor shall apply and obtain necessary power and water during connection from relevant authority and will pay its usage charge or arrange the same from the other sources.

3.0 **CONSTRUCTION**

OWNER reserves the right to inspect all phases of Contractor's operations to ensure conformity to the SPECIFICATIONS. Owner will have Engineers,

Inspectors or other duly authorized representatives, made known to the Contractor present during progress of the WORK and such representatives shall have free access to the WORK at all times. The presence or absence of an Owner's representative does not relieve the Contractor of the responsibility for quality control in all phases of the WORK. In the event that any of the WORK being done by the Contractor or any Sub-Contractor is found by Owner's representatives to be unsatisfactory or not in accordance with the DRAWINGS, procedures and SPECIFICATIONS, the Contractor shall, upon verbal notice of such, revise the work in a manner to conform to the relevant DRAWINGS, procedures and SPECIFICATIONS.

3.1 **Rules and Regulations**

Contractor shall observe in addition to Codes specified in respective specification, all national and local laws, ordinances, rules and regulations and requirements pertaining to the work and shall be responsible for extra costs arising from violations of the same.

3.2 **Procedures**

Various procedures and method statements to be adopted by Contractor during the construction as required in the respective specifications shall be submitted to Engineer-in-Charge in due time for approval. No construction activity shall commence unless approved by Engineer-in-Charge in writing.

3.3 **Security**

If the work being in protected area, entry into the work area shall be restricted and governed by issue of photo gate passes by the Security/CISF. The Contractor shall arrange to obtain through the Engineer-in-Charge, well in advance, all necessary entry permits/gate pass for his staff and labour and entry and exit of his men and materials shall be subject to vigorous check by the security staff. The Contractor shall not be eligible for any claim or extension of time whatsoever on this account. Also for installation works, contractor shall provide Identity cards to their employees/ workers to work inside the society / house premises.

3.4 **Drawings and Documents**

3.4.1 The drawings accompanying the bid document (if any) are of indicative nature and issued for bidding purpose only. Purpose of these drawing is to enable the bidder to make an offer in line with the requirements of the Employer/Consultant. However no extra claim whatsoever, shall be entertained for variation in the "Approved for Construction" and "Bid document drawings" regarding any changes/units. Construction shall be as per drawings/specifications issued/approved by the Engineer-in-Charge during the course of execution of work. Detailed construction drawings (wherever required) on the basis of which actual execution of work is to proceed will be prepared by the contractor.

3.4.2 The drawings and documents to be submitted by the Contractor to Employer/Consultant after award of the work as per the requirements enlisted in the bidding document shall be for Employer/Consultant's review, information and record. The Contractor shall ensure that drawings and documents submitted to Employer/Consultant are accompanied by relevant calculations, data as required and essential for review of the document/ drawings. PMC shall review the drawings/ documents within two weeks from the date of submission provided the same are accompanied by relevant calculations, data as required and essential for review.

3.4.3 All documents and drawings including those of Contractors sub-vendor's manufacturer's etc. shall be submitted to Employer/Consultant after having been fully vetted in detail, approved and co-opted by the Contractor & shall bear Contractor seal/ certifications to this effect. All documents/drawings & submissions made to Employer/Consultant without compliance to this requirement will not be acceptable and the delay & liability owing to this shall be to the Contractor's account.

3.4.4 The review of documents and drawings by Employer/Consultant shall not absolve Contractor from his responsibility to meet the requirements of specifications, drawings etc. and liabilities for mistakes and deviations. Upon receiving the comments on the drawing/documents reviewed by Employer/Consultant, Contractor shall incorporate the comments as required and ensure their compliance.

3.4.5 Copies of all detailed working drawing relating to the works shall be kept at the contractors' office at the site and shall be made available to the Engineer-in-charge/ Employer/Consultant at any time during execution of the contract. However no extra claim what so ever shall be entertained for any variation in the "approved/issued for construction drawings" and "tender drawings" regarding any changes/units unless otherwise agreed.

3.4.6 The Contractor shall rectify any inaccuracies, errors and non-compliance to contractual requirements. Any delay occurring on this shall not construe a reason for delay/ extension.

3.5 **Excavation by blasting**

Excavation by blasting is not permitted. wherever required in hard strata other mechanical tools shall be used.

3.6 **Construction Equipment & Mechanization of Construction Activities**

Contractor shall, without prejudice to his overall responsibility to execute and complete the Work as per specifications and time schedule, adopt as far as practicable, mechanized construction techniques for major site activities. However, Contractor agrees that he will deploy the required numbers and types of the part & machinery applicable for different activities in consultation with the Engineer-In-Charge during execution of works.

The Contractor shall mechanize the construction activities to the maximum extent by deploying all necessary construction equipment/machinery in adequate numbers and capacities.

Wherever Structural/Piping works are included in the scope, the Contractor's responsibilities shall include establishing and maintaining of a proper fabrication workshop with transportation facilities to site to carryout fabrication of steel structures, piping specials etc., preparing approaches working areas for the movement/operation of cranes and leveling the areas for

assembly/erection to ensure effective mechanization on the works. The Contractor shall acquaint himself with availability of access, facilities such as railway siding, local labour etc. and the Contractor may have to build temporary access roads to aid his work and the quoted and agreed rates shall be deemed to include the same. It may be noted that all fabrication work shall be carried out in fully mechanized workshops to reduce site fabrication to minimum.

Contractor shall also ensure use of computer software for at least the following:

(i) Billing
(ii) Planning & Scheduling
(iii) Progress Reporting
(iv) Material Control & Warehousing
(v) Safety Records
(vi) Resource Deployment
(vii) Communication

Contractor further agrees that Contract price is inclusive of all the associated costs) which he may incur for actual mobilization, required in respect of use of mechanized construction techniques and that the Owner/Consultant in this regard shall entertain no claim whatsoever.

3.7 **Site Organization**

The Contractor shall provide all necessary superintendence during the design and execution of the Works and as long thereafter as the Engineer-in-Charge may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. Such superintendence shall be given by sufficient persons having adequate knowledge of the operations to be carried out including the methods and techniques required the hazards likely to be encountered and methods of preventing accident for the satisfactory and safe execution of the Work. The workmen deployed, by the Contractor should also possess the necessary license etc., if required under any law, rules and regulations.

Subject to the provisions in the Contract Document and without prejudice to Contractor's liabilities and responsibilities to provide adequate qualified and skilled personnel on the Work, Contractor shall augment the same as decided by the Engineer-in-Charge depending on the exigencies of Work.

3.7.1 **SUPERVISION**

All construction work will be carried out as per direction of EIC, and this will be the primary point of contact between the Contractor and BHAGYANAGAR GAS LTD. on site. All work will be issued and sanctioned through the EIC and

site control exercised by site engineers. The Contractor shall ensure that technical quality standards are maintained, that construction is carried out cost effectively and that a good customer and public image is maintained for BHAGYANAGAR GAS LTD.

The Contractor will appoint his own supervisors of minimum number instructed by EIC. These personnel will be responsible to the SE for monitoring construction standards and for ensuring that all detailed technical requirements are met on each and every job which is undertaken. The Contractor's supervisor(s) will have day to day liaison with the SE, and will provide the SE with technical reports and audits, and other management information as is required on work progress and construction quality standards.

The Contractor's supervisor shall have mobile telephones or pagers to ensure that they can be contacted at all times. The Contractor will also nominate one person who can be contacted if necessary out of hours, for the duration of the works. The Contractor's supervisor will have access to transport at all times to allow them to visit sites and attend meetings with BHAGYANAGAR GAS LTD.as is required. The normal day to day issue of work instructions, communication between BHAGYANAGAR GAS LTD.and the Contractor's supervisor and the SE. No deviation from the approved technical specification / issued construction drawings shall be undertaken without written approval of EIC.

3.8 **Health Safety and Environment (HSE) Management**

After the award of the contract, detailed Health, Safety and Environment (HSE) program to be followed for execution of contract under various divisions of works will be mutually discussed and agreed between Contractor, Client & PMC.

The Contractor shall establish document and maintain an effective Health, Safety and Environment (HSE) management system.

In case contractor fails to follow the instructions of Engineer-in-charge with respect to above clauses, next payment due to him shall not be released unless until he complies with the instructions to the full satisfaction of Engineer-in-charge.

The Contractor shall adhere to the Health, Safety and Environment (HSE) management system as per BHAGYANAGAR GAS LTD.Specification and General Conditions of Contract.

It will be the Contractor's responsibility to acquaint his site staff and operatives of all current safety legislation, statutory requirements and BHAGYANAGAR GAS LTD.'s safety standards. In addition, and before any work takes place all the Contractor's operatives shall be given training in site

safety by the trained person under supervision of BHAGYANAGAR GAS LTD. If the Contractor wishes to start any new operatives on site, he must first inform the SE, who will arrange for such training to be arranged.

3.9 **General Guidelines During and Before Erection**

3.9.1 The Contractor shall be responsible for organizing the lifting of the structural element, equipment in the proper sequence, that orderly progress of the work is ensured and access routes for erecting the other structures/ equipments are kept open.

3.9.2 During the performance of the work the Contractor at his own cost, shall keep structures, materials and equipment adequately braced by guys, struts or otherwise approved means which shall be Supplied and installed by the Contractor as required till the installation work is satisfactorily completed.

Such guys, shoring, bracing, strutting, planking supports etc. shall not interfere with the work of other agencies and shall not damage or cause distortion to other works executed by him or other agencies.

3.9.3 Manufacturer's recommendations and detailed specifications for the installation of the various equipment and machines shall be fulfilled by the Contractor.

3.9.4 Various tolerances required as marked on the drawings and as per specifications and instructions of the Engineer-in-Charge, shall be maintained.

Verticality shall be maintained. Verticality shall be verified with the Theodolite/advanced instruments,

3.10 **Construction Photographs**

The Owner desires to have two sets of monthly progress reports with photographs showing the progress of construction. Before utilizing any photograph for publicity, the Contractor shall obtain prior approval of the Owner.

3.11 **Schedule of Labour**

Schedule of Labour Rates attached as **Annexure-9** to SCC shall be used for analysing rates for extra items.

Schedule of equipment rates attached as **Annexure-9** to SCC shall be used for analysing rates for extra items.

3.11.1. **Construction Equipment**

Minimum construction equipment to be deployed is enclosed as **Annexure-8**

to SCC. However, Any other equipment required for completion of pipeline laying work but not specifically mentioned here, shall be deployed by contractor without any additional cost. The list of equipments mentioned in **Annexure-8** is the minimum to be deployed by contractor and contractor shall ensure the availability at site of listed equipments in good working condition.

3.12 **Specific Requirements**

Specific requirements spelt out in various technical parts of the Bidding Document shall be followed by Contractor.

3.13 **SITE CLEANING**

3.13.1 The BIDDER shall take care for cleaning the working site from time to time for easy access to work site and also from safety point of view.

3.13.2 Working site should be always kept cleaned up to the entire satisfactions of the Engineer-in-charge.

Before handing over and work to owner, the BIDDER in addition to other formalities to be observed as detailed in the document shall clear the site to the entire satisfaction of Engineer-in-charge.

3.14 **SURVEY OF WORK**

Before the WORK or any part thereof are begun, the Contractor's agent and the Engineer-in-Charge's representative shall together survey the SITE and decide the tentative route considering all obstructions on which the pipeline is to be laid and on which measurements of the WORK are to be based. Such particulars shall be plotted by the BIDDER and trial pits started thereon.

The Contractor shall be entirely responsible for the correctness of every part of the WORK and shall rectify any errors or imperfections therein. Such rectifications shall be carried out by the Contractor at his own cost, when instructions are issued to this effect by the Engineer-in-Charge or his representative.

WORK shall be suspended for such times as necessary for checking lines and levels on any part of the WORK.

The Contractor shall at his own expense provide all assistance, which the Engineer-in-Charge may require for checking the setting out to WORKS.

Before commencement of any activity, Contractor's quality control set up duly approved by company must be available at site.

4.0 **TESTS, INSPECTION AND COMPLETION**

4.1 **Tests and Inspection of Material under Contractor's Scope**

Inspection and test prior to shipment of material and at final acceptance shall be as specified in Technical Specification. However, without prejudice to the provision of Technical Specification following shall hold good.

The Owner/Consultant or its representative shall have the right to inspect ad or to test the material to conform their conformity to the specification.

If any inspected or tested material fail to conform the specification , the Owner/Consultant may reject them and the contractor shall either replace the rejected materials or make all the alteration necessary to meet the specification , free of cost to the purchaser/consultant.

The Purchaser / Consultant's right to inspect , test and where ever necessary reject the material after the material's arrival in the purchaser / consultant site shall in no way be limited to or waived by reason of the material having previously been inspected , tested and passed by the purchaser/ Consultant or their representative prior to the material shipment from the material supplier.

4.2 **Tests and Inspection during execution**

The Contractor shall carry out the various tests as enumerated in the technical specifications of this Bidding Document and technical documents that will be furnished to him during the performance of the work at no extra cost to the Owner.

All the tests either on the field or at outside laboratories concerning the execution of the work and supply of materials by the Contractor shall be carried out by Contractor at his own cost.

The work is subject to inspection at all times by the Engineer-in-Charge. The Contractor shall follow all instructions given during inspection and shall ensure that the work is being carried out according to the technical specifications of this Bidding Document, the technical documents that will be furnished to him during performance of work and the relevant codes of practice.

The Contractor shall provide for purposes of inspection access ladders, lighting equipment for testing, necessary instruments etc. at his own cost, low voltage lighting equipment for tray fixing and inspection work.

Compressed air for carrying out works shall be arranged by the Contractor at his own cost.

For material supplied by Owner, Contractor shall carryout the tests, if required by the Engineer-in-Charge, and the cost of such tests shall be reimbursed by the Owner at actual to the Contractor on production of documentary evidence.

Contractor shall inspect carefully all equipment before receiving them from Owner for installation purposes. Any damage or defect noticed shall be brought to the notice of Engineer-in- Charge immediately.

All results of inspection and tests will be recorded in the inspection reports, proforma of which will be approved by the Engineer-in-Charge. These reports shall form part of the completion documents. Any work not conforming to execution drawings, specifications or codes shall be rejected and the Contractor shall carryout the rectifications at his own cost.

Inspection and acceptance of the work shall not relieve the Contractor from any of his responsibilities under this Contract.

4.3 **Final Inspection during execution**

After completion of all tests as per specification the whole work will be subject to a final inspection to ensure that job has been completed as per requirement. If any defect is noticed, the Contractor will be notified by the Engineer-in-Charge and he shall make good the defects at his own cost and risk with utmost speed. If, however, the Contractor fails to attend to these defects within a reasonable time (time period shall be fixed by the Engineer- in-Charge) then Engineer-in-Charge may have defects rectified at Contractor's cost.

When these works are carried out at the risk and cost of the Contractor, the Engineer-in-charge would recover the actual cost incurred towards labour, supervisions and material, consumables or otherwise, plus 100% towards overheadsfrom any pending bill of the Contractor or the security deposit.

4.3 **Documentation**

4.3.1 **As - Built Drawings**

Notwithstanding the provisions contained in standard specifications, upon completion of commissioning, the BIDDER shall complete all of the related approved drawings along with bill of materials to the "AS BUILT" stage provide to a **scale of 1:200** and submit to BHAGYANAGAR GAS LTD., the following:

a) One complete set in reduced size (279 mm x 432 mm).
b) One complete set of Soft Copy in CD of all original drawings.
c) Four complete sets of approved prints in A2 / A3 sizes.

4.3.2 **Completion Document**

The following documents shall be submitted in hard binder by the BIDDER in FOUR sets, as a part of completion documents: -

a) Copies of the Inspection reports, Laying Graphs, HDD Profiles (IF ANY) and valve pit drawings (IF ANY).

b) Pre testing, final Hydrostatic / pneumatic and other Test results and reports.

c) Consumption statements of PE / GI certified by Owner's Site Engineer.

d) Material Reconciliation, stores issue & return statements

e) All other requirements as specified in the respective specifications.

f) Completion Certificate issued by Owner's Site Engineer.

g) No claim certificate by the BIDDER.

h) Completion certificate for embedded and covered up works wherever applicable.

i) Recovery statement, if any.

j) Deviation statement.

k) Statement for reconciliation of all the payments and recoveries made in the progress bills.

l) Copies of deviation statement and order of extension of time, if granted.

m) Any other contractual documents required on completion.

4.4 **Statement of Final Bills-Issue of No Demand Certificate**

The final bill of Contractor shall be accompanied by no-demand certificate from the following departments of the Owner:

i) Administration & Personnel Department regarding vacation of land, housing accommodation, recovery of tents etc.

ii) Fire and Safety Officer and CISF.

The Contractor shall obtain such no-demand certificates from the concerned authorities and furnish the same to the Engineer-in-Charge.

4.5 **Issue and Reconciliation of Material**

Refer **Annexure-7** to SCC for details.

4.8 GOVERNMENT OF INDIA NOT LIABLE

It is expressly understood and agreed by and between the Contractor and the Employer that the Employer is entering into this agreement solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood and agreed that the Government of India is not a party to this agreement and has no liabilities, obligations or rights there under. It is expressly understood and agreed that the Employer is an independent legal entity with power and authority to enter into contract, solely in its own behalf under the applicable laws of India and general principal of Contract Law. The Contractor expressly agrees, acknowledges and understands that the Employer is not an agent, representative or delegate of Govt. of India. It is further understood and agreed that the Govt. of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the contract. Accordingly, contractor hereby expressly waives, releases

and foregoes any and all actions or claims, including cross claims, impleader claims or counter claims against the Govt. of India arising out of this contract and covenants not to sue to Govt. of India as to any manner, claim, cause of action or thing whatsoever arising of or under this agreement.

5.0 REGISTRATION OF THE CONTRACT WITH STATUTORY AUTHORITIES (FOR FOREIGN BIDDER if applicable)

5.1 Within 30 days of execution of the Contract agreement, the Contractor shall register themselves and the Contract at their own cost with the Reserve Bank of India, Income Tax, Sales Tax and such other statutory authorities, as may be required under the rules and regulations governing in India. The Contract Price shall be deemed to include all costs towards the same. A copy of all documents related to all such registration shall be submitted to Employer for record.

6.0 LIMITATION OF LIABILITY

6.1 The final payment by the Employer in pursuance of the Contract terms shall not mean release of the Contractor from all of his liabilities under the Contract. The Contractor shall be liable and committed under this contract to fulfil all his liabilities and responsibilities, till the time of release of contract performance guarantee by the Employer.

6.2 Notwithstanding anything contrary contained herein, the aggregate total liability of Contractor under the Contract or otherwise shall be limited to 100% of Contract value. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profit or loss of production.

7.0 Void

8.0 DELETED

9.0 DELETED

1. DELETED

2. DELETED

12.0 DELETED

13.0 VOID

14.0 DELETED

15 ISSUE OF CERTIFICATE- PERTAINING TO IMPORT

BHAGYANAGAR GAS LTD.shall not provide any kind of certificate.

16.0 IMPORT LICENCE

16.1 Contractor shall arrange import of all materials required for permanent incorporation in the works as well as construction equipment as per the guidelines laid down by the Government of India. Employer shall not provide import license.

17.0 DELETED

18.0 INTELLECTUAL PROPERTY

18.1 Neither Employer nor Contractor nor their personnel, agents nor any sub-contractor shall divulge to any one (other than persons designated by the party disclosing the information) any information designated in writing as confidential and obtained from the disclosing party during the course of execution of the works so long as and to the extent that the information has not become part of the public domain. This obligation does not apply to information furnished or made known to the recipient of the information without restriction as to its use by third parties or which was in recipient's possession at the time of disclosure by the disclosing party. Upon completion of the works or in the event of termination pursuant to the provisions of the contract, Contractor shall immediately return to Employer/Consultant all drawings, plans, specifications and other documents supplied to the Contractor by or on behalf of Employer/Consultant or prepared by the Contractor solely for the purpose of the performance of the works, including all copies made thereof by the Contractor.

19.0 FIRM PRICE

19.1 The quoted prices shall be firm and shall not subjected to price escalation till the work is completed in all respects.

20.0 WORKS CONTRACT

20.1 The work covered under this contract shall be treated as "Works Contract".

21.0 PROVIDENT FUND ACT

21.1 The Contractor shall strictly comply with the provisions of Employees Provident Fund Act and register themselves with RPFC before commencing work. The Contractor shall deposit Employees and Employers contributions to the RPFC every month. The Contractor shall furnish along with each running bill, the challan/ receipt for the payment made to the RPFC for the preceding months.

22.0 DELETED

23.0 TERMS OF PAYMENT

23.1 Basis and terms of payment for making "On Account Payment" shall be as set out in Annexure-5 to SCC.

24.0 DELETED

25.0 COORDINATION WITH OTHER AGENCIES

25.1 Work shall be carried out in such a manner that the work of other agencies operating at the site is not hampered due to any action of the Contractor. Proper coordination with other agencies will be Contractor's responsibility. In case of any dispute, the decision of Engineer-in-Charge shall be final and binding on the Contractor.

26.0 DELETED

27.0 ROYALTY

27.1 Contractor's quoted rate should include the royalty on different applicable items as per the prevailing Government rates. In case, Employer is able to obtain the exemption of Royalty from the State Government, the contractor shall pass on the same to Employer for all the items involving Royalty.

28.0 THE FACILITIES FOR WORKMEN

28.1 Following facilities are to be ensured at all work places where workmen are deployed/engaged by Contractor & any other, as required by law at the time of execution.

Arrangement of first aid
Arrangement for clean drinking water.
Toilets
Canteen where tea & snacks are available
A crèche where 10 or more women workmen are having children below the age of 6 years.

29.0 DELETED

30.0 PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM

33.1 The Contractor shall follow the specifications with respect to Project Planning, Scheduling and Monitoring system as giving in Bidding Document.

31.0 CHECKING OF LEVELS

31.1 The Contractor shall be responsible for checking levels, orientation plan of all foundations, foundation bolts, etc., well in advance of taking up the actual erection work and bring to the notice of Engineer-in-Charge discrepancies, if any. In case of minor variations in levels etc. the Contractor shall carry out the necessary rectifications to the foundations within his quoted price.

31.2 The Contractor shall also be responsible for checking with templates, wherever necessary, the disposition of foundation bolts with the corresponding bases of structure and shall effect rectifications, as directed, within his quoted rate.

32.0 STORAGE FACILITIES

32.1 The Contractor shall maintain wherever required an air-conditioned room for the storage of the instruments as well as for calibration and testing of the instruments at his own cost. The contractor shall provide these facilities with in the quoted price.

33.0 DELETED

34.0 DELETED

35. **DELETED**

36. COMPUTERIZED BILLS

Contractor shall submit computerized bills with duly printed GST Registration no. etc.

37. ORDER PLACEMENT OF BOUGHT OUT ITEMS

The contractor is required to place firm order for all bought out items of adequate quantity (including 1st lot in those cases where items are required to be procured in more than one lot, if so stated in SOR/ SCC) within 30 days from the date of placement of order, failing which owner reserves the right to procure the same at the risk & cost of the contractor. However the contractor shall always take prior approval of owner and consultant for items required to be procured.

Further lots (for those cases where items are required to be procured in more than one lot, if so stated in SOR/ SCC) shall be procured after suitable period so as to ensure adequate availability of material at site through out the execution period).

38. REQUIREMENTS FOR CONTRACTOR AT SITE

38.1 Contractor shall establish site office in the respective areas with adequate facilities like tables, chairs, telephone, and computer with mailing facility etc. for effective communication and documentation.

38.2 Contractor shall provide as and when required a wagon(s) suitable for soil removal, for the delivery or reinstatement materials and for the transport of pipe to and from site.

38.3 Contractor shall supply transport for their technical staff and operatives to move from site to site, and to move tools and equipment from site to site, this vehicle will also be fitted with a tow bar suitable for the towing of a mobile air compressor or pipe trailer.

38.4 Contractor shall make appropriate arrangements to ensure that their supervisor(s) are adequately mobile and can attend sites or meeting with BGL/ PMC & other authorities or customers as required, without any undue delay.

38.5 Contractors shall provide cell phones to their supervisors for day to day communication with BHAGYANAGAR Gas/ PMC and site representatives of BGL/ PMC.

38.6 The RCM/ site in-charge must be a permanent employee of the contractor having desired qualification and work experience, Any change in key persons working at site shall be informed to the Owner promptly.

38.7 Owner will not allow switching/ swapping of key personnel of any contractor working at site from one contractor to another during the continuity of the contract.

39. COMPLIANCE WITH LAWS

39.1 The Contractor shall abide by all applicable rules, regulations, statutes, laws governing the performance of works in India, including but not limited to the following:

i) Contract Labour (Regulation & Abolition) Act 1970 & the centre rules, 1971 framed there under.
ii) Payment of Wages Act.
iii) Minimum Wages Act.
iv) Employer's Liability Act.
v) Factory Act.
vi) Apprentices Act.
vii) Workman's Compensation Act.
viii) Industrial Dispute Act.
ix) Environment Protection Act.

x) Wild life Act.
xi) Maritime Act.
xii) Any other Statute, Act, Law as may be applicable.
xiii) PNGRB Act.

40. NOTES TO SCHEDULE OF RATES (SOR)

i) The SOR items would be operatable as per job requirement.

ii) The quantities stated in SOR are tentative and may vary considerably on ± side depending upon site condition, methodology adopted as per site requirement. The payment will be made as per actual certified Measurement at site and as instructed by EIC.

iii) The scope as mentioned in the SOR is of **indicative nature only** and shall include all activities as detailed in the relevant clauses of the specifications attached and other relevant documents enclosed with tender.

iv) Any other materials & activities not mentioned/covered in SOR , but otherwise required for satisfactory completion/safety of work as defined in tender has to be supplied /done by contractor with in the specified schedule at no extra cost to owner.

v) Contractor shall be required to deploy adequate no. of plumbing teams to ensure I&C conversions expeditiously. In this regard, no. of independent teams shall be decided by Engineer-in-charge.

41.0 Insurance

All kind of Insurances including transit Insurance shall be borne & arranged by the bidder in line with clause no. 101 of GCC-Works. Price quoted in SOR shall be inclusive of this cost. Clause no. 16 of GCC-Goods, in this respect, shall stand superseded to this extent.

42.0 PRICE REDUCTION SCHEDULE

The Price reduction schedule shall be applicable as per clause no. 27 of GCC-Works. The Contract/order value shall exclude GST for the purpose of Price reduction schedule.

43.0 DIRECT PAYMENTS TO SUB-VENDORS/ SUPPORTING AGENCIES OF MAIN CONTRACTOR

Normally, the payment is to be made to vendor/ contractor only as per provision of contract. During execution, in case of financial constraints, BGL may make direct payment to their sub-vendor/ supporting agencies as an

exception from the amounts due to the vendors/ contractors from any of their bills under process upon certification by EIC subject to receipt of such request from the vendor/ contractor. Further, the request for direct payments to the sub-vendor/ sub-contractor shall be considered in performance evaluation of such vendor/ contractor.

44.0 SUB-LETTING OF WORKS

Pursuant to Clause No. 37 of GCC-Works:
The contractor shall not, save with previous consent in writing of the Engineer-in-charge, sublet, transfer or assign the contract or any part thereof or interest therein or benefit or advantage thereof in any manner whatsoever. Provided, nevertheless, that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the contract.
However, subletting of WHOLE WORKS is prohibited. Vendor/ Contractor shall submit undertaking to this effect along with each invoice/ bill.

45.0 BONUS FOR EARLY COMPLETION

The Clause 27.3 of GCC-Works for Bonus for early completion shall not be applicable in this Contract.

ANNEXURES TO SCC

CONTENTS

SCOPE OF WORK

(ANNEXURE-1 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-1 TO SCC

1.0 **SCOPE OF WORK**

Scope of work shall be as detailed in Particular Job Specification, Technical Specifications, Schedule of Rates & various other parts of this Bidding Document.

SCOPE OF SUPPLY

(ANNEXURE-2 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-2 TO SCC

1.0 SCOPE OF SUPPLY

1.1 Owner's Scope of Supply (Free Issue Item)

Owner's scope of supply shall be as specified in **ParticularJob Specification,** Technical Specifications, Schedule of Rates & various other parts of the Bidding Document.

In order to speed up the project Free Issue Materials shall be issued to the Contractor from the designated store(s) of BHAGYANAGAR Gas Ltd. Contractor shall be responsible for lifting the free issue materials from Owner's storage point(s) and transporting the same to work site(s) at his own cost.

Conditions for Issue and Reconciliation of Materials shall be as per Document enclosed as **Annexure-7** to Special Conditions of Contract.

1.2 Contractor's Scope of Supply

All materials except what is under Owner's scope of supply as mentioned in Clause No. 1.1 above, and required for successful completion of works in all respects shall be supplied by the Contractor and the cost of such supply shall be deemed to have been included in the quoted price without any additional liability on the part of Owner.

TIME SCHEDULE

(ANNEXURE-3 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-3 TO SCC

TIME SCHEDULE

Name of Work	Time of Completion
LAYING OF U/G PE PIPE LINES AS DETAILED IN SOR FOR CITY GAS DISTRIBUTION PROJECT AT North & South HYDERABAD GA	12 (Twelve) months from date of Fax of Acceptance (FOA) The above time schedule is inclusive of mobilization period.

Note:

1) The time of completion shall be reckoned from the date of award of contract, which shall be the date of issue of letter/ Fax of Intent.

2) The time indicated is for completing all the works in all respects as per specifications, codes, drawings and instructions of Engineer-in-charge.

3) It should be noted that the period of construction given above includes preparation of drawings , procurement and supply of materials including their inspection & testing, mobilization at site, construction, laying, fabrication, erection inspection, testing, rectification (if any), pre-commissioning, commissioning and demobilization works etc. complete in all respects to the entire satisfaction of Owner/ Engineer-in- charge.

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(**STAMP & SIGNATURE OF BIDDER**)

MEASUREMENT OF WORK

(ANNEXURE-4 TO SPECIAL CONDITIONS OF CONTRACT – TECHNICAL)

ANNEXURE-4 TO SCC

MEASUREMENT OF WORK

1.0 GENERAL

1.1 The mode of measurement shall be as mentioned in relevant standard specification incorporated in the Bidding Document. Any other mode of measurements not covered in above specifications shall be followed in accordance with relevant BIS codes/ Schedule of Rates/ Specifications etc. and/ or as decided by Engineer-in- charge.

1.2 Payment will be made on the basis of joint measurements taken by Contractor and certified by Engineer-in-charge. Measurement shall be based on "Approved for Construction" drawings, to be the extent that the work conforms to the drawings and details are adequate.

1.3 Wherever work is executed based on instructions of Engineer-in-charge or details are not adequate in the drawings, physical measurements shall be taken by Contractor in the presence of Engineer-in-charge.

1.4 Measurements of weights shall be in metric tonnes corrected to the nearest Kilogram. Linear measurements shall be in meters corrected to the nearest centimeters.

1.5 The weights mentioned in the drawing or shipping list shall be the basis for payment. If mountings for panels etc. are packed separately, their erection weights shall include all mountings.

1.6 Welds, bolts, nuts, washers etc. shall not be measured. Rates for structural steel work shall be deemed to include the same.

1.7 No other payment either for temporary works connected with this Contractor for any other item such as weld, shims, packing plates etc. shall be made. Such items shall be deemed to have been included for in the rates quoted.

1.8 Measurement will be made for various items under schedule of rates on the following basis as indicated in the unit column.

i)	Weight	:	MT or Kg
ii)	Length	:	M (Meter)
iii)	Number	:	No.
iv)	Volume	:	Cu.M
v)	Area	:	Sq.M

2.0 PIPING

2.1 Length of pipes shall be measured along the curvilinear centre of the pipelines laid/ installed and shall include all types of fittings, bends etc. but excluding all types of valves. Length of valves shall be excluded from piping measurement and shall be considered on number basis.

3.0 **FOR PIPELINE CROSSINGS BY HDD (if required) / BORING / MOLING METHOD**

Payment shall be made as specified in SOR, PJS and Technical Specification.

TERMS OF PAYMENT

(ANNEXURE-5 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-5 TO SCC

1.0 **TERMS OF PAYMENT**

Pending completion of the whole works, provisional progressive paymentsfor the part of work executed by the contractor shall be made by Owner on the basis of said work completed and certified by the Owner's representative as per the agreed milestone payment schedule and the percentage break-ups given below.

SOR No.	Terms of Payment
1 a	a. 1% will be given for getting the KYC & CIF. b. 19 % of the awarded rate After signing of agreement/GSA with Commercial/Industrial customers along with ESD. c. 40% of the awarded rate after submission of SD for infrastructure and Payment Security by customer as per the provision of the GSA. d. 20 % of the awarded rate shall be paid after 1nd bill generation e. 20% of awarded rate shall be paid after the 2th consecutive bill from the Gasification.
1 b	a. 1% will be given for getting the KYC & CIF. b. 19 % of the awarded rate After signing of agreement/GSA with Commercial/Industrial customers along with ESD. c. 40% of the awarded rate after submission of SD for infrastructure and Payment Security by customer as per the provision of the GSA. d. 20 % of the awarded rate shall be paid after 1nd bill generation e. 20% of awarded rate shall be paid after the 2th consecutive bill from the Gasification.
2	70% Laying and backfilling (Till the end)
	25% Pre-Commissiong, Commissioning & Submission of the As built and reports
	5% Paid after 6 months from the Commissioning date
3, 4, 5,6 & 7	95 % After Completion of work & Certified by EIC

Digitally signed by Pradeep Kumar Yadav
Date: 2026.04.17 19:15:11 IST

	5 % Paid after 6 months from the Commissioning date.

Contractor shall submit his invoices to the Owner's representative monthly in the manner as instructed by Owner. Each invoice will be supported by documentation acceptable to Owner and certified by the Owner's representative. Payments made by owner to the contractor for any part of the work shall not deem that the Owner has accepted the work.

The Contractor may raise the RA bill on monthly basis and payment shall be made as per the following terms: -

Note: Any further breakup of each activity for the payment purpose can be done depending upon the site situation/requirement and recommendation by EIC after getting request letter from contractor and approval of Owner after that.

3. Payment Methodology

I. The Contractor may raise invoices on monthly basis. Bidder shall enclose all documents as per checklist issued by BHAGYANAGAR Gas Ltd./ PMC

II. The payment of the contractor will be released within 15 days from the date of receipt of complete invoice as per terms and condition of the contract.

III. All payments against running bills are advance against the work and shall not be taken as Final acceptance of work / measurement carried out till the final bill.

IV. Further break-up of Lump sum Prices, if deemed necessary for any progressive payment of individual item may be mutually arrived at between Engineer-in-Charge and the Contractor.

V. Bills shall be raised by contractor in line with check list attached in Tender document.

QUALITY ASSURANCE

(ANNEXURE-6 TO SPECIAL CONDITIONS OF CONTRACT)

(For details- Refer our Technical Specification enclosed in tender document.)

CONSTRUCTION EQUIPMENT TO BE DEPLOYED

(ANNEXURE-7 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-8
CONSTRUCTION EQUIPMENT TO BE DEPLOYED

Sl. No.	Description of Item	Minimum Qty. to be Deployed*for each city
i.	Electro-fusion machine with Bar Code and control box with leads	2
ii.	Moling Equipment	As and when required
iii.	PE Squeeze Tools for all diameter Pipes	2
iv.	Universal pipe scrapper 20mm, 32mm / hand scrappers for all diameters	4
v.	Tapping tools for PE service tees	2 sets of all size
vi.	PE pipe cutter/ Guillotine for all diameters	3
vii.	Gas detection equipment, wherever required	As and when required
viii.	Cable and pipe locator	As and when required
ix.	PE closure plugs/ test ends for 20mm / 32mm pipes	As required
x.	Towing heads	As required
xi.	Pipe alignment clamps, jointing of elbow, tee, top loading clamps for top tee	4
xii.	Pipe straightners, re-rounding tools of all pipe sizes	3
xiii.	Jumping Jack compactor	As and when required
xiv.	Roller for asphalting	As and when required
xv.	Water tanker	As and when required
xvi.	Hammer Drill	3
xvii.	Portable Power Generator a) 5 kVA b) 3 kVA	2 2
xviii.	Piston Drill	2 Gangs
xix.	Conversion Kit	2 Gangs as required
xx.	Pneumatic Test Pumps	2
xxi.	Die sets for thread preparation	2 per gang
xxii.	Soldier Torch	2
xxiii.	Cleaning pads	6
xxiv.	Cleaning Brush	6
xxv.	Lacquer and thinner	As Required
xxvi.	Safety Harness equipments with descent control	2
xvii.	Calibrated Pressure Gauge (0-6 Bar)	6

Notes:

1. Any other equipment required for completion of pipeline laying work but not specifically mentioned hereinabove, shall be deployed by contractor without any additional cost to Owner. Contractor shall deploy above mentioned equipments in good working condition.

2. Mobilization shall be considered complete only after equipments having quantity specifically mentioned hereinabove (in the min. qty. to be deployed column), are made available at site in good working condition as verified by EIC.

*) **Number of equipment indicated hereinabove is a minimum requirement, however for completion of job, if additional equipment is required, same shall be deployed by the contractor at site without any additional cost to Owner.**

_____

(SIGNATURE OF BIDDER)

PART-III: SECTION -4

4.2: TECHNICAL SPECIFICATION

CONTENTS

LIST OF SPECIFICATION /STANDARDS (PART – III -VOLUME-II)

TECHNICAL SPECIFICATION
FOR
LAYING OF UNDERGROUND PE MAIN PIPELINES

1.0 GENERAL INFORMATION

1.1 Introduction

Bhagyanagar Gas Limited (BGL), a joint venture of GAIL (India) Limited and HPCL, is engaged in development of CNG (Compressed natural gas) & City Gas Distribution Networks (CGDN) at Hyderabad, Vijayawada & Kakinada for distribution of CNG and PNG to various consumer segments. Presently, BGL is expanding the CNG & City Gas Distribution Network (CGDN) to supply Natural Gas to Domestic, Commercial, Industrial and Automobile Consumers in the Geographical Area (GA) of Hyderabad, Vijayawada and Kakinada.

1.2 Nature of Contract

The contractor shall be paid on a Price schedule basis. He shall execute the work and perform his obligations under the contract and BHAGYANAGAR GAS LTD shall pay the contractor for measured quantity of each item of work actually carried out under the contract. Payment shall be at the rate for the work set out in the agreed Price schedule.

2.0 SCOPE OF WORK

BGL (hereinafter referred to as BGL) intends to provide Piped Natural Gas (PNG) Connection and supply PNG to industries / industrial installations / manufacturing units and commercial establishments (like Hotels, restaurants, banquet halls, Hospitals, Hospitals, temples, Gurudwaras, Food Courts, shopping malls, Institutional Canteens, Hostel Mess etc.) having energy /fuel requirements in the following Geographical Areas / locations:

A. Hyderabad (North & South Zone) (Telangana)

For achieving the above objectives, BGL requires to register the demand for natural gas and sign the Gas Sale Agreement (s) (GSAs) with various industries and commercial establishments having natural gas requirements falling in the above geographical areas. / Locations -. For this purpose, BGL intends to award separate / individual contract(s) for each Geographical Area / location for natural gas demand registration and facilitation activities for execution of requisite Gas Sale Agreement(s).

Under each such contract, the various industrial areas/ clusters and areas / parts of the relevant Geographical Area having commercial establishments (being prospective natural gas consumers) that fall under the respective GA shall be assigned to the contractor from time to time for carrying out business development activities. During the tenure of the contract, I&C-DMA shall be taking up the job in a specific area only after clearance from BGL.

Industrial and Commercial PNG Registrations and Business Development process of BGL and responsibilities of Direct Marketing Agency (I&C-DMA):

i. All the registration of demand of PNG from various industries and commercial establishments must be done under Commercial and Industrial segment with complete details as per KYC/CIF by I & C -DMA from customers as per the prescribed format of BGL.

ii. All the registered demand of PNG should be confirmed by the customer.

iii. I&C-DMA shall not make any registration from the areas not released by BGL to the I&C - DMA. Further any liability (legal, financial or otherwise) arising out of this shall be the sole responsibility of the I&C-DMA.

iv. The I&C-DMA shall follow-up with the customer for signing GSA, submission of Security Deposit (ESD) Payment Security deposit (CSD) as per the provision of GSA. Only Online payment directly from customer will be accepted. The I&C-DMA shall report the status of submission of SD for infrastructure and Payment Security to BGL.

v. In case the customer deposits the Security Deposit (SD) for infrastructure / Payment Security in the form of Demand Draft / at par Bank Cheque with the I&C-DMA, then the same have to be submitted in the office of BGL within three days from the date of receipt of such SD and send a report to BGL. If the customer is releasing payment for SD & Payment Security by electronic mode, the details of the same shall be collected and furnished to BGL by I&C DMA.

vi. I&C-DMA shall maintain a Marketing office basic infrastructure facility required in the office including Telephone, landline facilities, computers, Laptops, printers, Scanners and Internet connection. The I&C-DMA shall seek approval of BGL before finalizing office premises.

vii. I&C-DMA shall deploy marketing teams of sufficient size to carry out the awarded work complete in all respects. The number of personnel to be deployed will be as per the requirement and as per instructions of BGL depending on the number of industries / commercial establishments targeted from time to time. The sales team will be smartly dressed / presentable and carry identity cards / authorization letters for activities including visits to industries / commercial establishments. All the marketing executives will undergo a training program as may be organized by BGL from time to time.

viii. Personnel deployed should be graduates and fluent in English, Hindi & Telugu (GAs).

ix. I&C-DMA shall attend meetings required at date and time communicated by the concerned EIC.

x. I&C-DMA shall obtain written consent of the EIC before circulating any Leaflet/notification giving any information for promotion of PNG business while carrying out the awarded work.

xi. I&C-DMA shall ensure that the personnel deputed at site will keep the image of BGL in mind and no activity should be undertaken to tarnish the image of the BGL.

xii. I&C -DMA's personnel shall act as brand ambassadors of BGL and shall propagate the brand image of BGL through conversation, behavior and activities while dealing / interacting with Industries / Commercial establishments.

xiii. I&C-DMA shall not carry out any false promotion on behalf of BGL regarding gas supply, price, infrastructure, service, commencement schedule or commercial terms.

xiv. The I&C-DMA shall not repute the personnel deployed for BGL's work for any other activity or purpose.

xv. I&C-DMA shall ensure that its personnel are equipped with mobile phones at all times and their mobile numbers are duly communicated to EIC.

xvi. On submission of registered demands from Industrial and Commercial customers along with documentary proof of such demand the awarded price for demand registration i.e. SOR item-1 (A) or 1(B) (as the case may be) shall be paid to I&C-DMA.

xvii. 60% of the awarded price of SOR item-2 (A) or 2(B) (as the case may be) shall be paid

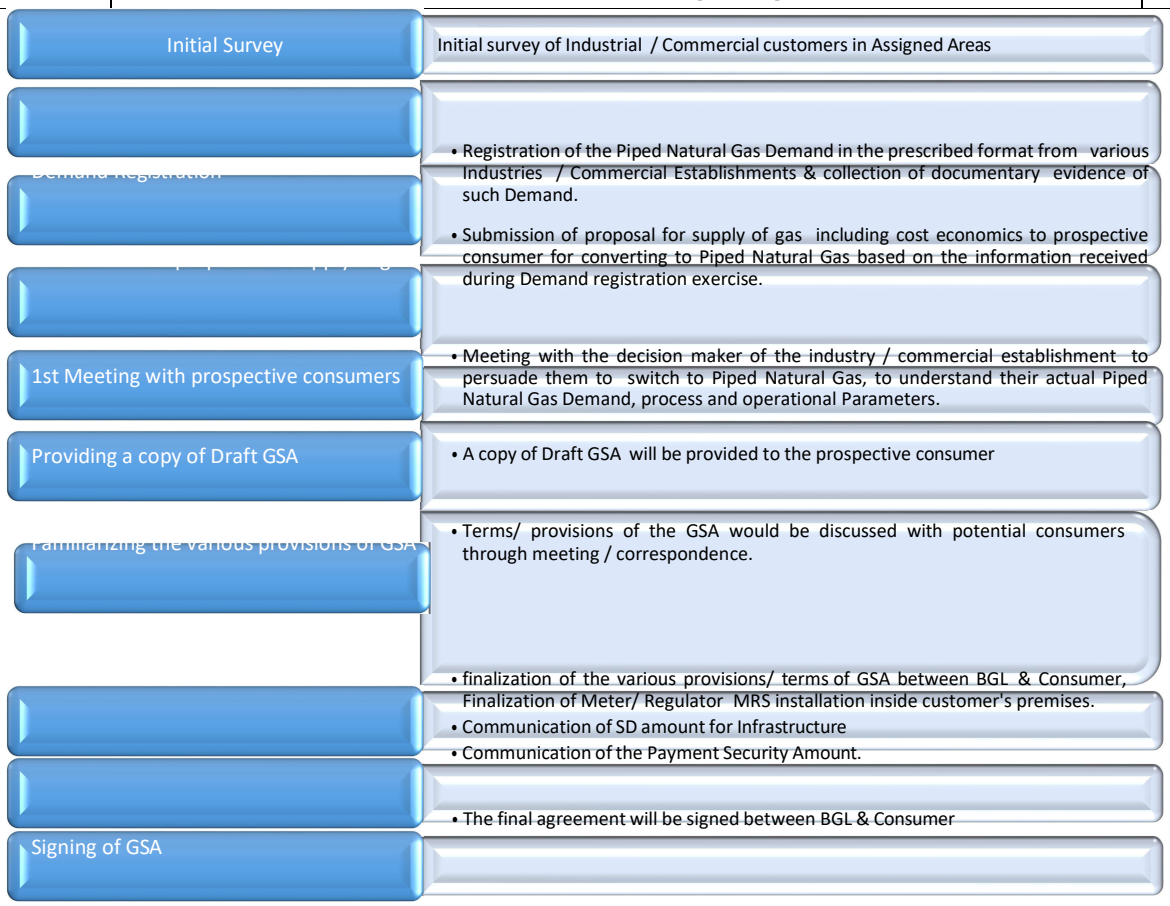
to I&C-DMA after signing of Gas Sale Agreement and balance 40% of the awarded price of SOR item-2(A) or 2(B) (as the case may be) shall be paid to I&C-DMA after submission of SD for infrastructure and Gas Payment Security. In case a customer registered its PNG requirement online, the same will be forwarded to I&C-DMA for physical registration and process thereafter by EIC from time to time. In such case, I&C-DMA shall be paid only 20% awarded demand registration charges

xviii. I&C-DMA personnel shall be equipped with other aids such as laptops/tablets/brochures/information kits etc. required for registering PNG demand and for making presentations and sales, to potential customers.

xix. I&C-DMA is responsible for filling of formats as prescribed by EIC from time to time in hard and or soft copies. These formats are to be submitted to BGL on regular basis as instructed by EIC.

2.1 The I&C-DMA shall carry out activities related to PNG Demand registration and signing of GSA for providing industrial and commercial PNG Connection in the authorized Geographical area (GA) as defined in the Scope of Work herein given below under the supervision and complete control of the EIC / MIC nominated by BGL.

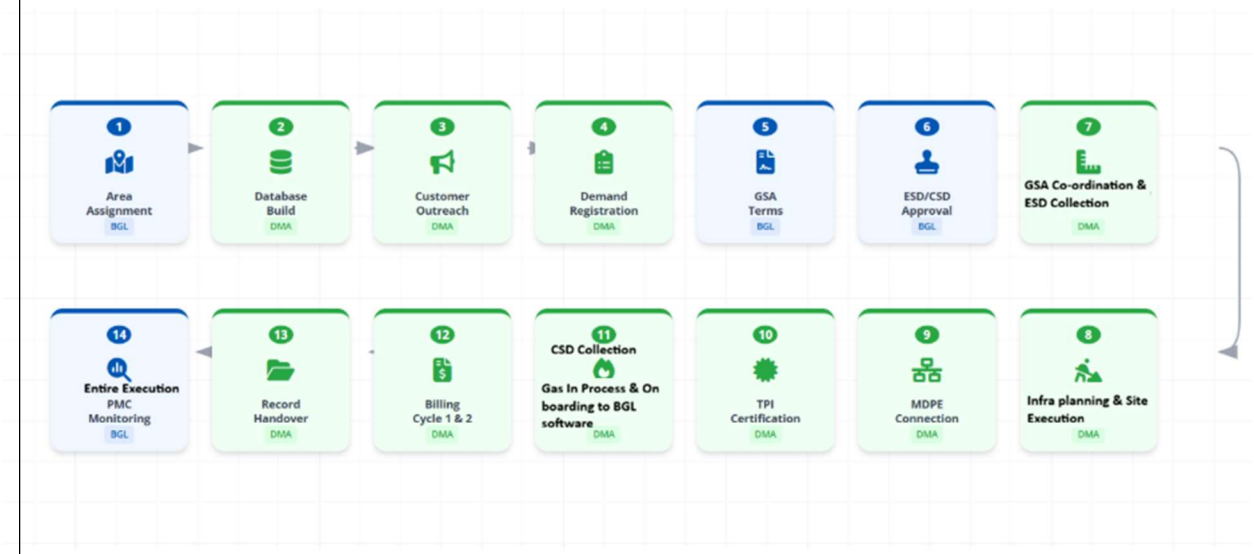
2.2 The process of PNG Industrial and Commercial Connections is as follows:



Scope of BGL	Scope of I&C-DMA

• Assignment of Industrial Area / Areas covering industries / commercial establishments to I&C-DMA • Preparation of detailed Proposal for supply of PNG • Persuade the customer to switch to PNG • Providing copy of Draft GSA to I&C- DMA • Finalization of terms and condition of GSA with customer • Intimation of customer specific Infrastructure SD and Payment Security amount to I&C-DMA. • Signing of Contract	• Preparation of Data base of potential customers in assigned Industrial Area / Area covering industries / commercial establishments • Demand Registration in assigned area in prescribed format. • Periodical submission of registered Demand to BGL . • Facilitate flow of communication and scheduling of meeting between BGL & consumer till commencement of gas supply. • Deliver Draft GSA to customer • Maintain records of all communication between BGL & I&C-DMA, I&C- DMA & Customer and BGL & Customer till commencement of gas supply. • Collection of Infrastructure SD and Payment Security. • Execution of Laying and commissioning works and installation & Commissioning of Metering unit • Maintain records of all those

	industries/commercial establishments which have not opted to switch to PNG in the assigned industrial area/ areas covering industries and commercial establishments.



2.3 The Detailed Scope of Work of the I&C-DMA shall include but not limited to the following:

i. Industrial & Commercial Direct Marketing Agency (I&C-DMA) will prepare a database with respect to potential Industrial and Commercial customers in the areas released by EIC from time to time. The I&C-DMA will survey the various Industrial areas / areas covering industries and commercial establishments released to them by EIC from time to time to assess the demand potential and to identify the potential customers which can be targeted for PNG supply.

ii. For registration of demand for PNG from industries and commercial establishments the I&C-DMA will use an intelligent combination of marketing techniques such as distribution of leaflets, organizing registration camps, uses of AV (audio visuals aid) etc. in consultation with BGL Marketing department to achieve maximum registrations. I&C-DMA will carry out the distribution of leaflets & various registration camps in the city/ various Industrial areas / areas covering industries and commercial establishments. and cost of any advertising material will be borne by BGL. I&C -DMA shall be required to carry out awareness activities including awareness camp for duration of at least two hours at offices of associations of various industries /commercial establishments before starting registration process. However, the number of actual camps may vary according to the number of associations of industries / commercial establishments in the area. The I&C-DMA shall arrange the manpower, requisite portable tents and other amenities as well as required equipment's for AV aids.

iii. I&C-DMA will attend meetings with associations of industries /commercial establishments or any other public forum as per day and time specified by the concerned marketing officer. Any relaxation from this activity is required to be obtained in writing from the marketing officer.

iv. I&C-DMA shall register the demand of PNG of individual Industry / Commercial Establishment in the

prescribed format and submit the same in both hard and soft copy as per stipulated time to EIC for preparation of proposal for supply of gas. After submission of demand registered by I&C-DMA to BGL the first part of scope of work of the I&C- DMA will be completed and the I&C-DMA will be paid the awarded price for such exercise.

v. In case a customer registered its PNG requirement online, the same will be forwarded to I&C- DMA for physical registration and process thereafter by EIC from time to time. In such cases the 20% of awarded price for demand registration (i.e. SOR in Sl. no.1(A) or 1(B)) will be paid to I&C-DMA.

vi. From the list of registered demand by I&C-DMA, the EIC will shortlist the customers whom the I&C-DMA will target for signing of agreement. For the shortlisted customers the Marketing Department of BGL will prepare customer wise proposal including cost economics for converting to PNG. The proposal shall be provided to I&C-DMA which shall be delivered by I&C-DMA to the prospective customer. The I&C-DMA shall

facilitate flow of communication between the prospective customer & BGL during this period.

vii. The I&C-DMA shall schedule the 1st meeting between prospective customer & BGL for persuading the customer to switch to PNG, understanding the customers actual demand, the nature of demand, process & operational parameter. The I&C-DMA shall also facilitate flow of communication between the prospective customer & BGL arising in view of the above meeting.

viii. After 1st meeting between prospective customer & BGL if the customer is interested in supply of PNG, the draft GSA shall be provided to I&C-DMA which shall be delivered by I&C-DMA to the prospective customer. The I&C-DMA shall also facilitate flow of communication/ scheduling of further meeting (s) (if required) between the prospective customer & BGL for familiarizing the customer with various provision/ terms of GSA and clearance of various doubts related to provisions/ terms of GSA.

ix. The I&C-DMA shall schedule meeting (s) between prospective customer & BGL for finalization of GSA & Metering system and also facilitate flow of communication between the prospective customer & BGL arising in view of the above meeting (s). The I&C-DMA shall also communicate to the customer the SD amount and the Amount to be provided as Security Against Payment and the mode of such payments bank A/c details etc. after consulting with the EIC.

x. The I&C-DMA Shall facilitate signing of GSA between BGL & customer.

xi. I&C-DMA shall follow-up with the customer for submission of SD for infrastructure and Payment Security as per the provision of GSA.

xii. If the SD for infrastructure and Payment Security is handed over to I&C-DMA, the same shall be reported and deposited with BGL as per the stipulated time.

xiii. I&C-DMA will keep updating the customer wise records, communication received & sent at various stages elaborated in point No. 2.2. These records will be maintained in the format specified by BGL (soft copy in email/ and hard copy in printouts) will be submitted to EIC.

xiv. I&C-DMA will review the progress at various stages elaborated at point No.2.2. This will be done in the formats specified by EIC from time to time. I&C-DMA is required to submit fortnightly, monthly report in the prescribed format to EIC.

xv. I&C-DMA will ensure that its marketing executives/office staff should communicate the correct information

to consumers and conduct them in a dignified manner when representing BGL . On receipt of any complaint regarding misbehavior /any other misconduct by the persons employed by the I&C-DMA is received, the same shall be immediately brought to the knowledge of EIC. I&C-DMA will remove such personnel from the job on instructions from EIC. The I&C-DMA shall be completely responsible for consequences, if any, legal or financial for any act of misbehaviour on the part of persons employed/contracted by him/her with prospective customers of BGL .

xvi. I&C-DMA shall submit physical files for each customer containing all the correspondence exchanged between I&C-DMA & Customer, BGL & Customer and I&C-DMA & BGL . I&C-DMA shall mark a copy of all its communication with customer to BGL .

xvii. I&C-DMA shall address the queries /complaints of the customers with suitable reply and if it beyond its scope the same shall be forward to EIC. I&C-DMA or its employee shall not contact any customer or its representative after commencement of PNG supplies, unless specifically advised by EIC to do so.

xviii. I&C-DMA shall make best effort to promote the use of Gas based equipment.

xix. I&C-DMA shall make a list of all such industries / commercial establishments that have not opted to register for supply of PNG.

xx. The PNG Demand Registered by industrial / commercial customer online shall be provided by Marketing in Charge (EIC) to I&C-DMA from time to time and the physical registration will be done by I&C-DMA.

2.4 If at any time after acceptance of the tender BGL shall decide to abandon or reduce the scope of work for any reason whatsoever, the EIC shall give notice in writing to that effect to the service provider and the service provider shall act accordingly in the matter. The service provider shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the work.

2.5 The service provider shall be paid at contract rates for works executed in the areas assigned by EIC. The payment will be done limited to the work done as specified in the payment terms.

2.6 If the materials supplied by the BGL are rendered surplus, the service provider shall return the same to BGL . In addition, cost of transporting such materials from site to BGL stores, if so required by the BGL shall be paid for by BGL .

2.7 The service provider shall, if required by the EIC, furnish to him wage books, time sheets and other relevant documents as may be necessary.

2.8 Pipeline Laying

2.9 Surveying and marking of pipeline route.

2.10 Excavation, trenching, and preparation of the pipeline corridor.

2.11 Laying and jointing of MDPE pipeline up to the customer's meter location.

2.12 Installation of associated fittings, valves, Meter installation and service connections.

2.13 Temporary restoration of the road with PCC when required.

2.14 Any delay in the execution of work shall attract a penalty of 5% of the awarded specific work value, or the work shall be carried out at the contractor's risk and cost.

2.15 Contractor to deploy safety officer/safety supervisor at site (as per the guidelines given in Annexure-9 of SCC to Annexure), failing which penalty of Rs 3300 per day will be deducted from Contractor's RA Bills.

2.16 Depending upon site conditions, EIC can modify the various penalties and decision of EIC in this regard shall be final and acceptable.

2.17 Removal of the Debris from the site and to be disposed at authorized area.

2.18 Testing and Quality Assurance

2.19 Carrying out pressure testing of the pipeline as per PNGRB and company specifications.

2.20 Ensuring compliance with quality standards and safety norms at every stage.

2.21 Documentation of test results and inspection reports.

2.22 Pre-Commissioning and Commissioning

2.23 Purging and cleaning of the laid pipeline.

2.24 Ensuring safe tie-in with the existing charged pipeline.

2.25 Commissioning of the pipeline network up to the meter.

2.26 Statutory Compliance

2.27 Execution of all works in line with PNGRB regulations, OISD guidelines, and other statutory norms.

2.28 Coordination and obtaining necessary permissions/approvals from local statutory bodies, municipal authorities, and other relevant agencies.

2.29 Safety and Environmental Considerations

2.30 Implementation of standard safety practices during execution.

2.31 Adherence to environmental protection norms, including safe disposal of excavated material.

2.32 Restoration of site conditions post completion of work.

2.33 Deliverables:

2.34 Fully laid, tested, and commissioned MDPE pipeline up to the customer's meter point.

2.35 All statutory clearances, test certificates, and compliance documentation.

2.36 Discipline

2.37 The EIC may require the service provider to dismiss or remove from the field of work/ cleared

industrial area / areas covering industries & commercial establishments any person or persons in the service provider's employment who may be incompetent/ misconducts himself and the service provider shall forthwith comply with such requirements.

2.38 Execution of Work

2.39 All works to be executed under the contract shall be executed under the direction and subject to approval in all respects of the EIC. Areas will be Shamirpet to Suchitra, Suchitra to Balanagar Y Jn, Balanagar Y-Jn to BHEL (Right Side), Alwyn to Gachibowli, Alwyn to BHEL & Erragada to Alwyn (Left Side) . But not limited to these areas any other gasified area can be allocated by EIC.

2.40 Documentation/ Statutory Compliance

2.41 The contractor shall regularly submit all relevant records/documents to BGL representative for inspection including but not limited to the following documents:

2.42 Copy of labor license issued by labor commissioner Office (self-attested)

2.43 Copy of employee state insurance enrollment number

2.44 Copy of employee's provident fund enrollment

2.45 Bio-data of all employees with two recent photographs (in original)

2.46 Copy of appointment letter of all employees.

2.47 Employment card for all employees (in original).

2.48 Employee identity card for all employees (photocopy)

2.49 Besides, service provider shall also produce a duly attested copy of each of the following documents along with every monthly bill for services provided.

2.50 Employee state insurance & employee's provident fund challans for all employees along with declaration that all statutory obligations have been complied with.

2.51 Receipt of full and final settlement (in case of termination of services of any employee)

2.52 Register of wages for all employees.

2.53 Attendance card for all employees.

2.54 OTHER TERMS AND CONDITIONS.

2.55 BGL reserves the right to reject any one or all the personnel deployed by contractors on the basis of their performance, conduct and discipline.

2.56 Safety Guidelines of the industry concerned viz. Security Protocol/ Safety procedures has to be followed by Service Provider and its team while interacting with particular industry/Commercial establishment.

2.57 In case of default for providing the services as per contract, company will have the right to obtain the services from any other source at the risk & cost of the contractor and the amount incurred by the company will be recovered from the pending bills or security deposit of the contractor or may terminate the contract and forfeit the security deposit.

2.58 Character certificate from Police Deptt. of all the manpower deputed by Contractor is to be submitted.

2.59 The I&C-DMA shall not undertake any similar assignment from a third party as a dealer/ agent/ marketing agency/ authorized reseller for any energy related product or service in the Geographical Areas covered under this Contract. I&C-DMA shall inform the EIC before accepting any other assignment related to industrial / commercial sale in the GAs covered in this Contract.

2.60 All the information collected, correspondence exchanged between BGL & I&C-DMA, I&C- DMA & Customer and BGL & Customer are the proprietary property of BGL and the I&C-DMA shall not share the above with any third party.

2.61 I&C-DMA shall not share information viz. demand registration data, Agreement format, promotional material, customer contact information & pricing details etc. which is either provided by BGL or is work product of I&C-DMA resulting from carrying out the contract to anyone during or after the contract period.

2.62 BGL . retains the right to appoint more DMAs from time to time based on its business needs.

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7.0 TERMS OF PAYMENTS

a. Monthly running bills to be submitted by the Agency/DMA for certification by EIC through SITE INCHARGE.

b. The payment terms shall be as follows:

SOR No.	Terms of Payment
1 a	f. 1% will be given for getting the KYC & CIF. g. 19 % of the awarded rate After signing of agreement/GSA with Commercial/Industrial customers along with ESD. h. 40% of the awarded rate after submission of SD for infrastructure and Payment Security by customer as per the provision of the GSA. i. 20 % of the awarded rate shall be paid after 1nd bill generation j. 20% of awarded rate shall be paid after the 2th consecutive bill from the Gasification.
1 b	f. 1% will be given for getting the KYC & CIF. g. 19 % of the awarded rate After signing of

	agreement/GSA with Commercial/Industrial customers along with ESD. h. 40% of the awarded rate after submission of SD for infrastructure and Payment Security by customer as per the provision of the GSA. i. 20 % of the awarded rate shall be paid after 1nd bill generation j. 20% of awarded rate shall be paid after the 2th consecutive bill from the Gasification.
2	70% Laying and backfilling (Till the end)
	25% Pre-Commissiong, Commissioning & Submission of the As built and reports
	5% Paid after 6 months from the Commissioning date
3, 4, 5,6 & 7	95 % After Completion of work & Certified by EIC
	5 % Paid after 6 months from the Commissioning

2.63 PRICE REDUCTION SCHEDULE (PRS)

2.64 In case of delay in completion of PNG registration as per agreed schedule in kick off meeting. Price Reduction Schedule (PRS) shall be applicable at the rate of ½ % of the total value of Work allocated value per week of delay or a part thereof. The maximum PRS shall be 5% of contract value. For PRS Purpose, contract value shall be excluding GST. Any Delay in execution of the awarded work more than the agreed schedule in Minutes of meeting Penality shall be applicable at the rate of the loss of the profit to company maximum of ½ % of the awarded particular work value in RA bill.

2.65 PRICE ESCALATION

2.66 The contract price shall be deemed to be firm and valid for the entire duration of the contract till the completion of work and shall not be subject to any adjustment due to increase in prices of materials, utilities, or any other input for performance of work under the contract.

2.67 **TAXES, DUTIES, OCTROI, LEVIES ETC**.

2.68 The contracted rates shall be deemed to be inclusive of all taxes (except GST), duties including taxes duties, levies, cess, labour cess, fees, works contract tax etc. till the completion of the works as per contract and DMA shall not be eligible for any compensation on this account. Statutory deductions such as Income tax etc. shall be as per Govt. guidelines.

2.69 MOBILIZATION ADVANCE

2.70 No Mobilization Advance shall be paid in any case.

2.71 The scope of work covers all activities related to the laying of MDPE pipeline from the existing charged pipeline for providing Natural Gas supply to C-PNG or I-PNG customers. The work shall include, but not be limited to, the following:

Generally the following shall constitute the Contractor's scope of work :

2.72 The scope of work involves laying of MDPE pipeline and providing city gas connection (PNG) to commercial consumers in the Hyderabad Geographical Areas (GA).

2.73 The scope of work covers laying, testing and commissioning of underground medium density Polyethylene (MDPE) service pipelines of size 125/ 90 / 63 / 32 / 20 mm OD from the nearest branch line of various sizes MDPE line to various end point consumers of Piped Natural Gas (PNG) in Hyderabad. The scope includes tapping or connecting to already laid / charged pipelines at some locations.

2.74 Further the scope of work also includes identification of existing structures, buildings, roads, pavements / by-lanes, nallahs, culverts, drains, utility lines, electric poles, type of ground surface , and marking on drawings along with location of all houses by their names and identification number along with preparation of drawings.

2.75 Plan and prepare a schedule for execution and work implementation as per QA / QC plans to be issued by BHAGYANAGAR GAS LTD/PMC. Contractor has to submit the Construction/ Execution procedures before commencement of work.

2.76 ROU permission for laying of the pipe line from the concerned land owning authority (i.e. GHMC / HMWSSB / NHAI / HMDA , R&B etc.) will be arranged by contractor. BGL will hand over the application form to the contractor. Contractor shall be responsible for obtaining the demand note and permission from the concerned authority. All other liasioning activities with authorities such as GHMC / HMWSSB / NHAI / HMDA, R&B, local officials, traffic police, police, ESCOM, BSNL, Railways, RTO etc.The scope also includes liasioning with Society / individual land / Shop owners for smooth execution of pipeline laying. Repairing/replacement of all damaged utilities if any, and payment of any compensation (if claimed by owner / other utility agencies) is in scope of the contractor.

2.77 The route alignment drawings of main pipeline (125 / 90 / 63 / 32 mm) in streets / general areas shall be provided by BGL / Consultant. However inside the premises for 32 mm / 20 mm dia pipeline, preparation of route map, as per site condition shall be prepared by contractor and submitted to BGL/consultant for approval and execution shall start after due approval. Further, the scope also includes preparation of drawing, for any change in route due to site condition for mainline (125 / 90 / 63 / 32 mm), re- route alignment drawing shall also be prepared by contractor.

2.78 Receiving, loading, unloading and transporting and stacking of MDPE pipes / GI pipes issue by BGL as free issue material from BGL designated store yard within GA limit.

2.79 Proper storing, stacking, identification, providing security, and insurance during storage, laying and upto handing over of pipelines.

2.80 Making trial pits to determine the underground utilities/services such as existing pipelines,

Cables (Electrical/Communication), Conduits, U/G drainage, Sewers, tunnels, Subways foundations etc, and deciding optimum routes and depths for laying the pipelines based on the actual site condition / approved pipeline route by EIC/authorities.

2.81 Clearing the pipeline route as per requirement for proper movement of workmen, equipment and QA/QC personnel.

2.82 Wherever required the grass / turfing, pavement, linings, drains roads and other such 'pucca' area shall be locally removed to facilitate trenching and pipe laying works. The same is to be reinstated as original.

2.83 Supply & Installation of Safety/ Warning Signs, barricading of the route to be trenched. Pits to be similarly barricaded with the warning sign.

2.84 To make trenches with stable slopes but restricting minimum disturbance to above ground/underground services/ installation as per specifications and approved route plans; keep the trenches free from water and soil till placement of pipes;

2.85 Uncoiling/ stringing the PE pipes of required sizes (i.e. 20, 32, 63, 90, 125) pipes into trenches as per specification.

2.86 Joining the pipe ends with fittings and valves by approved electro-fusion techniques as per specification.

2.87 Installation of pipe fittings/installation like elbow, tee, reducers, tapping saddles, joints, connectors, transition fittings, valves, sleeves etc. including construction of supports, valves pits, inspection chambers etc. as per specification.

2.88 Laying pipeline using trench less technology methods with or without casing pipes as per specification and as directed by EIC.

2.89 Supply & Laying of HDPE duct as casing pipe wherever applicable, along with PE Pipe.

2.90 Supply of good quality GI sleeves, concrete casing pipes, sand and other material, fittings to be supplied by the Contractor as per provisions of tender.

2.91 Back filling and compaction by jumping jack compactor using approved 'good' soil or using excavated earth or borrow earth as per requirement and specification and replacement of tiles, slabs removed during the excavation. Cleaning all unserviceable material, debris, excess earth near trenches etc to designated disposal area.

2.92 Carrying out pneumatic testing and purging as per specifications and approved procedures; providing all tools, tackles, instruments, manpower and other related accessories for carrying out the testing of pipes.

2.93 Nitrogen purging (including supply), commissioning & gas charging of tested pipeline as per approved procedure.

2.94 Restoration of existing ground features such as grass/ turfing, paving, roads, drains, concrete, floral beds, fencing, titles, flooring masonry etc. to original condition and to match with adjoining conditions- functionally and aesthetically upto the entire satisfaction of BHAGYANAGAR GAS LTD / PMC / any other third party agency designated by BHAGYANAGAR GAS LTD and local authorities, failing which, it will be done at the risk and

cost of the contractor. Obtaining satisfactory completion certificates for the restoration work done from the concerned authorities.

2.95 Installation of permanent site markers, warning signs, valve chamber etc.

2.96 Returning surplus material to BHAGYANAGAR GAS LTD stores, reconciliation of free issue material/ consumables if supplied by BHAGYANAGAR GAS LIMITED and obtaining 'no objection certificates' from BHAGYANAGAR GAS LTD /PMC.

2.97 Handing over the completed works to BHAGYANAGAR GAS LTD for their operation / use purposes.

2.98 Maintaining the completed pipelines/installation for any defect, failures during defect liability period.

2.99 Preparation and submission of As-built drawings, details of crossings, utility graphs, measurement sheets and deviation statements on completion / commissioning of work by way of drawing, sketches and tables.

2.100 Any other activity(ies) not mentioned/ covered explicitly above, but otherwise required for satisfactory completion/ operation/ safety/ statutory/ maintenance of the works shall also be covered under the Scope of work and has to be completed by the Contractor within specified schedule at no extra cost to BGL.

3.0 MATERIAL, LABOUR, PLANT AND EQUIPMENT

3.1 Owner's Scope of Supply (Free Issue Item)

Free Issue Materials shall be issued to the Contractor from the designated store(s) of BHAGYANAGAR Gas Ltd.. Contractor shall be responsible for lifting the free issue materials from Owner's storage point(s) and transporting the same to work site(s) at his own cost.

In general PE pipe shall be of the following lengths indicated.

20mm/32mm	100 to 300 Mtrs. coils
63 mm	100 Mtrs. Coils
90 mm	50 Mtrs Coils
125 mm	50 Mtrs. Coils

3.2 Supplied by the Contractor

Contractor will supply all size HDPE casing pipe, GI / concrete sleeves, valves and PE fittings other materials as per SOR & scope of supply necessary to complete the laying of gas main pipelines and service pipelines.

The contractor is to procure all bought out items from approved vendors and accordingly keep BHAGYANAGAR GAS LTD / PMC informed. The inspection of bought out items would be carried out by BHAGYANAGAR GAS LTD / PMC / Third Party Inspection or as instruction by EIC.

The Contractor shall provide the skilled labour, tools, material and equipment necessary for the proper execution of the Work. This will include but not be limited to list of specialized items included in the enclosure furnished herewith.

3.2.1 Equipment & Machinery

All vehicular type machinery shall be in good working order and shall not cause spillage of oil or grease. To avoid damage to paved surfaces the Contractor will provide pads of timber or thick rubber under the hydraulic feet or outriggers of machinery.

In addition to above, the contractor must have dedicated bar coded electro-fusion (Automatically readable) machine with power generator (at any point of time minimum 2 nos.), Pipe Cutters (like circular guillotine), End Scrapers, Pipe Straightener, approved Top loading clamp for fusing saddle tapping tee, clamps of all sizes for Electro-fusion fittings, re- rounding tools and test ends etc. for pipes of diameters 125mm, 90mm, 63mm, 32mm & 20mm for this project. Contractor has to arrange his own all equipments for trenchless crossings such as HDD, Moling & rock cutting equipment, HDPE fusion equipment at thesite whenever required.

Contractor must also have to arrange his own equipment for restoration work like water tanker and jumping jack compactor for compaction of backfilled trenches and roller and other required equipment/ machinery for asphalting/ road works.

In case there is non-availability of approved equipments, tools and tackles during the work at site, suitable penalties, as per special terms and condition of the contract, will be levied and deducted from the running bills.

3.2.2 Imported Backfill and Material

The Contractor shall be responsible to arrange the supply of approved soft soil / Coarse Sand free from any impurities like clay, mica and soft flaky pieces as per the instruction of EIC/Owner.

For supply of sand in trench for rocky terrain, no separate charges are payable and is included in price schedule item for excavation of hard rock / Morrum. Also supply of sand in valve chambers ,Normal chambers & Built up surface ,if required ,as per the instruction of EIC is not separately payable.

In case specified trench depths are not achieved & if directed by Engineer-in- charge Contractor to provide concrete casing pipes/ slabs or cement concrete, without any cost implication to Owner.

3.2.3 Other Materials

The Contractor shall supply the following items where required.

- All materials required for form work, trench support, temporary trench crossings.
- All sign boards, barricades, tin sheets, lights and protective equipment.
- Permanent markers as shown in the drawings enclosed in the tender.
- Material required for installation of valve chambers.
- GI ,Concrete sleeves
- All minor items not expressly mentioned in the Contract but which are necessary for the

satisfactory completion and performance of the Work under this Contract.

3.2.4 Manpower

The contractor shall provide the skilled labour, tools, materials, and equipment necessary for the proper execution.

3.2.5 Acquisition, Receipt, & Storage Of Materials

In case of material supplied by owner then the contractor shall collect all materials from BHAGYANAGAR Gas store between working hours following all documentation procedures laid down and as directed by EIC. The contractor shall at the time of receipt of material physically examine all materials and notify the EIC immediately of any damage. Any damage not recorded at the time of inspection done by contractor will be deemed not to have existed at the time of receipt of material. Cost of repair, rectification, replacement will be borne by the contractor. Any defective material found during the time of installation will noted and forwarded to stores for replacement immediately with P.O reference and only with written approval of EIC. The contractor shall ensure that no defective material shall be returned to store at the time of closure of contract.

The contractor shall maintain permanent locked store preferably near site in so that all the material are stored in such a manner so as to prevent and damage to the materials from scratching , gouging , indentation , excessive heat or by contact with any sharp objects and chemicals.

The contractor shall maintain log book at their respective stores stating issue and availability of free issue material as a given day. Further the contractor is required to undertake and submit an inventory of materials every month to Owners/Owners Representative (mandatory)

4.0 PROGRESS OF WORK

The Contractor shall proceed with the Work under the Contract with due expedition and without delay.

The EIC may direct in what order and at what time the various stages or parts of the work under the Contract shall be performed.

Contractor has to regularly submit daily progress reports, weekly progress reports, graphs with utilities, testing reports, material consumption and inventory reports, deviation statements etc.

5.0 APPROVALS

It is the contractor's responsibility to inform and co-ordinate the concerned local authorities and also other utility agencies before commencement of work at site. To ensure smooth execution of the work on a day to day basis, the contractor has to liaison with respective authorities and obtains necessary approvals.

6.0 REFERENCE SPECIFICATION, CODES AND STANDARDS

The contractor shall carry out the work in accordance with the requirement of latest relevant applicable standards, this specification, Engineering Standards; relevant Oil India Safety Directorate (OISD) norms, Latest PNGRB Guidelines, ASME B31.8 - Gas Transmission and Distribution Piping Systems; Australian Standard 3723 - Installation and Maintenance of Plastics Pipe Systems for Gas; and the American Gas Association Document - Purging Principles and Practice. ISO: 4437/ IS:14885 for underground polyethylene pipes and approved procedures Should the contractor find any discrepancy, ambiguity or conflict in or between any of the Standards and the contract documents, then this should be promptly referred to the Engineer-in-Charge (EIC) for his decision, which shall be considered binding on the contractor.

7.0 SAFETY

The Contractor shall conform to the requirements outlined elsewhere in the tender document. In addition, the Contractor shall observe safe working practices in the storage and handling of cleaning fluids, flammable fluids, etc, and ensure smoking or naked flames are not permitted in the vicinity when these materials are being used.

Trench walls shall be battered with sufficient slope in order to minimize a trench collapse. Where there is a danger of an earth slide or collapse, the trench shall remain open for the minimum time possible with proper barricading. The Contractor is to ensure that no person enters a trench, which is of a depth of 1.5 meters or greater, unless the trench has adequate shoring or the sides are battered to such an extent as to prevent a trench collapse

The Contractor shall also protect all work sites with warning signs, barricades and night lighting. The Contractor shall inspect all fenced excavations daily, and maintain them in good order.

The trenches/ pits shall not be kept open in night times. However in case the same is essential the same shall be properly barricaded with proper lighting arrangements & manned.

The Contractor shall provide all safety equipments like helmets, boots, etc. to the labour which are necessary for safe working practice.

Any accident causing injury to any person or damage to property or equipment shall be reported to the EIC.

Where the EIC determines that the work is being performed by the Contractor in an unsafe manner, he may suspend the Work until corrective action is taken by the Contractor.

For further details refer Attached Health Safety and Environment (HSE)technical specification.

8.0 ROUTE SURVEY

8.1 Route Plans with pipe size of approved route shall be issued to the contractor at the start of the works.

8.2 The planned route drawings of main pipeline (125 / 90 / 63 / 32 mm) in streets / general areas shall be provided by BGL / Consultant. However inside the premises for 32mm / 20mm dia pipeline preparation of route map, as per site condition shall be prepared by contractor and submitted to BGL/consultant for approval and execution shall start after due approval. Further, the scope also includes preparation of drawing, for any change in route due to site condition for mainline (125 / 90 / 63mm) , re- route alignment drawing shall also be prepared by contractor. Any change in routing from the issued drawings due to site constraint will be notified to EIC & his specific written approval shall be obtained before carrying out the job.

9.0 ORGANIZATION OF WORK

9.1 All construction work will be carried out as per direction of EIC, and this will be the primary point of contact between the contractor and BHAGYANAGAR GAS LTD on site. All work will be issued and sanctioned through the EIC and site control exercised by Site Engineer BHAGYANAGAR GAS LTD / PMC. The contractor shall ensure that technical quality standards are maintained, that construction is carried out cost effectively and that a good customer and public image of BHAGYANAGAR GAS LTD is maintained.

9.2 Contractor shall designate RCM who will be the single point coordinator to interact with EIC/Consultant/TPIA and authorized to attend review meetings, receive materials, authorized to sign documents, claims and receive payments etc.. Contractor shall submit the organization chart stating that in charge of projects ,store, QA/QC and take approval from the owner.

9.3 The contractor will appoint his own supervisors of minimum number instructed by EIC. These personnel will be responsible to the SE for monitoring construction standards and for ensuring that all detailed technical requirements are met on each and every job which is undertaken. The contractor's supervisor(s) will have day to day liaison with the SE, and will provide the SE with technical reports and audits, and other management information as is required on work progress and construction quality standards.

9.4 The contractor’s supervisor shall have mobile/phones to ensure that they can be contacted at all times. The contractor will also nominate one person who can be contacted if necessary out of hours, for the duration of the works. The contractor's supervisor will have access to transport at all times to allow them to visit sites and attend meetings with PMC/ BHAGYANAGAR GAS LTD as is required. The normal day to day issue of work instructions, communication

between BHAGYANAGAR GAS LTD and the contractor's supervisor and the SE. No deviation from the approved technical specification / issued construction drawings shall be undertaken without written approval of EIC.

9.5 Contractor shall maintain a Project site office, Material store with following facilities: Telephone, Mobile phones, printers/Scanning/Xerox machines, Computer with e-mail facility, transportation facility

10.0 STRUCTURES, SERVICES AND OTHER PROPERTY

10.1 Location of Underground Utilities

The contractor shall locate all buried utility pipes, underground cables, water mains and other obstructions intersecting or adjacent to the Works, and shall make available the necessary labour to expose and record the depth of cover over all obstructions in advance of excavation. This shall be done far enough in advance of excavation to facilitate gradual change in grade or position found necessary to clear any obstructions.

In addition, the contractor shall excavate trial pits as necessary to determine the pipe route. The number of trial pits will be agreed with the EIC in advance of any excavation. Restoration of the abandoned trial pits and trenches shall be the contractor's responsibility. No payments shall be made for such type of jobs.

It is contractor's responsibility to interact with other utility agencies regarding their existing utilities and finalize the route along with these agencies and Owner/Owner's representative

There will be no additional payments in respect of abandoned trenches incurred because of insufficient or inadequate trial pits, or any associated lost time or delays.

10.2 Protection of Structures and Utilities

The Contractor shall at his own cost, support and protect all buildings, walls, fences or other structures and all utilities e.g. Electrical cables, Telephone Cables, Water pipelines, Sewer pipelines etc., and property which may, unless so protected, be damaged as a result of the execution of the works. He shall also comply with the requirements in the specification relating to protective measures applicable to particular operations or kind of work. Special care shall be taken while laying Pipelines near the trees.

10.3 Interference with Traffic, Street Drainage and General Public

The Work shall be executed in such a manner as to cause a minimum of inconvenience to persons requiring to use public or private roads, lanes, thoroughfares, walkways, rights-of use or passages through which the Works are to be executed. The trench shall be back filled, compacted, levelled and

extra earth shall be removed immediately after laying of pipeline to avoid public inconvenience. Closure of roads, etc, shall not be permitted without the approval of the EIC.

The Contractor shall comply with all local Authorities requirements to traffic, and keep roads open to traffic, and maintain access to and within any private property. Wherever the pipe route crosses driveways, access tracks or entrances to private properties, the Contractor shall give the owner, occupier or relevant authority at least 24 hours prior notice of intended commencement of excavation and shall be restricted to pass through.

The Contractor shall not, in any circumstance, use a private driveway, access track or entrance without the prior approval of the EIC.

The Contractor shall provide suitable access where necessary in the form of temporary bridges, culverts, flumes, etc, of a size and type approved by the EIC.

The Contractor shall comply with all relevant road Laws. Where limits and/or speed limits have been placed in the vicinity of the Works, the Contractor shall provide for the necessary movement of plant and equipment in accordance with the requirements of the relevant authority.

The Contractor shall not obstruct any drainage pipes or channels in any road but shall deviate them where necessary and use all proper measures to provide for the free passage of water.
The Contractor shall deliver the completed works after proper cleaning of the site.

The contractor shall conduct his operations at all times, with a view to minimizing as far as practicable noise from plant and other objectionable nuisance (e.g. oil leakage).

11.0 TRENCHING

The schematic diagram with the detail of trench is enclosed. The Contractor shall perform the excavation works so as to enable the pipe to be laid in conformity with the levels, depths, slopes, curves, dimensions and instructions shown on the Drawings, Specifications or as otherwise directed by the EIC.

Contractor shall excavate and maintain the pipeline trench on staked centerline as per approved alignment sheets taking into account the horizontal curves of the pipelines.
While trenching care shall be taken to ensure that all underground structures and utilities are disturbed to the minimum. Suitable crossing shall be provided and maintained wherever necessary to permit general public, property owners or his tenants to cross or move stock or equipment from side of the trench or another.

Trenching shall be made with sufficient slopes on sides in order to minimize collapsing of the trench. On slopes wherever there is danger of landslides, the pipeline trench shall be maintained open only for the time strictly necessary. BHAGYANAGAR GAS LTD may require excavation by hand tools, local rerouting and limiting the period of executing of the works. Before trench cuts through water table, proper drainage shall be ensured, both near the ditch and ROU in order to guarantee the soil stability.

The Contractor shall ensure that trench bottom is maintained in the square form as far as possible, with equipment, so as to avoid/ minimize the hand grading at the bottom of the trench. The Contractor shall do all such handwork in the trench as required to free the bottom of trench from loose rock, pebbles and to trim protruding roots from the bottom and sidewalls of the trench.

11.1 Depth of Trench

The minimum depth of cover shall be measured from top of pipe to the top of undisturbed surface of the soil or top of the graded working strip or top of road or top of rail, whichever is lower.

The depth of the trench will be such as to provided minimum cover as stipulated below :

a) For Distribution Main and Service Lines

i)	Minor Water Crossing/ Canal	2.5 meter
ii)	Uncased/ Cased Road Crossing	1.5 meter
iii)	Rail/ Road Cased Crossing	1.5 meter
iv)	Normal Areas	1.0 meter

The minimum depth as mentioned above may be greater than as may be required by Government/ Public authorities under jurisdictions. The Contractor shall perform such work without extra compensation, according to the requirement of concerned authorities.

In case the depth could not be achieved due to practical problems and the same is demonstrated, EIC after examining thoroughly and considering the codes and standards may allow the contractor to provide suitable protection by way of concrete casing pipes or slabs without extra cost to BHAGYANAGAR GAS LTD.

11.2 Width of Trench

The width of the trench shall be wide enough to provide bedding around the pipe and to prevent damage to the pipe inside the trench. Unless otherwise directed by the EIC and where ground conditions permit, the minimum distance from the inside edge of the trench wall to the outside of the pipe shall be as per Drawing. No payment will be made for extra width of trench for any reason.

11.3 Trench Base

The trench bottom shall be cut or trimmed to provide a uniform bedding for the pipe, and shall be free of stones, metal, wood, vegetation, clods of earth or other debris before placement of the pipe.

Hard rock is defined as trench material with a single piece dimension exceeding 1.0 m in length which cannot be removed other than by the use of pneumatic chisel/drill or sledge hammer and chisel.

Excavation through soil mixed with boulders that have been used for a road base will not be considered as hard rock for the purposes of payment.

11.4 Clearances

Unless otherwise approved, the following clearances shall be maintained between the external wall of the gas pipe and the external surface of other underground assets in the vicinity of the Works.

- 150-300 mm where the gas pipe crosses other assets, other than electrical cables, whereupon the clearance shall be 300 mm.

- 300mm where the gas pipe is on a similar alignment to the other assets

.

Where the above clearances cannot be achieved, or in other special circumstances, the EIC may approve/specify protection with concrete/MS coated pipe, etc. The protective material shall be supplied and installed by the Contractor at his cost.

11.5 Under Ground Interferences

The Contractor shall locate and expose manually all underground facilities if any during trenching. Safety barriers, if required shall be erected to prevent any damages or accident. On locations where pipeline is laid under the existing facilities and near the approaches to the crossing, the trench shall be gradually deepened to avoid sharp bends. All sewers, drains, ditches and other natural waterways encountered while trenching shall be maintained open and functional by providing proper temporary installations if required. Suitable dewatering pumps shall be deployed to dewater, if required.

Whenever it is permitted by Authorities and/ or BHAGYANAGAR GAS LTD to open cut paved road crossing, or where line is routed within the road pavement, the Contractor shall remove the paving in accordance with the restrictions and requirements of the authorities having jurisdiction thereof as directed by BHAGYANAGAR GAS LTD. After laying the pipeline, backfilling shall be immediately performed and all the areas connected with the works shall be temporarily restored.

In case of damage to any of above referred structures/ utilities the contractor

shall be responsible for repairs/ replacement at his own cost, which shall be carried out to satisfaction of concerned authorities, resident and PMC / BHAGYANAGAR GAS LTD.

11.6 Others

Throughout the period of execution of such work, the Contractor shall provide and use warning signs, traffic lights or lanterns, barricades, fencing, watchman etc. as required by the local authorities having jurisdiction and/ or BHAGYANAGAR GAS LTD.

For all roads, paths, walkways etc. that are open-cut, the Contractor shall provided temporary diversions properly constructed to allow the passage of normal traffic with the minimum of inconvenience and interruptions.
The paving shall be restored to its original condition after the pipeline is installed.

The Contractor shall excavate to additional depth at all the points where the contour of the earth may require extra depth, or where as deep trench is required at the approaches to crossings of roadways, railroads, rivers, streams, drainage ditches without any extra cost implication to BHAGYANAGAR GAS LTD.

The Contractor shall excavate all such aforesaid depths as may be required at no extra cost of BHAGYANAGAR GAS LTD.The trench shall be cut to a grade that will provide a firm, uniform and continuous support for the pipe.

The Contractor shall take conducive measures to ensure the protection of underground utilities as per the instructions of BHAGYANAGAR GAS LTD or relevant authorities. Where the pipeline crosses underground utilities/ structures, Contractor shall first manually excavate to a depth and in a such a manner that the utilities/ structures are located, then proceed with the conventional methods.

The locations, where the pipeline has to be laid more or less parallel to an existing pipeline cable and/ or other utilities in the Right-of-way the Contractor shall maintain proper distances and perform the work to the satisfaction of BHAGYANAGAR GAS LTD and other utility agencies. In such locations, the Contractor shall perform work in such a way that even under the worst weather and flooding conditions, the existing pipeline/ utilities remain stable and shall neither become undermined nor have the tendency to slide towards the trench.

11.7 Bedding

The contractor shall ensure that the pipe when placed in the trench is supported and surrounded by a bed of screened excavated soil, which shall be stone free and have a maximum grit size of 5mm in order to ensure no damage occurs to the pipe.

However in case of rocky soil, the bedding shall be done with approved/ good

quality packing sand, subject to the approval of the EIC, the size distribution of the sand shall be the same as per soil. The packing sand shall be placed to a minimum thickness of 150mm around the pipe in case of rocky terrain.

Unless directed by the EIC the quantity of bedding & surrounding sand shall confirm to specifications. There shall be no void space in packing sand around the pipe.

12.0 LAYING

Laying of MDPE pipelines shall commence only after ensuring proper dimensions and clean surface of the trench. The trench bottom shall be free from the presence of cuts, stones, roots, debris, stakes, rock projections upto 150mm below underside of pipe and any other material which could lead of perforation/ tearing of the pipe wall. After ensuring above the PE pipe coil shall be uncoiled smoothly through proper equipment's/ care inside the trench ensuring no damage to pipe coil during laying. The Contractor must ensure that pipe caps are provided before lowering of pipeline. The trench after this can be released for back filling leaving adequate lengths open at the ends, for jointing.

Where given specific approval by the EIC a pipe may pass through an open drain or nallah. Where this is permitted the pipe shall be installed inside a concrete or steel sleeve for protection. The sleeve material shall be procured and laid by the Contractor. In general the GI Sleeve / concrete sleeve material specification of reputed make. The payment for the length of pipe in the sleeve will be made as per SOR. All other work necessary to break through the walls of the obstruction, and to seal the annulus between the pipe and the sleeve and the sleeve and the wall, shall be deemed to be included in the rates.

Open ends of pipe placed in the trench shall be securely capped or plugged to prevent the ingress of water or other matter. The Contractor is to ensure that nothing enters the inside of the pipe during the laying process as this could cause a future blockage or regulator malfunction due to dust, etc.

Valves shall be installed at locations shown on the Design Plan or as directed by the EIC and joined with PE pipes by electro-fusion techniques. The valves shall be supported on a bed of fine fill of grit size not greater than 5mm to achieve equivalent support as the incoming and outgoing pipe work.

Laying graphs with details of depth, length, offsets from fixed references, other utility crossings, fittings, size of casing pipe used for the pipeline shall be prepared on daily basis and submitted to Site Engineers of the Owner for approval. These details will be further incorporated into As-Built Drawings.

13.0 LAYING OF HDPE CONDUIT AND OPTICAL FIBER CABLE : N/A / Deleted

14.0 JOINTING OF POLYETHYLENE PIPE

Only Bar coded electro-fusion machine (Automatically Readable) with in-built memory to

store the jointing data that can read the bar code of the fittings shall be used for jointing of MDPE pipe / fittings. Manual feeding electro-fusion machines are not acceptable for jointing purpose.

The Contractor has to submit the certificate of calibration of Fusion machine at the time of start of work and at fixed intervals as per the instruction of owner. Contractor shall ensure that the machine are always available at site, no stoppage of work due to the non availability of machines.

The contractor shall flush the Pipeline with air to remove dust, water, mud etc. before fusing the joints.

Before jointing, the Contractor shall place packing sand under the pipes on both sides of the joint to keep the pipes in line and at the correct alignment during the jointing process. Alignment clamps with the correct size shells should be used to align the pipe during the electro-fusion cycle.

The Contractor shall ensure that polyethylene pipe is only cut with an approved PE pipe cutting tool. Before fusion is attempted, shall remove the oxidized surface of the pipe to be inserted into the electro-fusion coupling. The tool must remove a layer of 0.1 mm to 0.4 mm from the outer surface of the PE pipe. It may also be noted that no fusion will be allowed without clamping device and only the approved cutting tools (Hack Saw shall not be allowed for cutting the Pipe) shall be used.

The contractor has to supply all the consumables required for carrying fusion of the joints (like cloth/ paper napkin, acetone etc.).

If, upon inspection, the EIC determines a joint is defective, Contractor shall remove the joint by an approved method. The cost of this work shall be borne by the Contractor.

Contractor shall arrange generator for power supply for fusion machine. Taking power connection from electric poles ,connections or residential premises is strictly not permitted.

Only, Approved Jointers shall carry out fusion of all joints. Contractors shall provide the list of jointers to be used on the job and make arrangements for qualification Testing of the jointers in presence of Owner / Owner's representative . All approved Jointers shall bear Identity cards signed by Owner/Owner's representative.

15.0 BACKFILLING

Backfilling shall be done after ensuring that appurtenance have been properly fitted and the pipe is following the ditch profile at the required depth that will provide the required cover and has a bed which is free of extraneous material and which allows the pipe to rest smoothly and evenly. Dewatering shall be carried out prior to backfilling. No backfilling shall be allowed if the trench is not completely dewatered.

Prior to backfilling it should be ensured that the post padding where required of compacted thickness 150mm is put over and around the pipe immediately after lowering.

Backfilling shall be carried out immediately after the post padding where required has been completed in the trench, inspected and approved by BHAGYANAGAR GAS LTD/ PMC, so as to provide a natural anchorage for the pipe, avoiding, sliding down of trench sides and pipe moment in the trench. If immediate backfilling is not possible, a padding of at least 200mm of earth, free of rock and hard lumps shall be placed over and around the pipe and coating.

The backfill material shall contain no extraneous material and/ or hard lumps of soil, which could damage the pipe and/ or coating or leave voids in the backfilled trench. In case, it is required and directed by EIC, screening of the backfill material shall be carried out with specified equipment before backfilling the trench.

The surplus material shall be neatly crowned directly over the trench and the adjacent excavated areas on both sides of the trench to such a height which will, in BHAGYANAGAR GAS LTD/ PMC opinion of provide adequately for future settlement of the trench backfill during the maintenance period and thereafter. The down shall be high enough to prevent the formation of the depression in the soil when backfill has settled into its permanent position should depression occur after backfill, Contractor shall be responsible for remedial work at no extra cost to Company. Surplus material, including rock, left from this operation shall be disposed off to the satisfaction of land owner or authority having jurisdiction at no extra cost to BHAGYANAGAR GAS LTD.

Where small pieces of rock, gravel, lumps of hard soil or like materials are encountered at the time of trench excavation, sufficient earth or select backfill materials shall be placed around and over the pipe to form a protective cushion extending at least to a height of 150mm above the top of the pipe. Select backfill materials for padding that are acceptable shall be screened soil, containing no gravel. All these works shall be carried out by Contractor at no extra cost to BHAGYANAGAR GAS LTD. Loose rock may be returned to the trench after the required selected backfill material has been placed, provided the rock placed in the ditch will not interfere with the use of the land by landowner, or tenant.

In case where hard rock is encountered or as desired by EIC sand padding is to be provided upto height of 150mm around the pipe.

When the trench has been dug through drive ways or roads, all backfilling shall be executed with suitable material in layers as approved by PMC / BHAGYANAGAR GAS LTD and shall be thoroughly compacted. Special compaction methods as specified may be adopted. All costs incurred there upon shall be borne by the Contractor.

Trenches excavated in dikes which are the properties of railways or which are parts of main roads shall be graded and backfilled in their original profile and condition. If necessary, new and/ or special backfill materials shall be supplied and worked-upto.

After laying of PE pipe lines, back filling with available soft soil up to depth of minimum 300mm, placing brick as per given drawing or instruction of BHAGYANAGAR GAS LTD / PMC, back filling with available soil up to minimum depth of 200 mm above bricks, putting approved warning mat of 0.5mm thick and 250 mm wide with traceability provision (as per attached specification) and as indicated in the drawing. The warning mat is to be unrolled centrally over the pipe section and thereafter further backfilling will commence. Backfilling activity shall include proper compaction by jumping jack compactor and watering in layers of 150mm above the warning mat.

Proper crowning of not more than 150 mm shall be done. All the excavated material required to be used during the Restoration process shall be stacked and kept separately and properly. Wherever Road cutting/ Tiles removal/ PC cutting has been done during excavation for laying, the area shall be back filled and compacted immediately so that no inconvenience is caused to the general public.

Electro-fusion of joints is to be undertaken immediately after lowering and the activity shall not be kept pending for lack of Electro-fusion jointing. The backfilling shall be considered complete only after the joint in completed. Debris and other surplus material shall be removed immediately after the back filling.

16.0 MOLING:

The Moling shall be carried out as per the requirement specified by BHAGYANAGAR GAS LTD/ PMC, and approved procedures. The contractor has to carry out thorough survey of the underground utilities before going for the Moling, to avoid the damage to the other utilities.

No extra payment will be made for any trial / abandoned pits made during the survey. The supply of all equipment, power required for carrying out moling work, is in contractor's scope. The type of moling to be carried out i.e., Manual/ Machine with or without casing shall be at the discretion of BHAGYANAGAR GAS LTD / PMC. A prior approval is to be taken before starting the Moling.

For manual Moling the contractor shall ensure that the size of the hole shall not be more than 20% of the size of the casing / carrier pipe whichever is applicable. After completion of Manual Moling the hole shall be properly compacted / filled with soil by watering and by approved procedures, the pits shall be backfilled, compacted & restored . The rate for such crossing work by using casing pipe & carrier pipe or only carrier pipe shall be payable as per Schedule of Rates. **No separate payment shall be made for pulling the carrier pipe.**

The rates for Moling, as indicated in SOR, are payable as per the size of the casing/ carrier pipe and are inclusive of excavation of pits, backfilling, compaction, restoration, jointing and insertion of carrier pie.

Any damages occurred to other utilities during the Moling operation shall be immediately notified and rectified by the contractor without any cost implication to BHAGYANAGAR GAS LTD.

The length of the Hole (excluding the sizes of the pits on both ends) shall be considered for the measurement of Moling length. However, intermediate pits, if any, will consider in the moling length.

17.0 HORIZONTAL DIRECTIONAL DRILLING

The above techniques is required to be carried out by the Contractor where conventional trenching / Moling is not possible viz. railways, major waterways, highways, roads etc. Details of such crossings shall be obtained by the Contractor, and construction drawings shall be prepared by the Contractor in consultation with PMC/ BHAGYANAGAR GAS LTD. Execution of the work shall be based on the PMC / BHAGYANAGAR GAS LTD approved drawings. The contractor has do the thorough survey of the underground utilities before commencement of HORIZONTAL DIRECTIONAL DRILLING to avoid the damage to the other utilities. No extra payment will be made for any trail / abandoned pits made during the survey. The supply of all equipments is in Contractors scope. Work to be carried out in accordance with API - 1102.

Once the work is allotted, Any delay in mobilizing / non - availability of HDD machines as per site requirement and conditions shall result in levying of penalties on daily basis as per SCC.

The type of HDD to be carried out i.e. conventional (with or without casing) shall be at the discretion of BHAGYANAGAR GAS LTD/ PMC. And prior approval is to be taken before starting the HDD.

The rates for HDD, as indicated in SOR, are payable as per the size of the carrier pipe and are inclusive of excavation of pits, backfilling, compaction, jointing and insertion of carrier pipe and restoration of pits. For HDD with casing pipe no separate payment shall be made for pulling of the carrier pipe, the rate quoted by the Contractor shall be inclusive of pulling carrier pipe.

Any damages occurred to other utilities during the HDD operation shall be immediately notified and rectified by the Contractor without any cost implications to BHAGYANAGAR GAS LTD. The length of the HOLE (excluding the sizes of the pits on both ends) shall be considered of HDD length.

18.0 CASING PIPE

The tentative sizes of the HDPE casing pipe for Moling / HDD shall be as follows:-

Size of MDPE pipe	Size of HDPE pipe
20 / 32 mm	63 mm
63 mm	125 mm
90mm	180mm

125mm 250mm

19.0 RESTORATION

Wherever the restoration is required, the roads, footpaths (including roads and footpaths inside colonies) shall be restored to original condition, and the same shall be done as per concerned local authorities norms and to the satisfaction of the concerned local Authority. Curing of the installed concrete, wet sack cloth is to be placed on the finished surface and kept damp for a period of 36 hours.

Where slabs and blocks are to be restored, the level of the compacted sub base is to be adjusted according to the slab/block thickness. The slabs or blocks should be laid on moist bedding material, which should be graded sand, mortar or mortar mix. The slabs or blocks should be tapped into position to ensure they do not rock after laying.

The restored slabs or blocks should match the surrounding surface levels. Joint widths should match the existing conditions, and be filled with a dry or wet mix of mortar.

The restoration of roads shall be carried out as per specifications given by the concerned authority. Turf shall be replaced in highly developed grassed area. In lesser-developed grassed areas topsoil should be replaced during the restoration process.
Where permanent surface restorations cannot be completed immediately, the Contractor shall provide and maintain a suitable temporary running surface for vehicular traffic and pedestrians. The Contractor will be responsible for the maintenance of all restoration carried out, for the duration of the Contract guarantee period.

The Contractor is to ensure the restoration work is properly supervised, and that the material used is suitable for the purpose and properly compacted. Where the required standards are not achieved the Contractor will be required to replace the defective restoration work.

Note that Payment for pipe laying will only be authorized on initial satisfactory restoration, and where the sites has been cleared of all surplus materials, etc.

Contractor has to obtain the clearance certificate from the concerned local authorities after completion of the restoration work. The restoration specification specified in the tender is only a typical specification and the contractor has to carry out restoration as per latest version of the (PWD/ IRC) specification to its original condition and also to the entire satisfaction of land owner (Private/Public). The expenditure incurred towards testing of the material used for restoration as per applicable standards, shall be borne by the contractor.

20.0 TESTING

Pressure testing will be carried out with compressed air. Compressed dry air will be provided by Contractor for testing purposes and is to be included in the rates.

For main pipelines work the Contractor shall perform progressive pressure testing

to avoid having to find leaks in long lengths of pipe. The test pressure shall be around 1.5 times of 6.0 bar(g) / as per Instruction of EIC and there shall be no unaccountable pressure loss during the test period.

Test procedure with sketches showing the pipeline to be tested, vent points, gauge location, and inlet pressure print is to prepared & got approved by EIC.

For main line the test duration shall be 24 hrs. With these tests the pressure should be allowed to stabilize for a period of 30 minutes after pressurization. The holding period may then commence and continue for 24 hours. Measuring instruments shall have been calibrated and their accuracy and sensitivity confirmed. For testing of Network, calibrated pressure gauges of suitable range shall be supplied by the contractor. The pressure gauges shall be calibrated from time to time as desired by Engineer-in-Charge. All testing shall be witnessed and approved by the EIC or his delegated representative. Tie-in joints may be tested at working pressure following commissioning.

For service lines in some cases testing will be carried out independently of the testing of the mains for which the test duration may be reduced to 4 hrs. The service testing in this case will be performed after the service installation is complete but before the service tee has been tapped. Also in some cases the tapping of the service tee will be delayed pending the completion and purging of the main pipelines.

21.0 PURGING

Purging shall be carried out in accordance with the principles defined in the American Gas Association publication 'Purging Principles and Practice".

Nitrogen required for purging will also be provided by the Contractor. Nitrogen shall be supplied in labelled, tested and certified cylinders, and completed with all necessary regulators, hoses and connections, which will be in good condition and working order.

In addition the Contractor shall submit and get approved a Purging Plan before commencing any purging work. The Plan shall include, but not be limited to, the provision of the following materials and equipment: Personal safety equipment, Fire extinguisher, Purging adapter, Purge stack with flame trap and gas sampling point, Gas sampling equipment (may be gas leak detector), squash-off tool, Polyethylene
connecting pipe work.

The Plan shall also include the purging process along with detail on the sequence of events. The process is to also specifically mention the need to lay a wet cloth over the PE main and in contact with the ground, to disperse static electricity during the purging work.

A purge stack with flame trap shall be used when purging services. Care shall be taken to ensure that the purge outlet is so located that vent gas cannot drift into buildings.

22.0 VALVE PIT

The valve pit shall be constructed in accordance with enclosed drawings.

The construction of valve chambers shall be taken up immediately after installation of valve.

22.1 Workmanship

The excavation work shall be done at a location given by Engineer-in-Charge. All care shall be taken not to damage existing facilities and surface of construction shall be restored to its original state.

23.0 POLE MARKERS

23.1 Pole Marker:(As per typical Drawings) shall be installed at regular intervals as per the instructions of the EIC immediately after laying of the pipeline. The installation of the type of the Pole Marker shall be decided by the EIC depending on the site condition. The Markers shall be painted before installation as per the approved procedure. The supply of the paint and painting as per the specification is in contractor's scope.

23.2 The artwork shown in the drawing is typical for all the markers. The contractor must take prior approval for the artwork from EIC before installation of Markers. The artwork must have BHAGYANAGAR GAS LTD's logo and specify the location of the pipeline from the marker.

Guidelines :

- Interval between any two RCC markers for mainline shall be as per instruction of Site in charge .
- Pole marker or RCC marker shall be installed near to valve chambers on mainline respectively for indication& as per instruction of EIC.
- The entry and exit pits for laying of pipeline by HDD/ Moiling for road crossings shall be marked by pole markers or RCC markers depending upon the site condition.
- In addition to the above , pole markers with shall be installed outside societies / Areas as per instruction of EIC.
- For the distribution network of 32 mm & 20 mm pipe, plate markers as per drawing and shall be installed as per the site condition and direction of the site in charge.

24.0 READY FOR COMMISSIONING/ASSISTANCE IN COMMISSIONING

Contractor has to install all the Valve/ Service Regulator modules and make the line ready for commissioning and pressurize the line with Nitrogen 4 bar positive pressure and hand over the line to BGL if Gas in not available at that particular time. If gas is available, it is the duty of the contractor to commission the line and hand over the line to BGL. Contractor shall provide the required personnel, Vehicles, labour, supervision, tools, equipment, instruments and technical assistance for performance tests and commissioning activities as per requirement of BHAGYANAGAR GAS LTD / PMC.

25.0 STANDARD OF WORK

25.1 All work carried out under this contract shall be to standards, codes of practice, construction procedures and other technical requirements as defined in the technical specifications.

25.2 The manpower deployed on the respective work shall be adequately trained& shall have necessary skills to executive / supervise the work. However, the assessment on the qualification of the personal shall be at the discretion of EIC.

25.3 Fusion operators and other skilled personnel shall be approved by BHAGYANAGAR GASLTD/ PMC and identification cards duly signed by EIC shall be issued to them. Only those personnel who are approved by EIC shall be allowed to execute the critical activities like joining of PE Pipes.

26.0 RECORDING (AS-BUILT DRAWINGS)

The Contractor will be required to submit computerized as-built drawings duly certified by EIC in A0/ A1 sheet form at 1:200 scale with THREE sets of prints plus 3 sets soft copy (In CD). The as-built drawing shall be submitted on area wise as specified. The bill of materials used for the particular area shall be specified on the drawings. The Contractor shall use the area and crossing survey drawings prepared by them as reference. On-site sketches, picking up key reference points, shall be made during the installation of services. The lengths, depths of installed pipe work, changes in direction, major fittings, etc, shall be recorded together with appropriate references to other services crossed and in the proximity of the gas pipe .
Distance of pipeline from permanent property /structure should be provided at least every 50 meters. If there is any chance in alignment/orientation and offset distance etc. of the pipeline in between the above said 50 meters, the same shall be dearly mentioned in the as laid.

Gas objects (off valve, tees, elbows, couplers, T.F, etc shall be shown as block objects (which from a single node to connect) with respect owners symbol and legend. The as built drawing shall be as per the legends provided by EIC.

Details & offset distances from other utilities present should be given in as laid drawing. If there is any change in the depth of pipeline , the same shall be clearly marked with details in the as laid drawings. The details of additional protection provided must be mentioned.

Details of the PE stop off valve and other fittings used should be shown with adequate information and orientation. Technical deviation (if any) should be provided with reference to the buildings and permanent structure around, and the same should be cited clearly with all relevant details. Complete details of nallah crossings should be shown in a separate sketch

Name of roads, major landmarks and buildings should be mentioned appropriately for reference.

Proper Chain age shall be mentioned on all the drawings to be referred with continuation reference.

Land based features shown on the drawing shall match the exact distance as they were on

real ground with respect to scale ratio (1:200)

The details shall be prepared in standard format using Map Info/AUTOCAD Map and submitted in CD ROM. Contractor shall also make the item wise material consumption report for the respective areas in a soft copy and to be submitted along with the as-built drawings.

27.0 Civil and Structural Works

The contractor has to supply the adequate materials and skilled manpower for the completion of all the civil & structural works . The contractors shall also ensure that the work carried out as per the detail mentioned in the schedule of rates .

Special care should be taken at the time of labours working in depths/lifting of the skids by hydras/ cranes considering all the safety guidelines

The contractors has to ensure that sample of all the material shall be inspected and approved by EIC before carrying out installation or erection work. The contractor has to submit the test certificates for all the materials to be used at the site .the construction shall be carried out strictly as per the drawings provided by the BHAGYANAGAR GAS LTD.

28.0 Service regulator Module supply and installation

Contractor has to install the Service regulator module whereever required , in side the colonies/ for a group of societies as per the instruction of the EIC. After the line tested, before commissioning the network, these regulator modules are to be installed . All the necessary fittings including TF, Brass Fittings Filter should required for making the Service regulator module is in the scope of the contractor. Service regulator will be the Free issue material. Diagram showing the Service regulator module is given in the diagrams.

29.0 Liasioning

Contractor has to obtain the permission within 3 weeks from the date of award of the WO, BGL will hand over the in principal application, all other necessary drawings/documents as per the Public bodies requirement is to be submitted contractor and permission has to be obtained within two weeks after email intimation of BGL. Separate charges will be paid to the Contractor for obtaining the permission in the separate SOR head.

30.0 installation of MRS/DCU/Cascade:-

The contractor has to load on truck & unload the MRS/DCU/Cascade on foundation wherever required within Hyderabad GAs for installation of MRS/DCU/Cascade. Installation of DRS/MRS has to be done as per the foundation diagram issued by the BGL. Transportation, installing is in the scope of the contractor, MRS/DCU/Cascade will be provided by the BGL. Foundation /Installation of DRS will be paid under the separate SOR head.

TECHNICAL SPECIFICATION
FOR
HDPE PIPES

CONTENTS

1.0 INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacture and supply of HDPE Pipes used for casing purpose of carrier pipe, supplying natural gas.

2.0 SCOPE OF WORK

2.1 The scope of the tendered will include manufacture/ supply, inspection / testing / marking/ packaging/ handling and despatch of HDPE Pipes of ratings and grades as indicated in the Material Requisition & Schedule of Rates, as per IS:4984 (Specification for HDPE Pipes for water supply).

2.2 All codes and standards for manufacture, testing, inspection etc. shall be of latest edition.

2.1 Purchaser reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions inthe original order.

3.0 INSTRUCTION OF TENDERER

3.1 Length of the Pipes and their supply will be as per following :-

- DN 32 / 20 - In each coils of 100 mtrs. length
- DN 63 - In each coils of 100 mtrs. length
- DN 125 - Each pipe of 12 mtrs. length minimum

3.2 Protection

i) The ends shall be protected by proper end caps to prevent from shocks and ingress of the foreign body.

ii) Coils shall be covered by black PVC/PE Film to prevent exposure to direct sunlight.

3.3 The successful bidder shall submit following for approval of Purchaser /Consultant after placement of order

a) The Quality Assurance Plan (QAP & Sampling Plan)

b) Material test report as per clause 5 of IS:4984.

c) Performance Requirements (clause 8 of IS:4984)

d) Type Test (clause 9.1 of IS:4984).

3.4 The bidder shall submit following documents at the time of bidding,

a) BIS Certification

b) List of current orders in hand for similar items with full details such as specification, name of purchaser etc.

c) Details of the largest supply executed

d) Name and address of proposed test laboratories along with their credentials/ past records for carrying out all required tests.

TECHNICAL SPECIFICATION
FOR
MEDIUM DENSITY POLYETHYLENE FITTINGS
AND
ELECTRO-FUSION FOR NATURAL GAS DISTRIBUTION

Sl. No.

C O N T E N T S

Description

1.0 SCOPE AND FIELD OF APPLICATION

This specification elaborates the requirements for Electro fusion fittings in the nominal size range 20 to 125 mm made from PE compound used with PE pipes for supply of natural gas and to be used at operating temperature not more than 40°C.
The material grades to be used are PE 100. The fittings shall be black in colour.

Electro Fusion Fitting Jointing

1.1 For Electro Fusion fitting jointing an electrical resistance element is incorporated in the socket of fitting which when connected to an appropriate power supply, melts and fuses the materials of the pipe and fitting together.

1.2 The effectiveness of this technique depends on attention to the preparation of the jointing surfaces , in particular the removal of the oxidized surface of the pipe over the socket depth and ensuring the jointing surface are clean. If ovality causes gap between concentrically located pipe and the fitting to exceed 1% of the pipe OD after re-rounding to ensure correct welding . If the gap still exceeds 1% of the pipe OD after re-rounding then a check should be made of the pipe OD dimensions to determine if it meets specification.

1.3 The maximum gap between eccentrically located pipe and fitting i.e. pipe touching fitting at one point must not exceed 2% of the pipe OD.

1.4 Sometimes coiled pipes may be too oval to fit into couplers, or the end of the pipe may make the alignment of the ends impossible. In such circumstances the use of a mechanical pipe straightener or rounding tool is necessary.

2.0 EQUIPMENT

2.1 The control box input supply is to be from a nominal 240V generator, which is normally of approximately 5kVA capacity. The Nominal output of the generator is to be 240V + 15%, - 10% between no load and full load . Control box are to include safety devices to prevent excessive voltages being present at the control box output. The safety devices shall operate in less than 0.5 s.

Note that extension leads are not to be used on the control box outlet connections. Warning

: Control boxes are not intrinsically safe and must therefore not be taken to trench.

A mechanical pipe surface preparation tool is to be used before fusion is attempted. The tool is capable of removing the oxidized surface of the pipe in excess of the insertion depth. The tool is to remove a layer of surface material 0.2-0.4 mm thick form outer surface of the pipe preferably in a continuous strip of swarf over that length and round of the pipe.

Pipe clamps for restraining, aligning and re-rounding the pipes in the fusion process are to be used.

Pipe cutters with saw and saw guide Protection against adverse weather conditions.

2.2 Electro Fusion Jointing Method / Procedure
Preparation

- Ensure there is sufficient space permit access to the jointing area . In a trench a minimum clearance of 150 mm is required.
- Check that the pipe ends to be jointed are cut square to the axis of the pipe and any burrs removed.
- Wipe pipe ends clean lint free material to remove traces of dirt or mud
- Mark the area over which the oxidized pipe surface is to be removed i.e. by placing the socket of the bagged fitting along side the pipe end. Trace a line round the circumference at the appropriate distance from the end of the pipe using a felt tip pen or similar.

Note that the fitting should not to be removed from the packaging at this stage.

- Connect the electro fusion control box input leads to the generator
- Check that the reset stop button, if fitted on the control box is in the correct mode.
- Check that reset stop button if fitted on the control box is in the correct mode
- Using the pipe end preparation tool, remove the entire surface of the pipe uniformly, preferably in continuous swarf over the area identified. i.e. in excess of insertion depth.
- A mechanical scraper could be used however there is a considerable risk that the end preparation will not be adequate with the use of such a tool.

Note that the prepared pipe surface should not be touched by hand.

- Remove the fitting from its packing and clean the scrapped area of the pipe surface and the bore of the fitting with a disposable wipe impregnated with Iso-propanol / Acetone. Ensure the prepared surfaces are completely dry before proceeding

Note that while Iso-propanol is a suitable cleaner , its use is subject to local health and safety regulation.

Check that the pipe clamps are of the correct size for the pipes to be jointed .

Insert the pipe ends into the fitting so that they are in contact with centre stop

Using the pipe clamps , secure the pipes so that they cannot move during the

fusion cycle . Check that the pipes ends and the fitting are correctly aligned.

Connect the control box and check that they have been fully inserted.

If required by the control box enter the fusion jointing time into the control box timer. The jointing time is indicated on the fitting . Check the correct time as shown on the control box display.

Note 1 : Automatic control box are available which obviate the need to enter the fusion time

Note 2 : Gloves and goggles should be worn during the fusion process

Note 3 : If the fusion cycle terminates before completion of the countdown , check for faults as indicated by the control box warning lights and check that there is adequate fuel in the generator. DO NOT attempt a second fusion cycle within one hour / cooling of joint at Ambient temperature of the first attempt.

2.1.1 **Records** : Records of appropriate servicing and calibration shall be kept.

2.1.2 **Training** : It is necessary that operators , inspection and supervisory personnel acquire the skills of Electro-fusion fitting .The necessary training should be carried out by qualified instructor with the objective of enabling participants to

- Understand the principles of electro-fusion fitting jointing
- Identify pipe and appropriate fitting markings
- Carry out pre jointing machine and equipment checks
- Make satisfactory Electro-fusion joints from pipes and fittings of different sizes
- Inspect for and identify joints of acceptable

Note that some form of assessment and certification should be associated with the training . The certificate should detail the pipe and fitting size range and the equipment used. A register of successful participants should be kept.

2.2 Electro-Fusion Saddle Jointing

For Electro Fusion fitting jointing an electrical resistance element is incorporated in the socket of fitting which when connected to an appropriate power supply, melts and fuses the materials of the pipe and fitting together.

The effectiveness of this technique depends on attention to the preparation of the jointing surfaces , in particular the removal of the oxidized surface of the pipe over the socket depth and ensuring the jointing surface are clean. Method of holding the tapping tee saddle during the fusion cycle are used namely top loading and under clamping space around the pipe . In a trench a minimum clearance of 150 mm is required.

2.3 Electro-Fusion Saddle Jointing Method / Procedure.

Preparation

Expose the pipe onto which the aping tee is to be assembled , ensuring there is sufficient clear space around the pipe . In a trench a minimum clearance of 150mm is required.

Clean the pipe over the general area on which the saddle is to be assembled using clean , disposable lint free material

Without removing the fitting from its packaging , place over the required position on the main . Mark the pipe surface all around and clear of the saddle base area using a felt tip pen or similar.

Remove the surface of the pipe to a depth of 0.2 to 0.4mm over the full area marked using a suitable tool , remove the swarf.

Connect the electro fusion control box input leads to the generator

Check that the reset stop button, if fitted on the control box is in the correct mode.

Check that reset stop button if fitted on the control box is in the correct mode.

Remove the fitting from its packing and clean the scrapped area of the pipe surface and the bore of the fitting with a disposable wipe impregnated with Iso-propanol / Acetone. Ensure the prepared surfaces are completely dry before proceeding

Note that while Iso-propanol is a suitable cleaner , its use is subject to local health and safety regulation.

Position the fitting base onto the prepared pipe surface , and bring the lower saddle into position then gradually and evenly tighten the nuts until the upper saddle makes firm contact with scrapped pipe.

Check that there is sufficient fuel for the generator to complete the joint .

Start the generator and check that it is functioning correctly

Switch on the control box if applicable

Connect the control box output leads to the fitting terminals and check that have they have been fully inserted.
If required by the control box enter the fusion jointing time into the control box timer. The jointing time is indicated on the fitting . Check the correct time as shown on the control box display.

Note 1 : Automatic control box are available which obviate the need to enter the fusion time

Note 2 : Gloves and goggles should be worn during the fusion process

Press the start button on the control box and check that the heating cycle is proceedings as indicated on the display.

On completion of the heating cycle , the melt indicators where incorporated should have risen . If there is no apparent move in the melt indicators a new saddle joint should be made. Cut the tee of the faulty joints from its base.

If a satisfactory joint has been made , the joint is to be left in the clamps for the cooling time specified on the fitting label or any the automatic control box

Note 3 : If the fusion cycle terminates before completion of the countdown , check for faults as indicated by the control box warning lights and check that there is adequate

fuel in the

The connection of the service pipe to the fitting outlet should be carried out in accordance with the procedure of the appropriate section of this item.

Do Not attempt to tap the main with the integral cutter for at least 10 minutes after the completion of cooling cycle .

Note that some form of assessment and certification should be associated with the training. The certificate should detail the pipe and fitting size range and the equipment used. A register of successful participants should be kept.

2.4 STOPPING THE GAS FLOW

In the operation of a distribution system there is a periodic need to stop the gas flow for either routine or emergency maintenance. The flow may be stopped through the use of installed fitting such as valves. Where installed fittings are not available or the use of such would cause significant supply disruption, then one of the following methods may be employed.

2.5 SQUEEZE - OFF

a. To control the gas flow a special tool may be used to squeeze the pipe walls together. Hydraulic jacks are used to supply the necessary force to compress the pipe walls for sizes 90 mm and above.
b. As will be seen the squeeze-off equipment comprises two bars to apply pressure to outside of the pipe. The bars are bars are brought together either manually or hydraulically, squeezing the pipe material together until a seal is formed where the upper and lower walls meet.
c. The hydraulic machines should have a spring return for the jack and locking to prevent accidental release of pressure during operation. All squeeze – off machines should be fitted with check plate or stops to avoid over compression of the pipe.
d. Where the pipe walls are compressed the polyethylene pipe will be severely deformed in the regions of maximum compression. The pipe will eventually regain its original shape after squeezing but there will be reduction in some pressure bearing properties.
e. A complete stop may not always be obtainable because of wrinkling of the inside of the pipe. If a complete stop is required than a second squeeze can be used, with an intermediate vent to remove the gas which passes the first squeeze from say the trench of three pipe diameters area. A second squeeze – off procedure should be a minimum of three pipe diameters and right angles to the squeeze.
f. While not essential it would be good practice to fit a reinforcing stainless steel band / do not squeeze again adhesive tape around the pipe upon the completion of squeezing operation.

2.6 BENDING – BACK

Bending back of the pipe may be performed where the pipe has been served damaged and stopping they gas flow is imperative. Its application is of a temporary nature and will provide a relief until a permanent repair can be affected. The section of pipe, which has been bent back, will to be replaced because of the damage caused by the serve ness of the band back

operation. The need of any bend back operation is most likely to occur as a consequence of damage caused to a PE service pipe.

While it is not the prime function of a saddle tee , controlling the flow in the service may be achieved by opening upon an installed saddle tee and winding down the internal tapping tool to shut off the flow to the service pipe.

3.0 SYMBOLS & DEFINITIONS

3.1 Symbols for Electro fusion Fittings

3.1.1 Symbols for Electro fusion Socket Fittings

The dimensions and main symbols used in this part of ISO 8085 are shown in figure 1, where D1 is the mean inside diameter in the fusion zone comprising the mean inside diameter measured in a plane parallel to the plane of the mouth at a distance of L3 + 0.5 L2 from the plane at the mouth.

D2 is the minimum bore comprising the minimum diameter of the flow channel through the body of the fitting.

L1 is the depth of penetration of the pipe or of the male end of a spigot fittings.

L2 is the nominal length of the fusion zone corresponding to the heated length.

L3 is the nominal unheated entrance length of the fitting comprising the distance between the mouth of the fittings and the near end of the fusion zone.

3.1.2. Symbols for Electrofusion Tapping Tees

The main symbols used for tapping tees are shown in Figure 2, where. **h** is the height of the service pipe and comprising the distance between the axis of the main pipe and the axis of the service pipe.

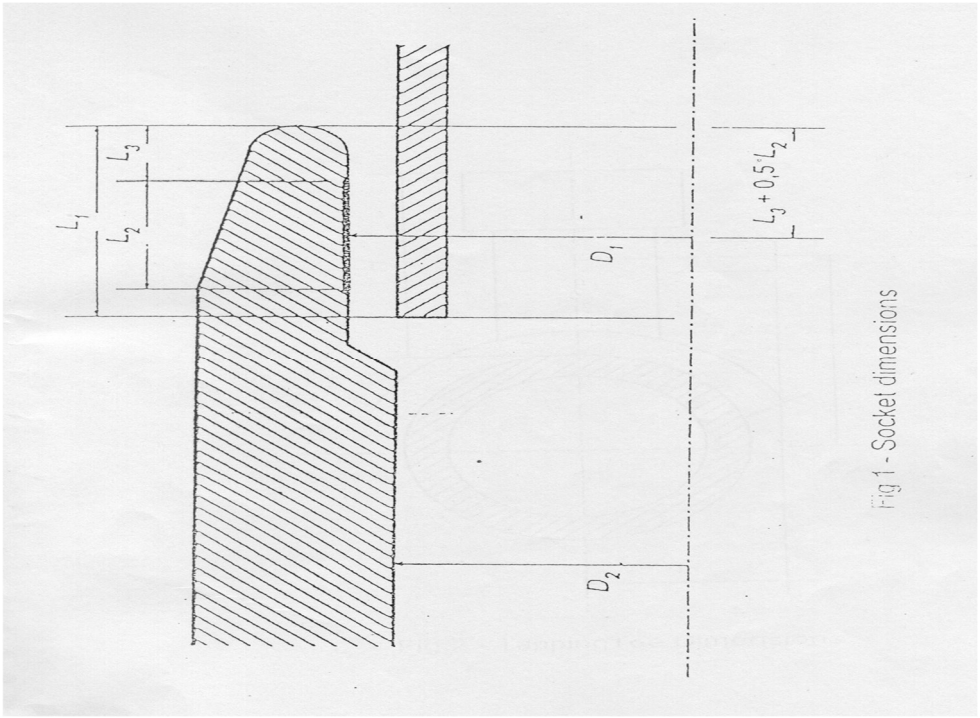

Fig 1 - Socket dimensions

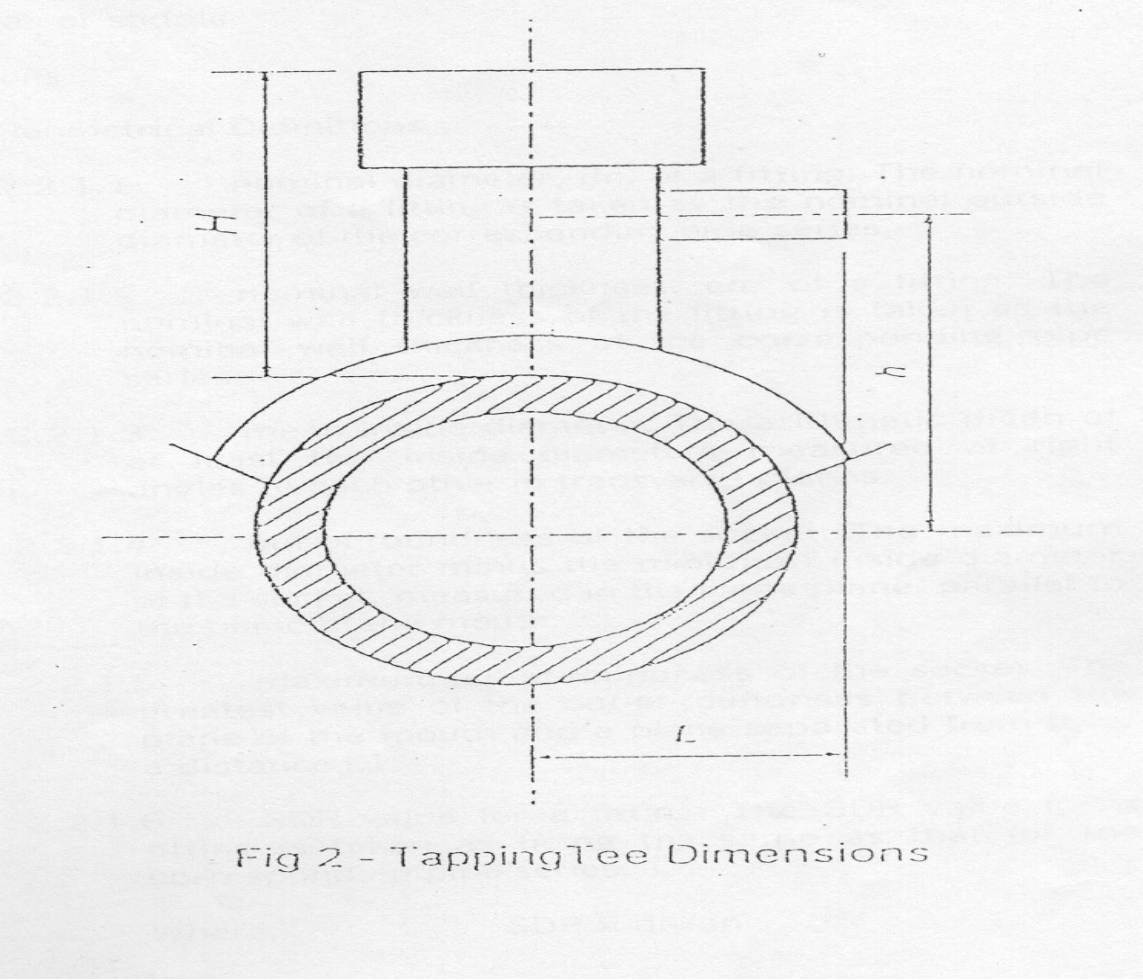

Fig 2 - TappingTee Dimensions

L is the width of the tapping tee and comprising the distance between the axis of the main pipe and the plane of the mouth of the service pipe.

H is the height of the saddle which comprises the distance from the top of the main to the top of the tapping tee or saddle.

3.2 Definitions

3.2.1. Geometrical Definitions

3.2.1.1 Nominal diameter, dn, of a fitting:

The nominal diameter of a fitting is taken as the nominal outside diameter of the corresponding pipe series

3.2.1.2 Nominal wall thickness. en, of a fitting:

The nominal wall thickness of the fittings is taken as the nominal wall thickness of the corresponding pipe series.

3.2.1.3 Mean inside diameter:
The arithmetic mean of at least two inside diameter measured at right angles to each other in transverse planes.

3.2.1.4 Out of roundness of the Socket:
The maximum inside diameter minus the minimum inside diameter of the socket, measured in the same plane, parallel to the plane of the mouth.

3.2.1.5 Maximum out of roundness of the socket:
The greatest value of the out of roundness between the plane of the mouth and a plane separated from it by a distance L1.

3.2.1.6 SDR value for a fitting:
The SDR value for a fittings is taken as being the same as that for the corresponding pipe series.

Where,SDR = dn/en

3.2.1.7 Wall thickness, E of a fitting:

The wall thickness of a fittings at any point of the body of the fitting which could be submitted to a stress inducted by the pressure of the gas in the piping system.

3.2.2 Material Definition

3.2.2.1 Virgin Material :

Materials in form such as granules or powder that has not been subjected to use or processing other than that required for its manufacturer and to which no re-processable or recyclable materials have been added.

3.2.2.2 Own Reprocessable Material :
Material prepared from rejected unused pipes, fittings or valves, including trimmings from the production of pipes, fittings or valve, that will be reprocessed in a manufacturer's plant after having been previously processed by the same manufacturer by a process such as injection moulding or extrusion.

3.2.2.3 Compound:
A homogenous mix of base polymer (PE) and additives, i.e. antioxidants, pigments, UV-stabilisers and others…, at a dosage level necessary for the processing and of components of this standards. The additives shall not have a negative influence on the performance with respect to feasibility. All additives shall be uniformly dispersed.

3.2.3 Definition related to Material Characteristics

3.2.3.1 Lower Confidence Limit (LCL):

A quantity with the unit in mega Pascals (MPs), which can be considered as a property of the material representing the 97.5% lower confidence limit of the predicted long-term hydrostatic strength at a temperature 20° C for 50 years in water.

3.2.3.2 Overall Service (Design) Coefficient (C):
An overall coefficient with a value larger than 1.0 which takes into consideration service conditions as well properties of the components of a piping system other than those represented in lcl. For gas applications, C can have any value equal to or greater than 2.0.

3.2.3.3 Minimum Required Strength (MRS):
The value of the lcl rounded down to the next lower value of the R 10 series when the lcl is less than 10 Mpa, or to the next lower value of the R 20 series when the lcl is greater than or equal to 10 Mpa.

Note: R10 and R 20 series are the Renard number series according the ISO 3 and ISO 497.

3.2.3.4 Melt Mass Flow Rate (MFR):
A value relating to the viscosity of the molten material at a specified temperature and rate of shear.

3.2.4 Definitions Related to Service Conditions

3.2.4.1 Gaseous Fuel:

Any fuel which is in the gaseous state at a temperature of + 15° C and a pressure of 1 bar.

3.2.4.2 Maximum Operating Pressure (MOP)
The maximum effective pressure of the gas in the piping system, expressed in bar, which is allowed in continuous use. It takes into account the physical and the mechanic characteristics of the components of a piping system.

$$MOP = \frac{20 * MRS}{C*(SDR-1)}$$

3.2.5 Definition on Design of Electro fusion Fittings:

3.2.5.1 Electrofusion Socket Fitting:

A polyethylene (PE) fittings which contains one or more integral heating elements, that are capable of transforming electrical energy into head to realise a fusion joint with a spigot – end or a pipe.

3.2.5.2 Electrofusion Saddle Fitting:

A polyethylene (PE) fitting (top loading or wrap around) which contains one or more integral heating elements, that are capable of transforming electrical energy into head to realise a fusion joint onto a pipe.

3.2.5.3 Tapping Tee:

An Electro fusion saddle fitting which contains an integral cutter, to cut through the pipe wall. The cutter remains in the body of the saddle after installation.

3.2.5.4 Branch Saddle:
An Electro fusion saddle fitting which requires an ancillary cutting tool for drilling a hole in the adjoining main pipe.

3.2.5.5 U Regulation :
Control of the energy supplied during the fusion process of an Electrofusion fitting, by means of the voltage parameter.

3.2.5.6 I Regulation:

Control of the energy supplied, during the fusion process of an electrofusion fitting by means of the current parameter.

1. DESIGNATION

1.1 Fittings shall be designed according to the grade of material, nominal diameter and Standard Dimension Ratio (SDR).

1.2 **Grade of Material:**

1.2.1. Fittings shall be classified according to the grade of material as given in following table:

Table–1

Material	***M.R.S. Mpa***	**1 cl (20° C, 50 Yrs 97.5%) Mpa**	**Maximum Allowable Operating Pressure**
PE 80	8.0	8.00 ≤ 1 cl ≤ 9.99	5.5 Bar
PE 100	10.0	10.00 ≤ 1 cl ≤ 11.19	7.0 Bar

PE 100 grade shall be utilized in the project

1.3 **Nominal Diameter**

The Nominal Diameter for fittings covered in this standard are 16, 20, 25, 32, 40, 63, 75, 90, 110, 125, 140, 160 ,180 mm.

1.4 **Material**

4.4.1 Polyethylene Compound:

The Polyethylene compound used in the manufacture of fitting shall be a cadmium free compound. It shall be free from visible water, shall comply with the requirements as specified in Table – 2.

Table-2 : Characteristics of PE Compound

Characteristics	Units	Requirements	Test Parameters	Test Method
Conventional Density	Kg/m^3	≥ 930 (base polymer)	23 °C	ISO 1183 - ISO 1872/1
Melt Mass-flow Rate	g/10 min	± 20% of value nominated by compound producer	190 °C condition 18	ISO 1133
Thermal Stability	Minutes	> 20	200 °C (2)	ISO TR 10837
Volatile Content at Extrusion	mg/kg	≤ 350		ISO 4437 Annex. A
Water Content (3)	mg/kg	≤ 300		ASTM D 4019
Carbon Black Content	% (m/m)	2,0≤……..≤ 2,5		ISO 6964
Carbon Black Dispersion (4)	Grade	≤ 3		ISO DIS 11420
Pigment Dispersion (5)	Grade	≤ 3		ISO DIS 13949
Resistance to Gas Constituents	h	≥ 20	80 °C 2 Mpa	ISO 4437 Annex. B
Resistance to rapid crack propagation (RCP) (6)	Mpa	The critical pressure in the FS test shall be greater than or equal to the value of the MOP of the system multiplied by 1:5	0°C	ISO DIS 13478
Full Scale (FS) test : d ≥ 250mm				
Or S4 Test : in principle according to all diameters (7)	Mpa	The critical pressure in the S4 test shall be equal to or greater than the value of the MOP of the system divided by 2,4 (8)	0°C	ISO DIS 13477
Resistance to slow crack growth en> 5mm	h	165	80 °C, 8,0 bar (f) (9)	ISO DIS 13479

1) Non black compound shall conform to the weathering requirements to ISO 4437.
2) Test may be carried out at 210°C providing that there is a clear correlation to the results at 200°C, in case of dispute the reference temperature shall be 200°C
3) Only applicable if the compound does not conform to the requirement for volatile content. In case of dispute the requirements for water content shall apply
4) Carbon black dispersion for black compounds only.
5) Pigment dispersion method for non-black compounds only.
6) Only applicable for fittings which incorporate extruded pipe elements.
7) Shall be performed on pipe with a wall thickness of ≥15 mm.
8) This factor 2.4 is still under study and may be subject to change. If the requirement is not met, then retesting by using the Full Scale (FS) test shall be performed.
9) Test parameter for PE 80.
10) Test parameter for PE 100.

5.0 DESIGN

- Fittings shall be designed for system operation at the pressures given in Table – I.
- Fittings shall be free from cracks, voids, blisters, distortion, dent or other defects.
- Fittings shall be capable of being fusion jointed to pipes using control boxes. The fittings shall exhibit the strengths and fusion compatibility with, pipes of respective sizes.
- Each fitting shall be bar coated and shall have a permanent fusion indicator.
- Heating coil design shall be such that it should not be damaged during assembly leading to short circuit of heating coil.

5.1 Electro-fusion Socket Fittings

Electro-fusion Socket Fittings shall incorporate a method of controlling pipe penetration within each socket. The inner cold zone of each socket shall not be less than (0.1 d + 5) mm for sizes upto 125 mm & 0.1 d for sizes greater than 125 mm.

5.2 Tapping Tees

Tapping tees shall be capable of installation by a force between 1 kN and 1.5 kN applied from above and on the centre line of the tapping tees stack. The tapping tees shall provide a means of cutting through the pressurised main pipe and allowing the gas flow into the outlet pipe.

5.3 Transition Pieces

To make connection between steel pipe and MDPE pipe specially fabricated transition pieces consisting of steel and MDPE pipes should conform to the requirements mentioned herein.

5.3.1 MDPE Pipe:

The MDPE pipe with one end plain should conform to the specification (IS:14885/ SDR 11)

5.3.2 Jointing between Steel and MDPE Pipes:

Steel and MDPE pipes should be so jointed in the factory so as to have a monolithic joint which is leak free and should be mechanically as strong or stronger than the PE Pipe.

6.0 ELECTRICAL CHARACTERISTICS

For each size and type of fitting, the manufacturer shall declare the nominal resistance of the heating element and specify the production tolerances.

The manufacturer shall demonstrate that satisfactory joint can be made using the extremes of these tolerances.

All fittings shall have mechanically shrouded malo electrical terminals. The fittings terminals connections shall be suitable for use with voltage less than or equal to 48 volts. Considerations should be given to the design of the shroud with respect to impact damage. When hollow terminal pins are used, the hole at the top of the pin shall be less than 1 mm diameter. The terminal pin material shall be corrosion resistant and the surface finish shall be N7.

Fittings incorporation two electro fusion sockets shall have both sockets fused in a single operation. The heating elements shall be suitable designed to prevent short circuiting or local overheating/ under heating during the fusion operation. Protective coating applied to the heating element shall not have a detrimental effect on the joint.

The heating element wire shall not be disturbed during assembly.

7.0 DIMENSIONS

7.1 Measuring Temperature

Fittings shall not be measured within 24 hrs. of manufacturer to allow for normalization. The fittings shall be measured at an ambient temperature of 23 ± 2°C, after a conditioning period of 5 Hrs.

Methods of measurements shall provided the appropriate degree of accuracy, and the reference conditions specified in this clause 6 apply in case of disputes in dimensional measurement.

7.2 Dimensional Stability

7.2.1 Couplers (Including all forms of socket fittings)

All coupler dimensions shall conform to their specified value when the fitting has been stored for a period of 12 months at a temperature of 30 ± 2°C.

7.2.2 Tapping Tees and Branch Saddles:

All tapping tee and branch saddle dimensions shall conform to their specified agreed values when the fitting has been stored for a period of 12 month at a temperature of 30 ± 2°C.

TABLE 3 : SOCKET DIMENSIONS

Pipe Size d mm	Limits for average diameter d on each fitting measured over apparent fusion length L mm		Apparent fusion length L mm	Penetration depth L mm
	Maximum	**Minimum**	**Minimum**	**Maximum**
16	16.6	16.4	15	41
20	20.6	20.4	16	41
25	25.6	25.4	18	41
32	32.9	32.5	18	41
40	41.0	40.6	18	49
50	51.1	50.7	20	55
55	56.1	55.7	21	63
63	64.1	63.7	23	63
75	76.3	75.9	25	70
90	91.5	91.1	28	79
110	111.3	111.1	32	82

125	126.7	126.2	35	87
140	141.7	141.2	38	92
160	162.1	161.4	42	98
180	182.1	181.5	46	105

Notes:

1. The apparent fusion length, L, is the length of the integral heating elements, from the first regular section of the element to the end of the regular section, on one side of the fitting. This dimension to be measured from outside edge to outside edge of wire.
2. Any protrusions into the bore of the fitting (e.g. centralization ribs) shall not prevent easy assembly in the field.
3. The overall length of a straight coupler is equal to twice the quoted maximum penetration depth L.

TABLE 4: OVERALL LENGTH OF REDUCERS

Major Diameter	Maximum Length
25	90
32	90
63	120
90	180
125	215
180	280
200	245
225	260
250	280
280	300
315	320

TABLE 5: BRANCH SADDLE ASSEMBLY OUTLET LENGTH

Off-take Size Mm	Shut-off method	Dimension from flange face to crown of main		Dimension from pipe end to crown of main	
		Class B fitting mm	Class B fitting mm	Class B fitting mm	Class B fitting mm
63	Valve	-	-	-	-
63	Squeeze	-	260*	-	-
90	Valve	-	-	400	-
90	Squeeze	400	180**	-	-
125	Valve	-	-	550	-
125	Squeeze	360	180***	-	-
180	Valve	-	-	750	-
180	Squeeze	360	180+	-	-
250	Valve	-	-	-	-
250	Squeeze	360	180++	-	-

* Flange size DN 50

** Flange size DN 100

*** Flange size DN 150

\+ Flange size DN 250

++ Flange size DN 250

8 PERFORMANCE REQUIREMENTS

8.1 Mechanical Characteristics

Fittings shall be tested using pipes, which conform to ISO 4437, Test samples shall be assembled in accordance with ISO DIS11413, following the technical instruction of the manufacturer and using fusion equipment conforming ISO DIS 12176.2.

When tested in accordance with the test methods as specified in table – 6 using the indicated parameters, the fittings have mechanical characteristics confirming to the requirements given in

Table 6.

TABLE 6: MECHANICAL PROPERTIES

Characteristics	Units	Requirements	Test	Parameters	Test Method
Hydrostatic strength at 20°C	H	Failure time ≥ 100	End caps orientation conditioning time. Type of test circumferential (hoop) stress pipe PE 80, PE 100, Test temperature.	Type a) free 1 h 9 Mpa, 12.4 Mpa, 20°C	ISO DIS 9356
Hydrostatic strength at 80°C	H	Failure time ≥ 165	End caps orientation conditioning time. Type of test circumferential (hoop) stress pipe PE 80, PE 100, Test temperature.	Type a) free 12 h water-in-water 4.6 Mpa 5.5 Mpa 80°C	ISO DIS 9356
Hydrostatic strength at 80°C	H	Failure time ≥ 1000	End caps orientation conditioning time. Type of test circumferential (hoop) stress pipe PE 80, PE 100, Test temperature.	Type a) free 12 h water-in-water 4 Mpa, 5 Mpa, 80°C	ISO DIS 9356
Cohesive resistance	mm	Length of initiation of brittle fracture L/3	Test temperature choice of method	23°C	ISO 13954 (A) ISO 13955 (A) ISO 13956

Characteristics	Units	Requirements	Test	Parameters	Test Method
					(B)
Impact strength (B)		No failure No leakage	Test temperature Falling height Mass of the striker	20°C 23°C 5m 5kg	ISO DIS 13957
Pressure drop (B)	M^3/h	0.5 mbar : dn≤ 63 0.1 mbar : dn^2> 63	Air flow rate Test medium Test pressure	Indicated by the manufacturer Air source 25 mbar	PrEN 12117

(A) Electro fusion Socket Fittings
(B) Tapping Tees

For hydrostatic strength test at 80°C only brittle failure shall be taken into account. If ductile failure occurs before the required time, a lower stress shall be selected and the minimum test time will be obtained from the line through the stress/ time points given in Table – 7.

TABLE 7

Hydrostatic strength (80°C) – Stress/

Minimum Failure Time Correlation

PE-80		PE-100	
Stress Mpa	Minimum Failure Time h	Stress Mpa	Minimum Failures Time h
4.6	165	5.5	165
4.5	219	5.4	233
4.4	293	5.3	332
4.3	394	5.2	476
4.2	533	5.1	688
4.1	727	5.0	1000
4.0	100	-	-

8.2 **Physical Characteristics**

When tested in accordance with the test methods as specified in Table 8 using the indicated parameters, the fittings shall have physical characteristics conforming to the requirements given in Table 8.

TABLE 8 : Physical Characteristics of Fittings

Property	Units	Requirements	Test Parameters	Test Method
Thermal Stability	Minutes	> 20	200 °C (1)	ISO TR 10837
Melt Mass-flow Rate (MFR)	g/10 min	0.2 ≤ MFR ≤ 1.4 and after processing maximum deviation of ±20% of the value measured on the batch compound	Condition 18	ISO 4440.1

1) Test may be carried out at 210 °C providing that there is a clear correlation to the results at 200 °C, in case of dispute the reference temperature shall be 200 °C.

8.3 **Technical File**

The manufacturer of the fittings shall make availability of a technical file (generally confidential) with all relevant data to prove the conformity of the fittings to this specification. It shall include all results of the type testing and shall conform to the specification relevant technical brochure (e.g. ISO 12093 for electro fusion fittings).

The technical description of the manufacturer shall include the following information:

1. Field of appliance (pipe and fitting temperature limits SDR's and out of roundness):
2. Assembly instructions:
3. Fusion instruction (fusion parameters with limits)
4. For saddles and tapping tee:
   - The means of attachment (tools and/ or under clamp).
   - The need to maintain the under clamp in position in order to ensure the performances of the assembly.

   For electro fusion fitting, the format of the technical brochure shall conform to ISO DIS 12093.
   In the event of modification of the fusion parameters, the manufacturer shall ensure that the joint conforms to this standard.

9. MARKING

Following information shall be embossed upto height of 0.15 mm onto the fitting and also in the form of bar code:

a) The manufacturer's identity
b) The size of the fitting in mm
c) Material and Designation
d) The date of manufacturer (code may be used)
e) Fusion time in seconds
f) Cooling time in minutes
g) Fusion parameters in BAR code
h) Lot Number.

The information may be printed on a label associated with the fitting.

10. PACKING

The fittings shall be packaged in bulk or individually protected where necessary in order to prevent deterioration. Whenever possible, they shall be placed in airtight plastic bags in card board boxes or cartons.

The cartons and/or individual bags shall bear at least one label with the manufacturer's name, date of manufacturer, type and dimensions of the part, number of units in the box, and any special storage conditions and storage time limits.

Note:

All the fittings required shall be bar coded electro - fusion fitting type. In case bidder is quoting for spigot fittings, the necessary electro - fusion coupler for all non electro fusion ends shall be included in the complete package.

The transition fittings shall also be bar coded electro - fusion type for PE connection, NPT Female threading confirming to ANSI B 20.1 for G.I connection & butt welded for carbon steel end.

The carbon steel material of transition fittings shall be confirming to APL 5L x 42 and thickness shall be of 4.8 mm.

All the fittings shall be used for the network operating at 4.0 - 6.0 Bar(g) Pressure.

TECHNICAL SPECIFICATION
FOR
PE BALL VALVES

CONTENTS

Item	:	**PE BALL VALVE**
Application	:	Natural Gas Distribution Services
Code	:	ASME B16.40 / EN 1555-4
Rating	:	PE100 SDR 11
Operating Pressure	:	4 - 6 bar (g)
Operating Temp.	:	0°C to 60°C
End Connection	:	PE materials (Spigot Type)
Stem Extension	:	Not Required
Valve Design	:	Full Bore
Ball position Indicator	:	Open/Close Limits required

INSPECTION / DOCUMENT

Inspection shall be carried out as per client/consultant's approved Inspection Plan / QAP.

Third party inspection agency appointed by vendor on prior approval of owner shall carry out stage wise inspection during manufacturing / final inspection.

Vendor shall furnish all the material test certificates, proof of approval / licence from specified authority as per specified standard, if relevant, internal test / inspection reports as per owner Technical Specification and specified code for 100% material, at the time of final inspection of each supply lot of material.

PACKING

Packing size to be mentioned to ensure uniformity in delivery condition of the material being procured. Bidder shall submit the packaging details during QAP and also compiled with at the time delivery.

TECHNICAL SPECIFICATION
FOR
ISOLATION & APPLIANCE BALL VALVES

TECHNICAL SPECIFICATION FOR ISOLATION & APPLIANCE BALL VALVES

CONTENTS

1.0 INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacturing of Isolation & Appliance Ball Valves used for supply of natural gas.

2.0 MATERIAL SPECIFICATION FOR ISOLATION VALVES

2.1. Technical Data Sheet

2.1.1 Item-Isolation Ball Valve with Full Bore, NPT Female (Confirming to ANSI B1.20.1) ends for natural gas application).

2.1.2 **Sizes** : ½", ¾" ..

2.1.3 **Body** : Hot Pressed/ Forged Brass, Nickel/ Chrome Plated.

2.1.4 **Ball** : Hard Chrome/ Nickel Plated Hot Pressed/ Machined Brass Bar with Teflon Seat.

2.1.5 With operating Knob and locking arrangement with sealing wire and lead seal (Without Key). Valve full open/ close position shall be at 90°.

2.1.6 **Maximum Operating Pressure** : 4.0 - 6.0 Bar (g)

2.1.7 **Hydrostatic Test Pressure** : 10.5 Bar (g)

2.1.8 **Markings**

Markings shall be provided & shall include :

Manufacturer's name or trade mark Model designation. Rate working pressure in Bar. Direction of flow, if necessary.

2.1.9 **Leakage** :The permissible external/ internal leakage shall be specified by the vendor, with reference to relevant code. However, in no case the leakage in both the cases shall exceed 1 ml/ min at maximum working pressure specified.

2.1.10 **Mechanical Strength**

i) The body of the valves shall be capable of withstanding without deformation or leakage 125 Nm torque, as applied to a pipe being connected to the valve.

ii) Valve shall be capable of withstanding without deformation or leakage 340 Nm bending moment or an angular displacement of 10° whichever occurs first, if applied to a pipe

connected to the valve.

iii) The valves shall be capable of withstanding 25 Nm impact without breakage or leakage.

3.0 MATERIAL SPECIFICATION FOR APPLIANCE VALVES

3.1. Technical Data Sheet

3.1.1 **Item**

Application Ball Valve of Full Bore with ½" NPT (Confirming to ANSI B1.20.1) Female as an inlet and the outlet shall be having Ni/ Cr plated brass or steel a nozzle (Serrated to suit ¼" rubber tubing/ hose connection) and the material is required for Domestic Natural Gas Service.

3.1.2 **Body** : Total body including the nozzle shall be of Hot Pressed/ Forged Brass, Nickel/ Chrome Plated.

3.1.3 **Ball** - Hard Chrome/ Nickel Plated Hot Pressed/ Machined Brass Bar with Teflon Seat.

3.1.4 With a metallic operating/ knob/ lever for full open/ close at 90° position.

3.1.5 **Maximum Operating Pressure** : 35 milli Bar (g)

3.1.6 **Hydrostatic Test Pressure** : 1.0 Bar (g)

3.1.7 **Markings**

Markings shall be provided & shall include :

i) Manufacturer's name or trade mark
ii) Model designation
iii) Rate working pressure in Bar
iv) Direction of flow, if necessary

3.1.8 **Leakage**

The permissible external/ internal leakage shall be specified by the vendor, with reference to relevant code. However, in no case the leakage in both the cases shall exceed 1 ml/ min at maximum working pressure specified.

3.1.9 **Mechanical Strength**

i) The body of the valves shall be capable of withstanding without deformation or leakage 75 Nm torque, as applied to a pipe being connected to the valve.

ii) Valve shall be capable of withstanding without deformation or leakage 125 Nm bending moment or an angular displacement of 10° whichever occurs first, if applied to a pipe connected to the valve.

iii) The valves shall be capable of withstanding 25 Nm impact without breakage or leakage.

TECHNICAL SPECIFICATION FOR WARNING MATS

SPECIFICATION FOR THE WARNING MATS

Purpose	For using as a warning sign for Under Ground Natural Gas Pipeline
Width	250 mm +/- 2 mm for Underground Gas Pipeline
Thickness	0.5 mm thk.(500 microns +/- 8 %)
Tracer Wire	Double copper wire-with anti-corrosive coating, in sinusoidal wave pattern.
Material of the mat	The material shall be of high density Polyethylene
Colour of the mat	Yellow colour + black text
Art Work	A sample piece of 30mm wide and 200mm long of every batch shall be checked by immersing in 20% solution of Ammonium Sulphide for period of 2weeksat a temperature of 15°C for colour intactness of the strip. Art work would be finalized after placement of order.

Mechanical Properties of HDPE:

1. **Tensile strength** - Min. 120 kg/cm2
2. **Elongation at break** - Min.200%

Bundle length: 0.5 mm thick warning mat shall be 50 m

Test certificates: Vendor has to submit all test certificates

Inspection: Manufacturer has to submit QAP

SPECIFICATION
FOR
QUALITY ASSURANCE SYSTEMS REQUIREMENTS

CONTENTS

ATTACHMENTS

1.0 INTRODUCTION

This specification establishes the Quality Assurance Requirements to be met by the sub-contractors (including turnkey Contractors) and their sub-vendors.

In case of any conflict between this specification and other provisions of the contract/ purchase order, the same shall be brought to the notice of PMC, at the stage of bidding and shall be resolved with PMC, prior to the placement of order.

2.0 DEFINITION

Bidder

For the purpose of this specification, the word “Bidder” means the person(s), firm, company or organisation who is under the process of being contracted by PMC/ Owner for delivery of some products (including service). The word is considered synonymous to supplier, contractor or vendor.

Correction

Action taken to eliminate the detected non-conformity.

Refers to repair, rework or adjustment and relates to the disposition of an existing non-conformity.

Corrective Action

Action taken to eliminate the causes of an existing non-conformity, defect or other undesirable situation in order to prevent recurrence.

Preventive Action

Action taken to eliminate the causes of a potential non-conformity, defect or other undesirable situation in order to prevent its recurrence.

Process

Set of interrelated resources and activities which transforms inputs into outputs

Special Process

Processes requiring pre-qualification of their process capability.

3.0 CONTRACTORS SCOPE OF WORK

3.1 Prior to award of contract

The bidder shall understand scope of work, drawings, specifications and standards etc., attached to the tender/ enquiry document, before he makes an offer.

The bidder shall submit milestone chart showing the time required for each milestone activity and linkages between different milestone activities along with overall time period required to complete the entire scope of work.

The bidder shall develop and submit manpower and resource deployment chart.

The bidder shall submit, alongwith the bid, a manual or equivalent document describing/ indicating/ addressing various control/ check points for the purpose of quality assurance and the responsibilities of various functions responsible for quality assurance.

3.2 After the award of contract

The bidder shall submit the schedule for submission of following documents in the kick-off meeting or within two weeks of the placement of order, whichever is earlier.

- Detailed Bar Chart
- Quality plan for all activities, required to be done by the bidder, to accomplish offered scope of work
- Inspection and test plans, covering various control aspects
- Job procedures as required by PMC/ Owner
- Procurement schedule for items to be supplied by contractor covering inspection of the same.

Various documents submitted by the bidder shall be finalized in consultation with PMC. Here it shall be presumed that once a bidder has made an offer, he has understood the requirements given in the specification and agrees to comply with them in totality unless otherwise categorically so indicated during pre-award stage through agreed deviation/ exception request. All Quality Assurance Plan (QAP) documents shall be reviewed by concerned functional groups of PMC and the bidder shall be required to incorporate all comments within the framework of this specification at this stage of the contract. It is also obligatory on the part of the bidder that obtains approval on every Quality Assurance Plan (QAP) documents, before he starts using a particular document for delivery of contracted scope of work. Participation of PMC/ Owner in review/ approval of quality plan/ QAP documents does not absolve the contractor of his contractual obligations towards specified and intended use of the product (or service) provided/ to be provided by him under the contract.

3.3 During job execution

During job execution, the bidder shall fully comply with all quality document submitted and finalised/ agreed against the requirements of this specification. Approval of PMC on all these documents shall be sought before start of work.

Bidder shall produce sufficient quality records on controlled/ agreed forms such that requirements given in this specification are objectively/ demonstrable

Bidder shall facilitate PMC/ Owner during quality / technical audits at his works/ sites.

Bidder shall discharge all responsibilities towards enforcement of this specification on all his sub-contractors for any part of the scope which is sub- contracted.

4.0 QUALITY ASSURANCE SYSTEM REQUIREMENTS

4.1. The bidder shall nominate an overall in-charge of the contract titled as “Project Manager” for the scope of work of agreed contract. The name of this person shall be duly intimated to PMC including all subsequent changes, if any. PMC shall correspond only with the project manager of the bidder on all matters of the project. The project manager of the bidder shall be responsible for co-ordination and management of activities with bidder’s organisation and all sub-vendors appointed by the bidder.

After award of work, the bidder may review augmentation of manpower and resources deployment chart (submitted earlier), detail it out, if so consented by PMC/ Owner and resubmit the same as “issued for effective implementation of the project”.

4.2. The bidder shall plan the contract scope of work on quality plan format such that no major variation is expected during delivery of contract scope of work. These quality plan shall be made on enclosed format complete in all respect. The quality plan shall be assumed to be detailing bidder’s understanding and planning for the contract/ offered scope of work. The bidder shall plan the type of resources including various work methodology which he agrees to utilize for delivery of contract scope of work.

4.3. The bidder is required to review the contract at all appropriate stages to evaluate his capabilities with respect to timely and quality completion of all activities pertaining to contracted scope of work and shall report for constraints, if any to PMC/ Owner.

4.4. The design activities, if any, performed during delivery of contract scope of work shall be so controlled that the outputs is reliable enough. It is expected that during development of design, the bidder shall take recourse to detailed checking, inter departmental reviews and documented verification methods.

4.5. For all documents which the bidder is likely to utilise for delivery of contract scope of work, a system must exist which assures that latest / required version(s) of the document(s) is available at all location/ point of use.

4.6. In case the bidder decides to sub-contract any part/ full of the contract scope of work (without prejudice to main Contractual condition), the bidder shall :

- Evaluate the technical and financial capabilities and past performance of the sub-contractor(s) and their products and/ or services before awarding them with the sub-contracted scope of work. Selection of a sub-contractor should meet PMC approval in documented form.

- Requirement of this specification shall be enforced on sub - contracted agency also. The bidder shall choose sub-contractor based on their capability to meet requirements of this specification also.

Note: It may so happen that, in a given situation, a sub-contractor may not have a system meeting the requirements of this specification. In all such eventualities, bidder may lend his system to sub-contractor for the contract such that sub-contractor effectively meets the requirements of this specification. In all such cases PMC shall be duly informed.

4.7. Bidder shall establish adequate methodology such that the materials supplied by the Owner/ PMC shall be adequately preserved, handled and made use of for the purpose for which they are provided.

4.8. All output delivered against contract scope of work shall be suitably identified in such a manner that either through identification or some other means, sufficient traceability is maintained which permits effective resolution of any problem reported in the outputs.

4.9. Critical activities shall be identified and the bidder is required to have documented methodologies which he is going to utilize for carrying out such activities under the contract scope of work. Wherever it is difficult to fully inspect or verify the output (special process), bidder shall pre-qualify, the performers and methodologies.

4.10. All inspections carried out by the bidder's surveillance/ inspection staff shall be conformity to quality plans and/ or inspection and test plans. All inspection results shall be duly documented on controlled/ agreed forms such that results can be co-related to specific product, that was inspected/ tested.

4.11. All inspection, measuring & test equipments (IMTEs) shall be duly calibrated as per National/ International standards/ codes and only calibrated and certified IMTEs shall be utilized for delivery of contract scope of work.

4.12. All outputs/ products delivered against contract scope of work shall be duly marked such that their inspection status is clearly evident during all stages / period of the contract.

4.13. All non-conformities (NCs) found by the contractor's inspection/ surveillance staff shall be duly recorded, including their disposal action. The deficiencies observed during stage of the product, shall be recorded and resolved suitably. Effective corrective and preventive action shall be implemented by the bidder for all repetitive NCs, including deficiencies.

4.14. All deficiencies noticed by PMC/ Owner representative(s) shall be recorded on a controlled form (Format No. 00002). Such deficiencies shall be analysed by the bidder and effective and appropriate correction, corrective and preventive actions shall be implemented. Bidder shall intimate PMC/ Owner of all such corrective and preventive action implemented by him.

4.15. Bidder shall establish appropriate methodologies for safe and effective handling, storage, preservation of various materials/ inputs encountered during delivery of contract scope of work.

4.16. Bidder shall prepare sufficient records for various processes carried out by him for delivery of contract scope of work such that requirements of this specification are objectively demonstrable. In case PMC/ Owner finds that enough objective evidence/ recording is not available for any particular process, bidder shall be obliged to make additional records so as to provide sufficient objective evidence. The decision of PMC/ Owner shall be final and binding on such issues.

4.17. The bidder shall arrange internal quality audits at quarterly intervals, to independently assess the conformance by various performers to the requirements of this specification. The findings of such assessment shall be duly recorded and a copy shall be sent to PMC/ Owner for review.

4.18. For all special processes, bidder shall deploy only qualified performers. Wherever PMC/ Owner observes any deficiency, the bidder shall arrange the adequate training to the performer(s) before any further delivery of work.

OBSERVATION OF QUALITY ASPECTS

FORMAT - 00002

<table>
<tr><td colspan="2">Job No. and Description
Issued to : M/s</td><td colspan="2">No. :
Date :</td></tr>
<tr><td colspan="4">Location of Work :
Item of Work :</td></tr>
<tr><td colspan="2" rowspan="2">Details of Observation(Deficiency)</td><td colspan="2">Recommended Course of Action</td></tr>
<tr><td colspan="2">Time Allowed for Correction :</td></tr>
<tr><td colspan="4">Issued by : _____
Name of Signature of RCM, PMC Site</td></tr>
<tr><td colspan="4">Corrective Action taken report by Contractor/ Vendor :

Date :
Name and Signature</td></tr>
<tr><td colspan="4">Distribution (before resolution) :
Project Manager Chief Business Executive PMC Inspection Resident Construction
Owner PMC Manager, PMC Site</td></tr>
<tr><td colspan="4">Verification of Resolution by PMC :

Date : Name of Signature</td></tr>
</table>

Bidder's Quality Plan			**Project Name :**				**PO/ Contract Ref:**			
General			Performing Functions					Inspection Functions Audit Function		
Activity Description	Procedure Number	Code of Conformance	Performer	Checker	Reviewer/ Approver	Sampling Plan	Testing and Inspection Code	Type of (Approval) Surveillance	Audit Scope	Owner's/ PMC Review/ Audit Requirement

Note:

1) The Bidder ensures that the filled up format conforms to minimum requirements on Quality Plan/ Quality Assurance, specified by PMC on drawings/ standards/ specifications/ write-up.

19.0 **APPENDIX-I TO PARTICULAR JOB SPECIFICATION**

LIST OF APPROVED SUPPLIER FOR BOUGHT OUT ITEMS

PE FITTINGS

1) M/s Friatech AG, Germany (represented by M/s Sherman Sales in India)
2) M/s Jain Irrigation systems Ltd. Jalgaon (Fusion, UK)
3) M/s George Fisher
4) M/s Agru, Austria
5) M/s Kimplas piping Systems Ltd., Nashik
6) M/s Aliaxis Utilities & Industries Pvt.Ltd

PE VALVES

1) M/s Friatech AG, Germany (represented by M/s Sherman Sales in India)
2) M/s George Fisher
3) M/s Agru, Austria
4) M/s Aliaxis Utilities & Industries Pvt.Ltd
5) M/s Plasson Ltd., Israel

WARNING TAPE

1. M/s Sparco Multiplast Pvt. Ltd., Ahmedabad
2. M/s Singhal Industries , Ahemdabad
3. M/s Puja Packing, Mumbai
4. M/s Bina Enterprises, Mumbai

GI FITTINGS (Powder Coated)

1 M/s Jainsons Industries,jalandhar
2 M/s Jupiter Metal Idustries Ltd.
3 M/s RAJNESH Malleables ltd.,Delhi
4 M/s Industrial Valves &Components,Delhi
5 M/s Sarin industries, Delhi
6 M/s Jinan Meide Casting Co. LtD
7 M/s Ningbo Huaping Metal work Co. Ltd

COPPER TUBES AND FITTINGS

1. Paras Industries Ltd.
2. Rajco Metal
3. Chandan Enterprises
4. Mehta Tubes

BRASS FIITING

1. M/s Chandan Enterprises
2. M/s Paras Industries Ltd.
3. M/s Umesh Enterprises

FLEXIBLE HOSE

1. M/s KPC Flex Tubes
2. M/s Vestas Hose Division

3. M/s Alfa Flexi Tubes

ISOLATION VALVES AND APPLIANCE VALVES

1. M/s Universal srl
2. M/s Tiemme Raccorderie Sede
3. M/s Jainson Industries
4. M/s Enolgas Bonimu s.a.s.
5. M/s Fratelli Fortis s.r.l
6. M/s Giacomo Climbrio
7. M/s Parker Hannifin S.P.A.
8. M/s Singapore Valve & Amp; Fittings Pte Limited, Singapore
9. M/S Rubinetterie Utensilerie Bonomi (RUB)
10. M/s. Zhejiang Valogin Technology Co. Ltd
11. M/s Ningbo Huaping Metal work Co. Ltd.,

SECTION- 8
SCHEDULE OF RATES (SOR)

SCHEDULE OF RATES (STRETCH-1)

TENDER NAME: HIRING OF CONTRACTOR FOR COMMERCIAL & INDUSTRIAL (C&I) CONNECTIONS DMA ACTIVITY, INCLUDING TAPPING OF PE PIPELINE WORK, METER INSTALLATION AND COMMISSIONING IN HYDERABAD GA.

TENDER NUMBER: BGL/733/2026-27

NAME OF BIDDER:

Sl. No.	Description	Units	Unit Rate	North	Total	Remarks
				Shamirpet to Suchitra		
	Registration of PNG Consumers **Carrying out the registration of various PNG customers such as commercial as well as industrial consumers from the areas given by BGL in Hyderabad South GA. The registration needs to be carried out as per scope of work and special conditions of contract given in tender. The brief scope of this item is given below:** **1) Carrying out the promotional activities such as organizing events, putting registration camps, distribution of leaflets / pamphlets / FAQ etc. to create awareness regarding use of PNG. The activities shall be conducted as per direction/Instruction of BGL. The content and the material of Leaflets/Pamphlets/FAQ and any other promotional material shall be finalized in consultation with BGL and cost of all these material shall be inclusive of quoted rates.** **2) Enrolment & Registration of various PNG Customers in the given area by BGL and as per the given target.** **3) Distribution and Collection of filled up registration forms along with Cheque of Registration fees/Security Deposit and other documents required for PNG connection.** **4) Submission of registration forms duly filled along with required documents and cheque. The forms shall be submitted in BGL office on weekly basis with datasheet in given format.** **5) If the DMA is not performing, the EIC has the right to assign that front to another DMA.** **All other activities as may be required to get the maximum registration from the area as defined in the Scope of work to be read along with the Special Conditions of Contract and as per instructions of EIC.**					
a	Signing of GSA with Registered Commercial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any commercial consumer having requirement of 200 SCMD and					

	multiples of thereon (Payment paid after completion of every 200SCMD)					
	(200 SCMD considered as one customer and multiples of 200SCMD thereon)	Per 200 SCMD		**20.00**		
b	Signing of GSA with Registered Industrial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any industrial consumer having requirement of 1000 SCMD and multiples of thereon (Payment paid after completion of every 1000SCMD)					
	(1000 SCMD considered as one customer and multiples of 1000 SCMD thereon)	Per 1000 SCMD		**5.00**		
2	**Laying, Testing & Commissioning of Pipeline till the Customer (All types of Roads & All Terrain)**					
a	Transportation of MDPE pipe from store to site, including excavation of road, laying, supply & Installation of fitting and jointing of pipe (below 200m length), testing, pre-commissioning and commissioning activities. The scope also covers liaisoning with statutory/local authorities, disposal of excavated debris, road restoration/backfilling, and submission of backfilling sketches and all relevant statutory/documentary compliances.					
i	125mm mm Pipe (up to 50m)	EA		**10**		
ii	90mm Pipe (up to 50m)	EA		**10**		
iii	63mm Pipe (up to 50m)	EA		**15**		
iv	32mm pipe (up to 50m)	EA		**5**		
v	20mm pipe (up to 50m)	EA		**3**		
vi	125mm mm Pipe (up to 30m)	EA		**6**		
vii	90mm Pipe (up to 30m)	EA		**8**		
viii	63mm Pipe (up to 30m)	EA		**10**		
ix	32mm pipe (up to 30m)	EA		**20**		
x	20mm pipe (up to 30m)	EA		**20**		
XI	32mm pipe (up to 15m)	EA		**20**		
XII	20mm pipe (up to 15m)	EA		**20**		
3	**Civil Work**					
a	PCC (1:4:8)	CUM				
	M-25			**30**		
b	RCC (sub Structure)	CUM				
	PROVIDING AND LAYING REINFORCED CEMENT OF GRADE M-25 SUB STRUCTURES			**10**		
c	Borrowed Soil	CUM		**5**		

d	RCC Route marker	EA		**100**		
e	M-25 Brick work Construction	CUM		**6**		
f	Rock Breaking	CUM		**25**		
g	Providing and Installation of RCC route Marker	EA		**120**		
4	VALVE					
a	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR125MM)	EA		**8**		
b	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR 90MM)	EA		**2**		
c	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 63MM)	EA		**10**		
d	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 32MM)	EA		**15**		
5	**TF, Piping & Meter Installation & Commissioning**					
a	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of Commercial Gas meter complete in all respects as per specifications and approved drawings.(up to 10m if GI pipe)	EA		**80**		
b	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of MRS complete in all respects as per specifications and approved drawings.(up to 10m GI pipe)	EA		**10**		
6	**GI Piping If morethan 10m approval to be taken from the EIC**					
7	**Installation of GI Pipes, Fittings, Valves, warning plate including NPT threading, painting as specified (installation of meters & regulators forms a separate SOR item).**					
	Drillings of holes through walls (Brick, RCC), Granite, Marble, Glass Cutting with proper heavy duty hammer drill machine tools and tackle, using proper sealant/grout of materialized colors to match the original replacement of damages during drilling, restoring the area to original condition.					
	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/lock tight, drilling of holes through tiles/wood/marble/granite etc.					
	Touch up Painting of pipe whereever required on pipes & fittings after proper surface finish by one coat of approved					

	primer paint and two coats of approved synthetic enamel paint complete as per specification & direction of EIC. Restoring the wall surface to original condition.					
	All above activities are to be carried out as per specification to the complete satisfaction of consumer & as desired by Engineer-in-charge.					
	Submission of all documents likeTest Certificates of GI Pipes and fittings etc, Job cards, Testing reports,Ring diagram in Auto CAD & in A4 commissioning reports etc as per the Engineer Incharge Requirements					
	Handing over the completed works to Client for operation/use, reconciliation of material area wise.					
	Any other activity not mentioned/covered, explicitly above, but otherwise required for satisfactory completion/safety/statutory/maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule.					
1.1	**Installation/Laying of 1/2 " GI Pipe- All Floors**	**Meters**		**200.00**		
1.2	**Installation/Laying of 3/4 " GI Pipe- All Floors**	**Meters**		**200.00**		
1.3	**Installation/Laying of 1 " GI Pipe- All Floors**	**Meters**		**300.00**		
Total Amount Without GST (Rs.)						
GST %						
GST Amount (Rs.)						
Total Amount With GST (Rs.)						
Total Amount With GST (Rs.) In Word:						

SCHEDULE OF RATES (STRETCH-2)

TENDER NAME: HIRING OF CONTRACTOR FOR COMMERCIAL & INDUSTRIAL (C&I) CONNECTIONS DMA ACTIVITY, INCLUDING TAPPING OF PE PIPELINE WORK, METER INSTALLATION AND COMMISSIONING IN HYDERABAD GA.

TENDER NUMBER: BGL/733/2026-27

NAME OF BIDDER:

Sl. No.	Description	Units	Unit Rate		Total	Remarks
				Suchitra to Balanagar Y Jn		
	Registration of PNG Consumers **Carrying out the registration of various PNG customers such as commercial as well as industrial consumers from the areas given by BGL in Hyderabad South GA. The registration needs to be carried out as per scope of work and special conditions of contract given in tender. The brief scope of this item is given below:** **1) Carrying out the promotional activities such as organizing events, putting registration camps, distribution of leaflets / pamphlets / FAQ etc. to create awareness regarding use of PNG. The activities shall be conducted as per direction/Instruction of BGL. The content and the material of Leaflets/Pamphlets/FAQ and any other promotional material shall be finalized in consultation with BGL and cost of all these material shall be inclusive of quoted rates.** **2) Enrolment & Registration of various PNG Customers in the given area by BGL and as per the given target.** **3) Distribution and Collection of filled up registration forms along with Cheque of Registration fees/Security Deposit and other documents required for PNG connection.** **4) Submission of registration forms duly filled along with required documents and cheque. The forms shall be submitted in BGL office on weekly basis with datasheet in given format.** **5) If the DMA is not performing, the EIC has the right to assign that front to another DMA.** **All other activities as may be required to get the maximum registration from the area as defined in the Scope of work to be read along with the Special Conditions of Contract and as per instructions of EIC.**					
a	Signing of GSA with Registered Commercial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any commercial consumer having requirement of 200 SCMD and					

	multiples of thereon (Payment paid after completion of every 200SCMD)					
	(200 SCMD considered as one customer and multiples of 200SCMD thereon)	Per 200 SCMD		**13.33**		
b	Signing of GSA with Registered Industrial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any industrial consumer having requirement of 1000 SCMD and multiples of thereon (Payment paid after completion of every 1000SCMD)					
	(1000 SCMD considered as one customer and multiples of 1000 SCMD thereon)	Per 1000 SCMD		**3.33**		
2	**Laying, Testing & Commissioning of Pipeline till the Customer (All types of Roads & All Terrain)**					
a	Transportation of MDPE pipe from store to site, including excavation of road, laying, supply & Installation of fitting and jointing of pipe (below 200m length), testing, pre-commissioning and commissioning activities. The scope also covers liaisoning with statutory/local authorities, disposal of excavated debris, road restoration/backfilling, and submission of backfilling sketches and all relevant statutory/documentary compliances.					
i	125mm mm Pipe (up to 50m)	EA		**6.67**		
ii	90mm Pipe (up to 50m)	EA		**6.67**		
iii	63mm Pipe (up to 50m)	EA		**10.00**		
iv	32mm pipe (up to 50m)	EA		**3.33**		
v	20mm pipe (up to 50m)	EA		**2.00**		
vi	125mm mm Pipe (up to 30m)	EA		**4.00**		
vii	90mm Pipe (up to 30m)	EA		**5.33**		
viii	63mm Pipe (up to 30m)	EA		**6.67**		
ix	32mm pipe (up to 30m)	EA		**13.33**		
x	20mm pipe (up to 30m)	EA		**13.33**		
XI	32mm pipe (up to 15m)	EA		**13.33**		
XII	20mm pipe (up to 15m)	EA		**13.33**		
3	**Civil Work**					
a	PCC (1:4:8)	CUM				
	M-25			**20.00**		
b	RCC (sub Structure)	CUM				
	PROVIDING AND LAYING REINFORCED CEMENT OF GRADE M-25 SUB STRUCTURES			**6.67**		
c	Borrowed Soil	CUM		**3.33**		

d	RCC Route marker	EA		**66.67**		
e	M-25 Brick work Construction	CUM		**4.00**		
f	Rock Breaking	CUM		**16.67**		
g	Providing and Installation of RCC route Marker	EA		**80**		
4	VALVE					
a	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR125MM)	EA		**5.33**		
b	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR 90MM)	EA		**1.33**		
c	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 63MM)	EA		**6.67**		
d	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 32MM)	EA		**10.00**		
5	**TF, Piping & Meter Installation & Commissioning**					
a	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of Commercial Gas meter complete in all respects as per specifications and approved drawings.(up to 10m if GI pipe)	EA		**53.33**		
b	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of MRS complete in all respects as per specifications and approved drawings.(up to 10m GI pipe)	EA		**6.67**		
6	**GI Piping If morethan 10m approval to be taken from the EIC**					
7	**Installation of GI Pipes, Fittings, Valves, warning plate including NPT threading, painting as specified (installation of meters & regulators forms a separate SOR item).**					
	Drillings of holes through walls (Brick, RCC), Granite, Marble, Glass Cutting with proper heavy duty hammer drill machine tools and tackle, using proper sealant/grout of materialized colors to match the original replacement of damages during drilling, restoring the area to original condition.					
	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/lock tight, drilling of holes through tiles/wood/marble/granite etc.					
	Touch up Painting of pipe whereever required on pipes & fittings after proper surface finish by one coat of approved					

	primer paint and two coats of approved synthetic enamel paint complete as per specification & direction of EIC. Restoring the wall surface to original condition.					
	All above activities are to be carried out as per specification to the complete satisfaction of consumer & as desired by Engineer-in-charge.					
	Submission of all documents likeTest Certificates of GI Pipes and fittings etc, Job cards, Testing reports,Ring diagram in Auto CAD & in A4 commissioning reports etc as per the Engineer Incharge Requirements					
	Handing over the completed works to Client for operation/use, reconciliation of material area wise.					
	Any other activity not mentioned/covered, explicitly above, but otherwise required for satisfactory completion/safety/statutory/maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule.					
1.1	**Installation/Laying of 1/2 " GI Pipe- All Floors**	**Meters**		**133.33**		
1.2	**Installation/Laying of 3/4 " GI Pipe- All Floors**	**Meters**		**133.33**		
1.3	**Installation/Laying of 1 " GI Pipe- All Floors**	**Meters**		**200.00**		
Total Amount Without GST (Rs.)						
GST %						
GST Amount (Rs.)						
Total Amount With GST (Rs.)						
Total Amount With GST (Rs.) In Word:						

SCHEDULE OF RATES (STRETCH-3)

TENDER NAME: HIRING OF CONTRACTOR FOR COMMERCIAL & INDUSTRIAL (C&I) CONNECTIONS DMA ACTIVITY, INCLUDING TAPPING OF PE PIPELINE WORK, METER INSTALLATION AND COMMISSIONING IN HYDERABAD GA.

TENDER NUMBER: BGL/733/2026-27

NAME OF BIDDER:

Sl. No.	Description	Units	Unit Rate		Total	Remarks
				Balanagar Y-Jn toAlwyn		
	Registration of PNG Consumers **Carrying out the registration of various PNG customers such as commercial as well as industrial consumers from the areas given by BGL in Hyderabad South GA. The registration needs to be carried out as per scope of work and special conditions of contract given in tender. The brief scope of this item is given below:** **1) Carrying out the promotional activities such as organizing events, putting registration camps, distribution of leaflets / pamphlets / FAQ etc. to create awareness regarding use of PNG. The activities shall be conducted as per direction/Instruction of BGL. The content and the material of Leaflets/Pamphlets/FAQ and any other promotional material shall be finalized in consultation with BGL and cost of all these material shall be inclusive of quoted rates.** **2) Enrolment & Registration of various PNG Customers in the given area by BGL and as per the given target.** **3) Distribution and Collection of filled up registration forms along with Cheque of Registration fees/Security Deposit and other documents required for PNG connection.** **4) Submission of registration forms duly filled along with required documents and cheque. The forms shall be submitted in BGL office on weekly basis with datasheet in given format.** **5) If the DMA is not performing, the EIC has the right to assign that front to another DMA.** **All other activities as may be required to get the maximum registration from the area as defined in the Scope of work to be read along with the Special Conditions of Contract and as per instructions of EIC.**					
a	Signing of GSA with Registered Commercial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any commercial consumer having requirement of 200 SCMD and					

	multiples of thereon (Payment paid after completion of every 200SCMD)					
	(200 SCMD considered as one customer and multiples of 200SCMD thereon)	Per 200 SCM D		**13.33**		
b	Signing of GSA with Registered Industrial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any industrial consumer having requirement of 1000 SCMD and multiples of thereon (Payment paid after completion of every 1000SCMD)					
	(1000 SCMD considered as one customer and multiples of 1000 SCMD thereon)	Per 1000 SCM D		**3.33**		
2	**Laying, Testing & Commissioning of Pipeline till the Customer (All types of Roads & All Terrain)**					
a	Transportation of MDPE pipe from store to site, including excavation of road, laying, supply & Installation of fitting and jointing of pipe (below 200m length), testing, pre-commissioning and commissioning activities. The scope also covers liaisoning with statutory/local authorities, disposal of excavated debris, road restoration/backfilling, and submission of backfilling sketches and all relevant statutory/documentary compliances.					
i	125mm mm Pipe (up to 50m)	EA		**6.67**		
ii	90mm Pipe (up to 50m)	EA		**6.67**		
iii	63mm Pipe (up to 50m)	EA		**10.00**		
iv	32mm pipe (up to 50m)	EA		**3.33**		
v	20mm pipe (up to 50m)	EA		**2.00**		
vi	125mm mm Pipe (up to 30m)	EA		**4.00**		
vii	90mm Pipe (up to 30m)	EA		**5.33**		
viii	63mm Pipe (up to 30m)	EA		**6.67**		
ix	32mm pipe (up to 30m)	EA		**13.33**		
x	20mm pipe (up to 30m)	EA		**13.33**		
XI	32mm pipe (up to 15m)	EA		**13.33**		
XII	20mm pipe (up to 15m)	EA		**13.33**		
3	**Civil Work**					
a	PCC (1:4:8)	CUM				
	M-25			**20.00**		
b	RCC (sub Structure)	CUM				
	PROVIDING AND LAYING REINFORCED CEMENT OF GRADE M-25 SUB STRUCTURES			**6.67**		
c	Borrowed Soil	CUM		**3.33**		

d	RCC Route marker	EA		**66.67**		
e	M-25 Brick work Construction	CUM		**4.00**		
f	Rock Breaking	CUM		**16.67**		
g	Providing and Installation of RCC route Marker	EA		**80**		
4	VALVE					
a	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR125MM)	EA		**5.33**		
b	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR 90MM)	EA		**1.33**		
c	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 63MM)	EA		**6.67**		
d	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 32MM)	EA		**10.00**		
5	**TF, Piping & Meter Installation & Commissioning**					
a	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of Commercial Gas meter complete in all respects as per specifications and approved drawings.(up to 10m if GI pipe)	EA		**53.33**		
b	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of MRS complete in all respects as per specifications and approved drawings.(up to 10m GI pipe)	EA		**6.67**		
6	**GI Piping If morethan 10m approval to be taken from the EIC**					
7	**Installation of GI Pipes, Fittings, Valves, warning plate including NPT threading, painting as specified (installation of meters & regulators forms a separate SOR item).**					
	Drillings of holes through walls (Brick, RCC), Granite, Marble, Glass Cutting with proper heavy duty hammer drill machine tools and tackle, using proper sealant/grout of materialized colors to match the original replacement of damages during drilling, restoring the area to original condition.					
	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/lock tight, drilling of holes through tiles/wood/marble/granite etc.					

	Touch up Painting of pipe whereever required on pipes & fittings after proper surface finish by one coat of approved primer paint and two coats of approved synthetic enamel paint complete as per specification & direction of EIC. Restoring the wall surface to original condition.					
	All above activities are to be carried out as per specification to the complete satisfaction of consumer & as desired by Engineer-in-charge.					
	Submission of all documents likeTest Certificates of GI Pipes and fittings etc, Job cards, Testing reports,Ring diagram in Auto CAD & in A4 commissioning reports etc as per the Engineer Incharge Requirements					
	Handing over the completed works to Client for operation/use, reconciliation of material area wise.					
	Any other activity not mentioned/covered, explicitly above, but otherwise required for satisfactory completion/safety/statutory/maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule.					
1.1	Installation/Laying of 1/2 " GI Pipe- All Floors	Meters		**133.33**		
1.2	Installation/Laying of 3/4 " GI Pipe- All Floors	Meters		**133.33**		
1.3	Installation/Laying of 1 " GI Pipe- All Floors	Meters		**200.00**		
Total Amount Without GST (Rs.)						
GST %						
GST Amount (Rs.)						
Total Amount With GST (Rs.)						
Total Amount With GST (Rs.) In Word:						

SCHEDULE OF RATES (STRETCH-4)

TENDER NAME: HIRING OF CONTRACTOR FOR COMMERCIAL & INDUSTRIAL (C&I) CONNECTIONS DMA ACTIVITY, INCLUDING TAPPING OF PE PIPELINE WORK, METER INSTALLATION AND COMMISSIONING IN HYDERABAD GA.

TENDER NUMBER: BGL/733/2026-27

NAME OF BIDDER:

Sl. No.	Description	Units	Unit Rate	South	Total	Remarks
				Alwyn to Gachibowli		
	Registration of PNG Consumers **Carrying out the registration of various PNG customers such as commercial as well as industrial consumers from the areas given by BGL in Hyderabad South GA. The registration needs to be carried out as per scope of work and special conditions of contract given in tender. The brief scope of this item is given below:** **1) Carrying out the promotional activities such as organizing events, putting registration camps, distribution of leaflets / pamphlets / FAQ etc. to create awareness regarding use of PNG. The activities shall be conducted as per direction/Instruction of BGL. The content and the material of Leaflets/Pamphlets/FAQ and any other promotional material shall be finalized in consultation with BGL and cost of all these material shall be inclusive of quoted rates.** **2) Enrolment & Registration of various PNG Customers in the given area by BGL and as per the given target.** **3) Distribution and Collection of filled up registration forms along with Cheque of Registration fees/Security Deposit and other documents required for PNG connection.** **4) Submission of registration forms duly filled along with required documents and cheque. The forms shall be submitted in BGL office on weekly basis with datasheet in given format.** **5) If the DMA is not performing, the EIC has the right to assign that front to another DMA.** **All other activities as may be required to get the maximum registration from the area as defined in the Scope of work to be read along with the Special Conditions of Contract and as per instructions of EIC.**					
a	Signing of GSA with Registered Commercial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any commercial consumer having requirement of 200 SCMD and multiples of thereon (Payment paid after completion of every 200SCMD)					

	(200 SCMD considered as one customer and multiples of 200SCMD thereon)	Per 200 SCMD		**20.00**		
b	Signing of GSA with Registered Industrial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any industrial consumer having requirement of 1000 SCMD and multiples of thereon (Payment paid after completion of every 1000SCMD)					
	(1000 SCMD considered as one customer and multiples of 1000 SCMD thereon)	Per 1000 SCMD		**5.00**		
2	**Laying, Testing & Commissioning of Pipeline till the Customer (All types of Roads & All Terrain)**					
a	Transportation of MDPE pipe from store to site, including excavation of road, laying, supply & Installation of fitting and jointing of pipe (below 200m length), testing, pre-commissioning and commissioning activities. The scope also covers liaisoning with statutory/local authorities, disposal of excavated debris, road restoration/backfilling, and submission of backfilling sketches and all relevant statutory/documentary compliances.					
i	125mm mm Pipe (up to 50m)	EA		**10.00**		
ii	90mm Pipe (up to 50m)	EA		**10.00**		
iii	63mm Pipe (up to 50m)	EA		**15.00**		
iv	32mm pipe (up to 50m)	EA		**5.00**		
v	20mm pipe (up to 50m)	EA		**3.00**		
vi	125mm mm Pipe (up to 30m)	EA		**6.00**		
vii	90mm Pipe (up to 30m)	EA		**8.00**		
viii	63mm Pipe (up to 30m)	EA		**10.00**		
ix	32mm pipe (up to 30m)	EA		**20.00**		
x	20mm pipe (up to 30m)	EA		**20.00**		
XI	32mm pipe (up to 15m)	EA		**20.00**		
XII	20mm pipe (up to 15m)	EA		**20.00**		
3	**Civil Work**					
a	PCC (1:4:8)	CUM				
	M-25			**30.00**		
b	RCC (sub Structure)	CUM				
	PROVIDING AND LAYING REINFORCED CEMENT OF GRADE M-25 SUB STRUCTURES			**10.00**		
c	Borrowed Soil	CUM		**5.00**		
d	RCC Route marker	EA		**100.00**		

e	M-25 Brick work Construction	CUM		**6.00**		
f	Rock Breaking	CUM		**25.00**		
g	Providing and Installation of RCC route Marker	EA		**120**		
4	VALVE					
a	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR125MM)	EA		**8.00**		
b	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR 90MM)	EA		**2.00**		
c	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 63MM)	EA		**10.00**		
d	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 32MM)	EA		**15.00**		
5	**TF, Piping & Meter Installation & Commissioning**					
a	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of Commercial Gas meter complete in all respects as per specifications and approved drawings.(up to 10m if GI pipe)	EA		**80.00**		
b	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of MRS complete in all respects as per specifications and approved drawings.(up to 10m GI pipe)	EA		**10.00**		
6	**GI Piping If morethan 10m approval to be taken from the EIC**					
7	**Installation of GI Pipes, Fittings, Valves, warning plate including NPT threading, painting as specified (installation of meters & regulators forms a separate SOR item).**					
	Drillings of holes through walls (Brick, RCC), Granite, Marble, Glass Cutting with proper heavy duty hammer drill machine tools and tackle, using proper sealant/grout of materialized colors to match the original replacement of damages during drilling, restoring the area to original condition.					
	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/lock tight, drilling of holes through tiles/wood/marble/granite etc.					
	Touch up Painting of pipe whereever required on pipes & fittings after proper surface finish by one coat of					

	approved primer paint and two coats of approved synthetic enamel paint complete as per specification & direction of EIC. Restoring the wall surface to original condition.					
	All above activities are to be carried out as per specification to the complete satisfaction of consumer & as desired by Engineer-in-charge.					
	Submission of all documents likeTest Certificates of GI Pipes and fittings etc, Job cards, Testing reports,Ring diagram in Auto CAD & in A4 commissioning reports etc as per the Engineer Incharge Requirements					
	Handing over the completed works to Client for operation/use, reconciliation of material area wise.					
	Any other activity not mentioned/covered, explicitly above, but otherwise required for satisfactory completion/safety/statutory/maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule.					
1.1	Installation/Laying of 1/2 " GI Pipe- All Floors	Meters		**200.00**		
1.2	Installation/Laying of 3/4 " GI Pipe- All Floors	Meters		**200.00**		
1.3	Installation/Laying of 1 " GI Pipe- All Floors	Meters		**300.00**		
Total Amount Without GST (Rs.)						
GST %						
GST Amount (Rs.)						
Total Amount With GST (Rs.)						
Total Amount With GST (Rs.) In Word:						

SCHEDULE OF RATES (STRETCH-5)

TENDER NAME: HIRING OF CONTRACTOR FOR COMMERCIAL & INDUSTRIAL (C&I) CONNECTIONS DMA ACTIVITY, INCLUDING TAPPING OF PE PIPELINE WORK, METER INSTALLATION AND COMMISSIONING IN HYDERABAD GA.

TENDER NUMBER: BGL/733/2026-27

NAME OF BIDDER:

Sl. No.	Description	Units	Unit Rate		Total	Remarks
				Alwyn to BHEL		
	Registration of PNG Consumers **Carrying out the registration of various PNG customers such as commercial as well as industrial consumers from the areas given by BGL in Hyderabad South GA. The registration needs to be carried out as per scope of work and special conditions of contract given in tender. The brief scope of this item is given below:** **1) Carrying out the promotional activities such as organizing events, putting registration camps, distribution of leaflets / pamphlets / FAQ etc. to create awareness regarding use of PNG. The activities shall be conducted as per direction/Instruction of BGL. The content and the material of Leaflets/Pamphlets/FAQ and any other promotional material shall be finalized in consultation with BGL and cost of all these material shall be inclusive of quoted rates.** **2) Enrolment & Registration of various PNG Customers in the given area by BGL and as per the given target.** **3) Distribution and Collection of filled up registration forms along with Cheque of Registration fees/Security Deposit and other documents required for PNG connection.** **4) Submission of registration forms duly filled along with required documents and cheque. The forms shall be submitted in BGL office on weekly basis with datasheet in given format.** **5) If the DMA is not performing, the EIC has the right to assign that front to another DMA.** **All other activities as may be required to get the maximum registration from the area as defined in the Scope of work to be read along with the Special Conditions of Contract and as per instructions of EIC.**					
a	Signing of GSA with Registered Commercial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any commercial consumer having requirement of 200 SCMD and multiples of thereon (Payment paid after completion of every 200SCMD)					

	(200 SCMD considered as one customer and multiples of 200SCMD thereon)	Per 200 SCMD		**13.33**		
b	Signing of GSA with Registered Industrial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any industrial consumer having requirement of 1000 SCMD and multiples of thereon (Payment paid after completion of every 1000SCMD)					
	(1000 SCMD considered as one customer and multiples of 1000 SCMD thereon)	Per 1000 SCMD		**3.33**		
2	**Laying, Testing & Commissioning of Pipeline till the Customer (All types of Roads & All Terrain)**					
a	Transportation of MDPE pipe from store to site, including excavation of road, laying, supply & Installation of fitting and jointing of pipe (below 200m length), testing, pre-commissioning and commissioning activities. The scope also covers liaisoning with statutory/local authorities, disposal of excavated debris, road restoration/backfilling, and submission of backfilling sketches and all relevant statutory/documentary compliances.					
i	125mm mm Pipe (up to 50m)	EA		6.67		
ii	90mm Pipe (up to 50m)	EA		6.67		
iii	63mm Pipe (up to 50m)	EA		10.00		
iv	32mm pipe (up to 50m)	EA		3.33		
v	20mm pipe (up to 50m)	EA		2.00		
vi	125mm mm Pipe (up to 30m)	EA		4.00		
vii	90mm Pipe (up to 30m)	EA		5.33		
viii	63mm Pipe (up to 30m)	EA		6.67		
ix	32mm pipe (up to 30m)	EA		13.33		
x	20mm pipe (up to 30m)	EA		13.33		
XI	32mm pipe (up to 15m)	EA		13.33		
XII	20mm pipe (up to 15m)	EA		13.33		
3	Civil Work					
a	PCC (1:4:8)	CUM				
	M-25			20.00		
b	RCC (sub Structure)	CUM		0.00		
	PROVIDING AND LAYING REINFORCED CEMENT OF GRADE M-25 SUB STRUCTURES			**6.67**		
c	Borrowed Soil	CUM		**3.33**		
d	RCC Route marker	EA		**66.67**		

e	M-25 Brick work Construction	CUM		**4.00**		
f	Rock Breaking	CUM		**16.67**		
g	Providing and Installation of RCC route Marker	EA		**80**		
4	VALVE					
a	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR125MM)	EA		**5.33**		
b	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR 90MM)	EA		**1.33**		
c	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 63MM)	EA		**6.67**		
d	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 32MM)	EA		**10.00**		
5	**TF, Piping & Meter Installation & Commissioning**					
a	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of Commercial Gas meter complete in all respects as per specifications and approved drawings.(up to 10m if GI pipe)	EA		**53.33**		
b	Supply and installation of TF prior to piping works, including supply and installation of <=2" valves, and transportation from store & installation of MRS complete in all respects as per specifications and approved drawings.(up to 10m GI pipe)	EA		**6.67**		
6	**GI Piping If morethan 10m approval to be taken from the EIC**					
7	**Installation of GI Pipes, Fittings, Valves, warning plate including NPT threading, painting as specified (installation of meters & regulators forms a separate SOR item).**					
	Drillings of holes through walls (Brick, RCC), Granite, Marble, Glass Cutting with proper heavy duty hammer drill machine tools and tackle, using proper sealant/grout of materialized colors to match the original replacement of damages during drilling, restoring the area to original condition.					
	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/lock tight, drilling of holes through tiles/wood/marble/granite etc.					
	Touch up Painting of pipe whereever required on pipes & fittings after proper surface finish by one coat of					

	approved primer paint and two coats of approved synthetic enamel paint complete as per specification & direction of EIC. Restoring the wall surface to original condition.					
	All above activities are to be carried out as per specification to the complete satisfaction of consumer & as desired by Engineer-in-charge.					
	Submission of all documents likeTest Certificates of GI Pipes and fittings etc, Job cards, Testing reports,Ring diagram in Auto CAD & in A4 commissioning reports etc as per the Engineer Incharge Requirements					
	Handing over the completed works to Client for operation/use, reconciliation of material area wise.					
	Any other activity not mentioned/covered, explicitly above, but otherwise required for satisfactory completion/safety/statutory/maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule.					
1.1	Installation/Laying of 1/2 " GI Pipe- All Floors	Meters		133.33		
1.2	Installation/Laying of 3/4 " GI Pipe- All Floors	Meters		133.33		
1.3	Installation/Laying of 1 " GI Pipe- All Floors	Meters		200.00		
Total Amount Without GST (Rs.)						
GST %						
GST Amount (Rs.)						
Total Amount With GST (Rs.)						
Total Amount With GST (Rs.) In Word:						

SCHEDULE OF RATES (STRETCH-6)

TENDER NAME: HIRING OF CONTRACTOR FOR COMMERCIAL & INDUSTRIAL (C&I) CONNECTIONS DMA ACTIVITY, INCLUDING TAPPING OF PE PIPELINE WORK, METER INSTALLATION AND COMMISSIONING IN HYDERABAD GA.

TENDER NUMBER: BGL/733/2026-27

NAME OF BIDDER:

Sl. No.	Description	Units	Unit Rate		Total	Remarks
				Erragada to Alwyn (left Side)		
	Registration of PNG Consumers **Carrying out the registration of various PNG customers such as commercial as well as industrial consumers from the areas given by BGL in Hyderabad South GA. The registration needs to be carried out as per scope of work and special conditions of contract given in tender. The brief scope of this item is given below:** **1) Carrying out the promotional activities such as organizing events, putting registration camps, distribution of leaflets / pamphlets / FAQ etc. to create awareness regarding use of PNG. The activities shall be conducted as per direction/Instruction of BGL. The content and the material of Leaflets/Pamphlets/FAQ and any other promotional material shall be finalized in consultation with BGL and cost of all these material shall be inclusive of quoted rates.** **2) Enrolment & Registration of various PNG Customers in the given area by BGL and as per the given target.** **3) Distribution and Collection of filled up registration forms along with Cheque of Registration fees/Security Deposit and other documents required for PNG connection.** **4) Submission of registration forms duly filled along with required documents and cheque. The forms shall be submitted in BGL office on weekly basis with datasheet in given format.** **5) If the DMA is not performing, the EIC has the right to assign that front to another DMA.** **All other activities as may be required to get the maximum registration from the area as defined in the Scope of work to be read along with the Special Conditions of Contract and as per instructions of EIC.**					
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	of thereon (Payment paid after completion of every 200SCMD)					
	(200 SCMD considered as one customer and multiples of 200SCMD thereon)	Per 200 SCMD		**13.33**		
b	Signing of GSA with Registered Industrial Consumers as per the direction of BGL and scope of work to ensure start of supply of Gas to consumers. Any industrial consumer having requirement of 1000 SCMD and multiples of thereon (Payment paid after completion of every 1000SCMD)					
	(1000 SCMD considered as one customer and multiples of 1000 SCMD thereon)	Per 1000 SCMD		**3.33**		
2	**Laying, Testing & Commissioning of Pipeline till the Customer (All types of Roads & All Terrain)**					
a	Transportation of MDPE pipe from store to site, including excavation of road, laying, supply & Installation of fitting and jointing of pipe (below 200m length), testing, pre-commissioning and commissioning activities. The scope also covers liaisoning with statutory/local authorities, disposal of excavated debris, road restoration/backfilling, and submission of backfilling sketches and all relevant statutory/documentary compliances.					
i	125mm mm Pipe (up to 50m)	EA		**6.67**		
ii	90mm Pipe (up to 50m)	EA		**6.67**		
iii	63mm Pipe (up to 50m)	EA		**10.00**		
iv	32mm pipe (up to 50m)	EA		**3.33**		
v	20mm pipe (up to 50m)	EA		**2.00**		
vi	125mm mm Pipe (up to 30m)	EA		**4.00**		
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x	20mm pipe (up to 30m)	EA		**13.33**		
XI	32mm pipe (up to 15m)	EA		**13.33**		
XII	20mm pipe (up to 15m)	EA		**13.33**		
3	**Civil Work**					
a	PCC (1:4:8)	CUM				
	M-25			**20.00**		
b	RCC (sub Structure)	CUM				
	PROVIDING AND LAYING REINFORCED CEMENT OF GRADE M-25 SUB STRUCTURES			**6.67**		
c	Borrowed Soil	CUM		**3.33**		

d	RCC Route marker	EA		**66.67**		
e	M-25 Brick work Construction	CUM		**4.00**		
f	Rock Breaking	CUM		**16.67**		
g	Providing and Installation of RCC route Marker	EA		**80**		
4						
a	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR125MM)	EA		**5.33**		
b	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 1000X1800MM (FOR 90MM)	EA		**1.33**		
c	SUPPLY AND CONSTRUCTION OF CC BLOCKS VALVE PITS OF INTERNAL SIZE 600X600MM (FOR 63MM)	EA		**6.67**		
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	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/lock tight, drilling of holes through tiles/wood/marble/granite etc.					

	Touch up Painting of pipe whereever required on pipes & fittings after proper surface finish by one coat of approved primer paint and two coats of approved synthetic enamel paint complete as per specification & direction of EIC. Restoring the wall surface to original condition.					
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	Submission of all documents likeTest Certificates of GI Pipes and fittings etc, Job cards, Testing reports, Ring diagram in Auto CAD & in A4 commissioning reports etc as per the Engineer Incharge Requirements					
	Handing over the completed works to Client for operation/use, reconciliation of material area wise.					
	Any other activity not mentioned/covered, explicitly above, but otherwise required for satisfactory completion/safety/statutory/maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule.					
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1.2	**Installation/Laying of 3/4 " GI Pipe- All Floors**	Meters		**133.33**		
1.3	**Installation/Laying of 1 " GI Pipe- All Floors**	Meters		**200.00**		
Total Amount Without GST (Rs.)						
GST %						
GST Amount (Rs.)						
Total Amount With GST (Rs.)						
Total Amount With GST (Rs.) In Word:						