CUGL Central U.P. Gas Limited

CENTRAL UP GAS LIMITED
(CITY GAS PROJECT IN KANPUR, UNNAO, BAREILLY & JHANSI)

TENDER FOR EMPANELMENT OF CONTRACTORS FOR D-PNG CONNECTIVITY WORKS IN KANPUR, UNNAO, BAREILLY AND JHANSI FOR A PERIOD OF 1 YEAR

TENDER NO. CUGL/REPL/WORKS/2026/33

VOLUME I OF II
COMMERCIAL VOLUME

OPEN DOMESTIC COMPETITIVE BIDDING
(THROUGH E-TENDERING MODE)

Rev	Date	Description	Prepared by	Checked by	Approved by
0	12.11.2026	Issued for Bids	KC	GS	AN

TABLE OF CONTENTS

SECTION	DESCRIPTION	Page No.
SECTION - I	INVITATION FOR BIDS (IFB)	3 - 11
SECTION - II	INSTRUCTIONS TO BIDDERS (ITB)	12 – 36
SECTION – III	GENERAL CONDITIONS OF CONTRACT (GCC)	37-61
SECTION – IV	SPECIAL CONDITIONS OF CONTRACT (SCC)	62 – 79
SECTION – V	FORMS & FORMATS	80 – 116
SECTION – VI	HEALTH, SAFETY AND ENVIRONMENT [HSE] SPECIFICATIONS	117 -121
SECTION - VII	SCHEDULE OF RATES	122-126

SECTION - I

INVITATION FOR BIDS (IFB)

INVITATION FOR BID (IFB)

Bid Document No.: CUGL/REPL/WORKS/2026/33 **Date: 12.11.2026**

To,

Kind Attn:

Dear Sir,

Central U.P. Gas Limited (CUGL), a joint Venture company between GAIL & BPCL, as part of its service to provide clean fuel to Kanpur, Bareilly & Jhansi city is currently executing City Gas Distribution Project to Supply Natural Gas to Industrial, Commercial and Domestic Consumers and CNG for Vehicles.

1.	**Project**	City Gas Distribution
2.	**Name of Work**	Empanelment of Contractors For D-PNG Connectivity Works in Kanpur, Unnao, Bareilly and Jhansi For a Period of 1 Year
3.	**Scope of Work**	As per Tender Document
4.	**Contract Period**	As per Tender Document
5.	**Bid Validity**	120 days from the bid due date
6.	**Bid Security/EMD**	Type 1 (Main Contractor) : Rs. 2,38,000/- Type 2 (Sub – Contractor) : Rs. 59,500/-
7.	**Pre-Bid Meeting**	19.11.2026: 11:30 Hrs.
8.	**Bid Due Date with Time**	26.11.2026 up to 15:00 Hrs.
9.	**Type of Bid**	Two Bid System
10	**Basis of Evaluation**	Percentage Based

Bidders would have to quote +/- 5 percent variation in the offered SOR, on overall basis.

For & on behalf of Central U.P. Gas Limited

SHEKHAR DEVIDAS KANKREJ

Digitally signed by SHEKHAR DEVIDAS KANKREJ
Date: 2026.11.12 16:50:57 +05'30'

(Shekhar Devidas Kankrej)
Sr. Manager (C&P)

Resonance Energy / CUGL Central U.P. Gas Limited	**INVITATION FOR BIDS (IFB)**	**CUGL/REPL/WORKS/2026/33**

OPEN DOMESTIC COMPETITIVE BID
(THROUGH E-TENDERING MODE)

NOTICE OF INVITATION FOR BIDS (IFB)

TENDER FOR

EMPANELMENT OF CONTRACTORS FOR D-PNG CONNECTIVITY WORKS IN KANPUR, UNNAO, BAREILLY AND JHANSI FOR A PERIOD OF 1 YEAR

TENDER NO. CUGL/REPL/WORKS/2026/33

1. INTRODUCTION

1.1 Central UP Gas Ltd. (CUGL), a joint venture between India's two Maharatna companies, GAIL (India) Limited and Bharat Petroleum Corporation Limited incorporated on 25th February 2005. CUGL was constituted for developing City Gas Distribution project in the State of UP. Central UP Gas Ltd. (CUGL), (hereinafter referred as Purchaser), is supplying Piped Natural Gas (PNG) to domestic, commercial and Industrial consumers and Compressed Natural Gas (CNG) to automobiles in the in Kanpur, Unnao, Bareilly & Jhansi cities in the State of UP.

1.2 Resonance Energy Pvt Ltd (REPL) (hereinafter referred as Consultant), has been appointed by CUGL as the Project Management Consultant for providing consultancy services for development city gas distribution network in Kanpur, Unnao, Bareilly & Jhansi cities in the State of UP.

2. BRIEF DESCRIPTION OF PROJECT

2.1 The present project is for providing Domestic-PNG Connectivity in Kanpur, Unnao, Bareilly and Jhansi through PMC, M/s REPL.

2.2 REPL on behalf of CUGL invites bids through single bid two-stage system from eligible bidders for Rate Contract and Empanelment of Contractors for Laying of MDPE Pipe, installation of GI/Cu/MLC pipe and Associated Works for City Gas Distribution Project at Kanpur, Unnao, Bareilly & Jhansi for 1 years.

3. BRIEF SCOPE

3.1 The main scope of work comprises laying, testing, and commissioning of underground Polyethylene (PE) main and service pipelines network of sizes ranging from 20 mm up to 125 mm Dia. along with last mile connectivity (LMC) upto burner, in all the households allocated by CUGL for PNG Connections to Domestic consumers for City Gas Distribution project including fabrication and installation of markers, civil foundation works, installation of Valve chambers, Installation of Service Regulator (SR) and Restoration as per SOR. The scope also covers all the activities associated with the supply of materials (except free issue items).

3.2 For detailed Scope of work and specifications, refer Technical volume II of II.

4. EMPANELMENT PERIOD

4.1 The Period of Contract shall be One (01) year from the date of empanelment.

4.2 The mobilization period shall be 15 days from date of Letter of Intent (LOI) or Letter of Award (LOA) of the work, which is within the contract period.

5. BID VALIDITY

Bid should be valid for **120** days from the date of schedule submission.

6. BIDDING PROCEDURE

6.1 Bidding will be conducted through **Open Domestic Competitive Bidding basis**. Single stage two bid system is adopted for this tender.

6.2 The submission and opening of bids will be through e-tendering mode at https://etenders.gov.in/eprocure/app . Tender document can be downloaded from the website https://etenders.gov.in/eprocure/app or from e-tender link given on official CUGL website www.cugl.co.in

6.3 ***Note:***

(1) To participate in the e-tendering, it is mandatory for the bidders to have user ID & password. For this purpose, the bidder has to register itself on CPPP's website https://etenders.gov.in/eprocure/app . Please also note that the bidder has to obtain digital signature token for applying in the tender and in general, activation of registration may take 24 hours' subject to the submission of all requisite documents required in the process.

(2) CUGL in no way shall be responsible if the bidder fails to apply due to non-possession of Digital Signature & non-registration

(The bids must be submitted online in electronic form on https://etenders.gov.in/eprocure/app only. No physical bids will be accepted.).

7. DETAILS OF BID DOCUMENTS

7.1	Tender Document Number	CUGL/REPL/WORKS/2026/33, **Dated 12/11/2026**
7.2	Availability of tender document on tendering website.	**12/11/2026 to 26/11/2026 till 1500hrs.**
7.3	Name of Work	Empanelment of Contractors For D-PNG Connectivity Works in Kanpur, Unnao, Bareilly and Jhansi For a Period of 1 Year
7.4	Pre bid meeting	On **19/11/2026** at 11:30 HRS. IST through video conferencing: To join the video Pre-Bid meeting on Microsoft Teams click this link https://teams.live.com/dl/launcher/launcher.html?url=%2F_%23%2Fmeet%2F9376582969316%3Fp%3DcWG9xXw0bv2UedDcFC%26anon%3Dtrue&type=meet&deeplinkId=671a64de-41df-4ed6-977c-1c745c4adc3b&directDl=true&msLaunch=true&enableMobilePage=true&suppressPrompt=true Meeting ID: 937 658 296 931 6 Passcode: T3A4q6 Download Teams | Join on the web
7.5	Bid Submission date and time	**26/11/2026** till 15:00 HRS. IST, on tendering website https://etenders.gov.in/eprocure/app
7.6	Price bid opening date and time	Date and time shall be intimated later
7.7	Address for opening of bids through e-tendering website https://etenders.gov.in/eprocure/app	Sr.Manager (C&P) E-mail: shekhar.kankrej@cugl.co.in **Central U. P. Gas Limited** 7th Floor, UPSIDC Complex, A-1/4, Lakhanpur, Kanpur-208024

NOTE:

Please note that in accordance with the general conditions of tender, CUGL may amend these dates of the tender process at its sole discretion. In case any of the specified dates are declared a public holiday, the deadline shall be the next working date.

Bidders meeting the bid evaluation criteria who intend to submit their bid may download the tender for submission by the bid due date and time. Bidder shall give an undertaking on his letter-head that the contents of the bidding document have not been altered or modified. Bid evaluation criteria shall be applicable for all the bidders.

Any revision, clarification, addendum, corrigendum, time extension, etc. to this Tender Document will be hosted on the website mentioned above.

Disclaimer clause: Bidders are advised to visit e-tendering website and CUGL website regularly for any updates on the tender. The ignorance to visit the website will not be accepted as a reason for any gap / missing information like corrigenda, amendments, clarifications etc.

Bid shall be uploaded in two parts as below:

PART- I (UN-PRICED BID)

Un-priced bid must be completed with all technical details along with all other required documents including price schedule WITH PRICE BLANKED OUT etc. as per clause no. 28.1 of ITB.

Following documents need to be uploaded along with Un-Priced bid on e-Portal.

i) EMD/Bid Security

ii) Power of Attorney

iii) Forms & Formats as per Section – V

PART-II (PRICED BID)

1. Priced bid shall agree for the offered unit Rates in the SOR without any conditions as per clause no. 27.2 of ITB.

8. BIDDER EVALUATION CRITERIA (BEC)

There are two set of BECs to empanel both type of contractors as stated below:

a) Type 1: Main Contractor
b) Type 2: Sub-Contractor.

8.1 TECHNICAL

TYPE 1	Contractor should have executed similar contracts/orders of at least **INR 50.00 Lacs**, exclusive of taxes (value executed up-to the date of bid submission shall also be considered) under single contract/order within last 7 (seven) years reckoned from bid due date.
TYPE 2	Contractor should have executed contracts/orders of at least **INR 12.50 Lacs,** exclusive of taxes (value executed up-to the date of bid submission shall also be considered) under single contract/order (Similar works Directly from CGD company/Main Contractor from CGD Company) within last 7 (seven) years reckoned from bid due date.

Similar Work: The bidders who have worked directly in MDPE/GI/Cu for any project in any City Gas Distribution Company in India shall be considered in subject tender.

8.2 FINANCIAL

8.2.1 Annual Turnover

ANNUAL TURNOVER	**TYPE 1**	The bidder should have achieved minimum annual turnover of at least **Rs. 59.59 Lacs** as per their audited financial results during any one of the preceding three (03) financial years.
	TYPE 2	The bidder should have achieved minimum annual turnover of at least **Rs. 14.90 Lacs** as per their audited financial results during any one of the preceding three (03) financial years.

8.2.2 Net Worth

The net worth of the bidder must be **positive** as per preceding financial year audited financial statement.

8.2.3 Working Capital

WORKING CAPITAL	**TYPE 1**	The minimum working capital of the Bidder should be minimum Rs. **11.92 Lacs** as per the last audited financial statement of the immediately preceding financial year.
	TYPE 2	The minimum working capital of the Bidder should be minimum Rs. **2.98 Lacs** as per the last audited financial statement of the immediately preceding financial year.

Note:

- If the bidder's working capital is inadequate, the bidder should supplement this with a letter from the bidder's bank, having a net worth of not less than Rs. 100 crores, confirming the availability of a line of credit to cover the inadequacy of the previous year and meet the current working capital requirement.
- In case of tenders having the bid closing date up to 30th September of the relevant financial a1s and audited financial results of immediate 3 (three) preceding financial years being not available, the bidder has an option to submit the audited financial results of three years immediately prior to that relevant financial year. Wherever, the bid closing date is after 30th September of the relevant financial year, bidder has to compulsorily submit the audited financial results of immediate preceding three financial years.
- Bidder shall meet the qualification criteria as stated Bid Evaluation Criteria. Bidder shall furnish following documents along with the bid, to justify meeting the stipulated qualification criteria.

  Annual audited reports including Balance Sheets and Profit & Loss account statement for which the data to be provided so that the data provided above can be verified. In case, Audit is not mandatory as per the Statutory Norms for Bidder, the bidder is required to submit a copy of the Annual Accounts duly certified by a Chartered Accountant along with the copy of Income Tax Return.

  Owner reserves the right to get direct feedback from user on satisfactory performance. If bidder fails to provide the requisite documents, CUGL reserves the right to reject the Bid

- Bidder to give their token of acceptance to the offered rates as given in the SOR, duly signed and stamped

9. THE DOCUMENTS REQUIRED TO BE SUBMITTED BY THE BIDDER TO SUBSTANTIATE THEIR QUALIFICATION UNDER BIDDER EVALUATION CRITERIA (BEC) SHALL BE AS FOLLOWS:

BEC Clause no.	Type	Documents required.
8.1.1 (Technical)	**Type 1**	a) Copy of Purchase / Work Order issued by City Gas Distribution Company in India b) Bidder to note that in submitted Purchased order / work order along with detailed SOR clearly describing scope of work issued by client company. c) Certificate from owner / client certifying executed amount against the said PO / WO or the work completion certificate issued against the PO / WO by the client company or client authorized PMC to contractor. d) Execution / Completion Certificate issued by client company to the contractor.
	Type 2	1. Purchase Order / Work Order copy issued by City Gas Distribution Company in India or Purchase Order / Work Order copy issued by Main CGD Contractor Company in India. 2. Copy of SOR issued, clearly describing the scope of work by client Company/ Copy of SOR issued, clearly describing the scope of work by main CGD Contractor Company. 3. Certificate from owner / client certifying executed amount against the said PO / WO or the work completion certificate issued against the PO / WO by the client company or client authorized PMC to contractor or authorized main contractor. 4. Execution / Completion Certificate issued by Client Company to the main contractor/ Execution / Completion Certificate issued by Main Contractor for a of CGD company.
8.2.1 Annual Turnover	**Bidder must submit:** Audited Financial statements including Balance sheet and Profit & Loss Account etc. for three preceding financial years	
8.2.2 Net Worth	**Bidder must submit:** Audited Financial statements including Balance sheet and Profit & Loss Account etc. for immediate preceding financial year	
8.2.3 Working Capital	**Bidder must submit:** Audited Financial statements including Balance sheet and Profit & Loss Account etc. for immediate preceding year In case of inadequate or negative working capital, Letter from the bidder's Bank **(as per format F-15),** having net worth not less than Rs. 100 Crores, confirming the availability of the line of credit for at least working capital requirement as stated in BEC. Certificate from Chartered Accountant for details of financial capability **(F-16).**	

Note: -

- Owner reserves the right to get direct feedback from user on satisfactory performance.

- **All the documents furnished by the bidder in support of "Bid Evaluation Criteria (BEC) – Technical" shall be necessarily certified / attested by Chartered Engineer and Notary Public with signature and legible stamp.**
- **All the documents furnished by the bidder in support of "Bid Evaluation Criteria (BEC) – Commercial" shall be necessarily certified / attested by Chartered Accountant and Notary Public with signature and legible stamp.**
- If bidder fails to provide the requisite documents, CUGL/REPL reserves the right to reject the Bid.
- The Bidder shall be required to submit the Documentation and Proof for above BEC requirements and Purchaser (CUGL) may at its discretion make additional checks for the same.
- It shall be noted that in case bidder fails to submit requisite details/ documents, the bid submitted by them is liable to be rejected.
- CUGL's decision shall be final with respect to bidder's qualification based on bid evaluation criteria.

10. BID SECURITY/EARNEST MONEY DEPOSIT (EMD)

10.1 All bids must be accompanied by a bid security amount of

S.No	TYPE	EMD AMOUNT (INR)
1	TYPE -1 (MAIN CONTRACTOR)	2,38,500/-
2	TYPE-2 (SUB CONTRACTOR)	59,600/-

10.2 Bids must be accompanied with 'Earnest Money / Bid Security' in the form of 'Demand Draft' [in favor of Central UP Gas Limited, payable at Kanpur] or 'Banker's Cheque' or 'Bank Guarantee' as per the format given in Form -4 of the bidding documents. Bidders shall ensure that 'Bid Security', having a validity of at least ' two [02] months' beyond the validity of the bid, must accompany the Bid in the format(s) made available in the Bidding Document. Bid not accompanied with 'Bid Security', or 'Bid Security' not in requisite form shall be liable for rejection. The Bid Security shall be submitted in Indian Rupees only.

10.3 Bidders can also submit MSME certificate for MSEs (Micro & Small Enterprises) for exemption from submission of EMD in accordance with the MSME act. This exemption is not extended to the traders/dealers/Distributors/stockiest /wholesalers.

10.4 In case Bidders registered with NSIC or District Industries Center (DIC) as small/Micro Category Enterprises are exempted from submission of EMD. The above exemption is not extended to the traders/dealers/Distributors/stockiest /wholesalers.

10.5 Bid Security should be in favor of Central UP Gas Limited and addressed to CUGL. In case Bid Security is in the form of 'Bank Guarantee' the same must indicate the Bid Document No. and the Work for which the Bidder is quoting. This is essential to have proper correlation at a later date. The 'Bid Security' should be in the form provided in tender document.

NOTE:

In case of any conflict among the various documents of this requisition, the **BEC** requirement shall govern. Compliance with these specifications shall not relieve the bidder of the responsibility of furnishing equipment and accessories of proper design, material and workmanship to meet the specified operating conditions. No deviations to the technical requirements and to the scope of supply specified in this enquiry document shall be accepted and offers not in compliance to the same shall be rejected. In case a deviation is required due to inherent design of the equipment offered, the bidder shall list all such deviations at one place giving reasons thereon.

10.6 Bid security / EMD against e-tender can be submitted either through online/RTGS e-payment mode available on e-tender portal or in the form of BG/Demand Draft in favour of **Central UP Gas Limited, payable at Kanpur** or in the form of Bank Guarantee from any Nationalized/ Scheduled Indian Bank or by the branch of a reputable international bank located in India, as per proforma attached in the Tender document. Bid security in the form of Bank Guarantee shall be valid for sixty (60) days beyond the validity of the bid i.e. 180 days from scheduled date of bid submission.

10.7 Bid security/EMD can also be submitted through online transaction directly to Central U.P. Gas Limited account as mentioned below. Bidders opting for this mode of EMD shall be required to upload the successful transaction details along with their bid under the EMD section of the portal, failure of which may render the bid liable for rejection.

Name of A/c Holder	Central U P Gas Limited
Bank Name	Union Bank of India
Account No.	455201011012003
IFSC	UBIN0563081
Bank Name	Union Bank of India
Bank Address	Trade Tax Office Lakhanpur Road Dist Kanpur-208024

10.8 Bidders have to upload scanned copy of their EMD on the e-tender portal. During bid opening, any bid uploaded without such scanned copy shall be summarily rejected. Bidders submitting bid security in the form other than that of online transaction, shall submit the same in physical form to HOD (C&P), C&P Department, Central U.P. Gas Limited 7th Floor, UPSIDC Complex,A-1/4, Lakhanpur, Kanpur-208024 within 7 working days from the date of bid opening, failure of which may render the bid liable for rejection.

10.9 PSUs and firms registered as Micro/Small Enterprise with MSME or NSIC are exempted from furnishing Earnest Money Deposit (EMD) / Bid Security, (subject to their enclosing a copy of latest and valid registration certificate for the tendered products/services) with their bid Traders / Dealers / Distributors / Stockist / Wholesalers are not entitled for exemption of Earnest Money Deposit (EMD) / Bid Security.

10.10 Subject to exemption permissible, offers without Earnest Money Deposit (EMD) / Bid Security will not be considered and will be summarily rejected.

11. BIDDING ENTITY

11.1 Bids may be submitted by an entity (sole domestic bidder) and must be duly registered with GST.

11.2 Bidding through JV or in a consortium is not permitted.

11.3 Sole bidder shall meet each requirement of the Bid Evaluation Criteria (BEC) as mentioned above.

12. PRE-BID MEETING

12.1 The bidder(s) or their designated representatives, who have downloaded the bid document, or to whom tender document has been issued and who intend to bid are invited to attend the pre-bid meeting. Bidder(s) queries if any, must reach Purchaser at least one day prior to pre-bid meeting date. The pre bid meeting shall be organized online. Owner will not entertain any queries received after 1800 HRS post one (1) day of pre-bid meeting.

12.2 Non-attendance of the pre-bid meeting will not be a cause for disqualification of a bidder. Corrigendum / addendum, if any, to the tender document, shall be hosted on the website subsequent to the pre-bid meeting.

13. GENERAL

13.1 The bids received after bid due time/ date shall be rejected.

13.2 Bids through E-MAIL are not acceptable.

13.3 CUGL reserves the right to reject any or all the bids received at its discretion without assigning any reason whatsoever.

13.4 Owner/ Consultant will not be responsible for cost incurred in preparation and delivery of bids.

13.5 Bid document is non-transferable. Bid received from the bidders in whose name bid document fee has been submitted shall only be considered. Bidder must submit the bid document fee in their name. Bid document fee shall be submitted by the bidder as defined in tender document.

13.6 **Contact details of owner is given below:**

(1) NAME: Mr. Shekhar Devidas Kankrej
E-mail: shekhar.kankrej@cugl.co.in

(2)NAME : Ms Sushmita
E-mail: sushmita@cugl.co.in

SECTION – II

INSTRUCTIONS TO BIDDERS (ITB)

A. *INSTRUCTIONS TO BIDDERS/INSTRUCTION FOR ONLINE BID SUBMISSION*

SECTION -A

Bidders are advised to complete the registration with e-tender portal https://etenders.gov.in at least two working days prior to bid submission date.

Please note that in accordance with the general conditions of tender, CUGL may amend these dates of the tender process at its sole discretion. In case any of the specified dates are declared a public holiday, the deadline shall be the next working date.

BIDDING PROCEDURE

Bidding will be conducted through Open Domestic Tendering. Single Stage Two Bid system is adopted for this tender. The submission and opening of bids will be through e-tendering mode at https://etenders.gov.in/eprocure/ app. Tender document can be downloaded from the website https://etenders.gov.in/eprocure/app or from e-tender link given on official CUGL website www.cugl.co.in

Note: To participate in the e- tendering, it is mandatory for the bidders to have user ID & password. For this purpose, the bidder has to register itself on CPPP's website https://etenders.gov.in/eprocure/app . Please also note that the bidder has to obtain digital signature token for applying in the tender and in general, activation of registration may take 24 hours' subject to the submission of all requisite documents required in the process.

Note: CUGL shall in no way be held responsible or liable for any failure, error, or delay on the part of any bidder in submitting their bid within the stipulated time. This includes, but is not limited to, non-possession or invalidity of a required Digital Signature, failure to complete user registration on the portal, or any technical reason, system error, network failure, or portal malfunction. Bidders are advised to ensure all prerequisite digital certificates, user credentials, and technical setups are in place well before the bid submission deadline, as no claims or requests for timeline relaxation on account of technical difficulties shall be entertained by CUGL.

(The bids must be submitted online in electronic form on https://etenders.gov.in/eprocure/app only. No physical bids will be accepted.)

DOWNLOADING OF TENDER DOCUMENT

The tender document is available for downloading from CPPP's e-tendering website https://etenders.gov.in/eprocure/app or from e-tender link given on official **CUGL** website www.cugl.co.in for viewing / participation of the eligible bidders. Bidders meeting the bid evaluation criteria who intend to submit their bid may download the tender for submission by the bid due date and time. Biddershall give an undertaking on his letterhead that the contents of the bidding document have not been altered or modified. Bid evaluation criteria shall be applicable for all the bidders.

Disclaimer clause: Bidders are advised to visit CPPP's e-tendering website and CUGL website regularly for any updates on the tender. The ignorance to visit the website will not be accepted as a reason for any gap / missing information like corrigenda, amendments, clarifications etc.

B. INSTRUCTIONS TO BIDDERS/INSTRUCTION FOR ONLINE BID SUBMISSION

SECTION -B

The bidders are required to submit soft copies of their bids electronically on the Central Public Procurement (CPP) Portal i.e. http://etendrs.gov.in/eprocure/app using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

REGISTRATION:

(i) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: https://etenders.gov.in/eprocure/app) by clicking on the link "Online Bidder Enrolment" option available on the home page. **Enrolment on the CPP Portal is free of charge.**

(ii) During enrolment/ registration, the bidders should provide the correct / true information including valid email-id & mobile no. All the correspondence shall be made directly with the contractors / bidders through email-id provided.

(iii) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.

(iv) For e-tendering, possession of valid Digital Signature Certificate (Class III Certificates with signing key usage) is mandatory which can be obtained from SIFY /nCode/eMudra or any Certifying Authority recognized by CCA India on eToken/ Smart Card.

(v) Upon enrolment on CPP Portal for e-tendering, the bidders shall register their valid Digital Signature Certificate with their profile.

(vi) Only one valid DSC should be registered by a bidder. Bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse and should ensure safety of the same.

(vii) Bidders can then log into the site through the secured login by entering their user ID/ password and the password of the DSC/ eToken.

C. SEARCHING FOR TENDER DOCUMENTS:

(i) There are various search options built in the CPP Portal to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine several search parameters such as organization name, form of contract, location, date, other keywords, etc., to search for a tender published on the CPP Portal.

(ii) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.

(iii) The bidder should make a note of the unique Tender ID assigned to each tender in case they want to obtain any clarification / help from the Helpdesk.

D. PREPARATION OF BIDS:

(i) For preparation of bid, Bidders shall search the tender from published tender list available on site and download the complete tender document and should consider corrigendum if any published before submitting their bids.

(ii) After selecting the tender document same shall be moved to the 'My favorite' folder of bidders account from where bidder can view all the details of the tender document.

(iii) Bidder shall go through the tender document carefully to understand the documents required to be submitted as part of the bid. Bidders shall note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

(iv) Any pre-bid clarifications if required, then same may be obtained online through the tender site, or through the contact details given in the tender document.

(v) Bidders should get ready in advance the bid documents in the required format (PDF/xls/rar/dwf/jpg formats) to be submitted as indicated in the tender document/schedule. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

(vi) Bidders can update well in advance, the documents such as experience certificates, annual report, PAN, EPF & other details etc., under "My Space/ Other Important Document" option, which can be submitted as per tender requirements. This will facilitate the bid submission process faster by reducing upload time of bids.

E. SUBMISSION OF BIDS:

(i) Bidder should log into the site well in advance for bid submission so that he/ she upload the bid in time i.e., on or before the bid submission time. Bidder will be responsible for any delay.

(ii) Bidder should prepare the EMD as per the instructions specified in the NIT/ tender document. The details of the DD/BG/others physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise, the uploaded bid will be rejected.

(iii) While submitting the bids online, the bidder shall read the terms & conditions (of CPP portal) and accepts the same to proceed further to submit their bid.

(iv) Bidders shall select the payment option as offline to pay the EMD and enter details of the DD/BG/others.

(v) Bidder shall digitally sign and upload the required bid documents one by one as indicated in the tender document.

(vi) Bidders shall note that the very act of using DSC for downloading the tender document and uploading their offers is deemed to be a confirmation that they have read all sections and pages of the tender document without any exception and have understood the complete tender document and are clear about the requirements of the tender document.

(vii) Bid documents may be scanned with 100 dpi with black and white option that helps in reducing size of the scanned document. For the file size of less than 1 MB, the transaction uploading time will be very fast.

(viii) If price quotes are required in XLS format, utmost care shall be taken for uploading Schedule of quantities & Prices and any change/ modification of the price schedule shall render it unfit for bidding. Bidders shall download the Schedule of Quantities & Prices i.e., Schedule of Rates, in XLS format and save it without changing the name of the file. Bidder shall quote their rate in figures in the appropriate cells, thereafter, save and upload the file in financial bid cover (Price bid) only.

(ix) If the template of Schedule of Quantities & Prices file is found to be modified/corrupted in the eventuality by the bidder, the bid will be rejected and further dealt as per provision of tender including forfeiture of EMD.

(x) The bidders are cautioned that uploading of financial bid elsewhere i.e., other than in cover 2 will result in rejection of the tender.

(xi) Bidders shall submit their bids through online e-tendering system to the Tender Inviting Authority (TIA) well before the bid submission end date & time (as per Server System Clock). The TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders at the eleventh hour.

(xii) After the bid submission (i.e., after Clicking "Freeze Bid Submission" in the portal), the bidders shall take print out of system generated acknowledgement number and keep it as a record of evidence for online submission of bid, which will also act as an entry pass to participate in the bid opening.

(xiii) Bidders should follow the server time being displayed on bidder's dashboard at the top of the tender site, which shall be considered valid for all actions of requesting, bid submission, bid opening etc., in the e-tender system.

(xiv) All the documents being submitted by the bidders would be encrypted using PKI (Public Key Infrastructure) encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128-bit encryption technology.

F. *ASSISTANCE TO BIDDERS:*

(i) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contract person indicated in the tender.

(ii) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24X7 CPP Portal Helpdesk. The 24 x 7 Help Desk Number 0120-4001002, 0120-4001 005 and 0120-6277 787. The helpdesk email id is support-eproc@nic.in

G. FOR TENDER RELATED QUERIES:

(i) NAME : Mr. Shekhar Devidas Kankrej
E-mail: shekhar.kankrej@cugl.co.in

(ii) NAME : Ms Sushmita
E-mail: sushmita@cugl.co.in

A. GENERAL

1.0 SCOPE OF BID:

1.1 The Employer/ Owner/ CUGL as defined in the "General Conditions of Contract [GCC]", wishes to receive Bids as described in the Bidding Document/Tender document issued by Employer/Owner/CUGL.

1.2 SCOPE OF BID: The scope of work/ Services shall be as defined in the Bidding documents.

1.3 The successful bidder will be expected to complete the scope of Bid within the period stated in Special Conditions of Contract.

1.4 Throughout the Bidding Documents, the terms 'Bid', 'Tender' & 'Offer' and their derivatives [Bidder/Tenderer, Bid/Tender/Offer etc.] are synonymous. Further, 'Day' means 'Calendar Day' and 'Singular' also means 'Plural'.

2.0 ELIGIBLE BIDDERS:

2.1 The Bidder shall not be under a declaration of ineligibility by Employer for Corrupt & Fraudulent practices, as defined in "Instructions to Bidders [ITB], Clause No. 41"

2.2 The Bidder is not put on 'Holiday' by CUGL or banned/blacklisted by Government department/ Public Sector on due date of submission of bid. If the bidding documents were issued inadvertently/ downloaded from website, offers submitted by such bidders shall not be considered for opening/ evaluation/Award and will be returned immediately to such bidders.

In case there is any change in status of the declaration prior to award of contract, the same has to be promptly informed to CUGL by the bidder.

It shall be the sole responsibility of the bidder to inform CUGL in case the bidder is put on 'Holiday' by CUGL or banned/blacklisted by Government department/ Public Sector on due date of submission of bid and during the course of finalization of the tender. Concealment of the facts shall tantamount to misrepresentation of facts and shall lead to action against such Bidders as per clause 41 of ITB.

2.3 The Bidder shall not be under liquidation, compulsory winding-up, court receivership, corporate insolvency resolution process (CIRP) under the Insolvency and Bankruptcy Code, 2016, or any other analogous or similar proceedings before any court, tribunal, or statutory authority as on the bid submission due date. No such insolvency proceedings shall have been initiated, admitted, or be pending against the Bidder, nor shall any receiver or manager be appointed over its assets. Any misrepresentation, deliberate omission, or change in status during the tender process or contract execution shall render the bid liable for summary rejection or the contract liable for termination at the sole discretion of CUGL, at the sole risk, cost, and consequence of the Bidder.

2.4 In case there is any change in status of the declaration prior to award of contract, the same has to be promptly informed to CUGL by the bidder.

2.5 It shall be the sole responsibility of the Bidder to immediately notify CUGL of any change in its legal status or initiation of any proceedings specified in Clause 2.3 above during the currency of the tender process or contract period. Concealment, non-disclosure, or suppression of such facts shall be deemed as willful misrepresentation and shall render the Bidder liable for summary rejection of the bid, annulment of the award, forfeiture/encashment of Bid Security/Earnest Money Deposit (EMD) and/or Contract Performance Security /

Performance Bank Guarantee (PBG), and/or termination of the contract, along with debarment from participating in future tenders of CUGL, at the sole risk, cost, and consequence of the Bidder.

2.6 Bidder shall not be affiliated with a firm or entity:

(i) that has provided consulting services related to the work to the Employer during the preparatory stages of the work or of the project of which the works/services forms a part of or

(ii) that has been hired (proposed to be hired) by the Employer as an Engineer/ Consultant for the contract.

2.7 Pursuant to qualification criteria set forth in the bidding document, the Bidder shall furnish all necessary supporting documentary evidence to establish Bidder's claim of meeting qualification criteria.

3.0 BIDS FROM JOINT VENTURE/CONSORTIUM

NA

4.0 ONE BID PER BIDDER

4.1 A Firm/Bidder shall submit only 'one [01] Bid' in the same Bidding Process. A Bidder who submits or participates in more than 'one [01] Bid' will cause all the proposals in which the Bidder has participated to be disqualified.

4.2 Alternative Bids shall not be considered.

5.0 COST OF BIDDING

5.1 The Bidder shall bear all costs associated with the preparation and submission of the Bid including but not limited to Bank charges all courier charges including taxes & duties etc. incurred thereof. Further, CUGL will in no case, be responsible or liable for these costs, regardless of the outcome of the bidding process.

6.0 SITE VISIT

6.1 The Bidder is advised to visit and examine the site of works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a Contract for the required job. The costs of visiting the site shall be borne by the Bidder.

6.2 The Bidder or any of its designated personnel representatives, or agents shall be granted permission by the Employer to enter upon its premises and land and project sites strictly for the purpose of such visits, but only upon the express conditions that the Bidder, its personnel and agents shall fully release, defend, and indemnify the Employer and its officers, employees, representatives, and agents from and against all liabilities in respect thereof, and will be responsible for death or injury, loss or damage to property, (whether belonging to the Employer, Bidder, or third parties), as well as any direct, indirect, or consequential losses, damages, costs, and expenses incurred as a result of or in connection with such inspection.

6.3 The Bidder shall not be entitled to hold any claim against CUGL for non-compliance due to lack of any kind of pre-requisite information as it is the sole responsibility of the Bidder to obtain all the necessary information with regard to site, surrounding, working conditions, weather etc. on its own before submission of the bid.

7.0 CONTENT OF BIDDING DOCUMENT

7.1 The contents of bidding documents/Tender documents are those stated below and should be read in conjunction with any addenda/corrigendum issued in accordance with ITB clause no. 9.0

- Section –I : Invitation for bids (IFB)
- Section II : Instructions to Bidders (ITB)
- Section –III : General Conditions of Contracts (GCC)
- Section-IV : Special Conditions of Contracts (SCC)
- Section-V : Forms & Format
- Section –VI : HSE Specification
- Section-VII : Price schedule/Schedule of Rates (SOR)

7.2 The bidder is expected to examine all instructions, forms, terms, specifications and drawings in the bidding documents. The Bidding Document together with all its attachment there to, shall be considered to be read Understood and accepted by the bidder. Failure to furnish all information required by the Bid Documents or Submission of a bid not substantially responsive to the Bidding Documents in every respect will be at bidders risk and may result in the rejection of the Bid.

8.0 CLARIFICATION ON BID DOCUMENTS

8.1 A prospective bidder requiring any clarification of the Bidding Documents may notify OWNER in writing or by fax or e-mail at the address indicated in the Invitation for Bids. OWNER will respond in writing to any request for clarification of the Bidding documents, which it receives not later than 5 days prior to the deadline for the submission of bids prescribed by OWNER. Written copies of OWNER response (including an explanation of the query but without identifying the source of the query) will be sent to all bidders to whom the biding documents were issued. Any Clarification or information required by the bidder and not received within the stipulated period shall be liable to be considered as no clarification/information required.

8.2 In case pre-bid conference is envisaged, all quotations/queries should be referred to OWNER at least 3 days before scheduled date of pre bid conference/meeting. The questions/queries received by OWNER prior to pre-bid conference/meeting will be replied in the pre-bid conference/meeting.

9.0 AMENDMENT OF BID DOCUMENTS

9.1 At any time prior to the deadline for submission of bids, the OWNER may, for any reason, whether on its own requirement or in response to a clarification requested by prospective bidders, modify the Bidding Documents by issuing addenda/corrigendum.

9.2 Any addendum thus issued shall be part of the Bidding Documents and shall be notified in writing by fax/post/email to all the bidders to whom the bidding documents were issued. Prospective bidders shall promptly acknowledge receipt of each addendum by fax/post/email to the Owner/ Consultant and take the same in the account all such addendum before submitting their bids.

9.3 The OWNER/Consultant may, at its discretion, extend the date of submission of Bids in order to allow the bidders a reasonable time to furnish their most competitive bid taking into account the amendments issued.

C. PREPARATION OF BIDS

10.0 LANGUAGE OF BID

10.1 The bid prepared by the bidder, all correspondence/drawings and documents relating to the bid exchanged by the bidder with the OWNER/Consultant shall be written in English Language alone provided. Any printed literature furnished by the bidder may be written in another language so long as accompanied by an English translation duly authentication by the chamber of commerce of bidders country, in which case, for the purpose of interpretation of the bid, the English translation shall govern.

10.2 In the event of submission of any document/certificate by the bidder in a language other than English, the Bidder shall submit the English translation of the same duly authenticated by Chamber of Commerce of Bidder's country.

11.0 DOCUMENTS COMPRISING THE BID

11.1 The bid prepared by the bidder shall comprise the following:

11.1.1 **Part-I: TECHNO-COMMERCIAL UN-PRICED BID (PART-1)**

Part-I: Techno-commercial/un-priced Bid shall contain the following documents:

a) 'Covering Letter' on Bidder's 'Letterhead' clearly specifying the enclosed contents.
b) 'Bidder's General Information', as per 'Form F-1'.
c) 'Bid Form', as per 'Form F-2'
d) Copies of documents, as required in 'Form F-3'
e) As a confirmation that the prices are quoted in requisite format complying with the requirements copy of Schedule of Rate (SOR) with prices blanked out mentioning quoted / not quoted (as applicable) written against each item.
f) 'Letter of Authority' on the Letter Head, as per 'Form F-5'
g) 'No Deviation Confirmation', as per 'Form F-6'
h) 'Bidder's Declaration regarding Bankruptcy', in 'Form F-7'
i) 'Certificate for Non-Involvement of Government of India ' from Bidder, as per 'Form F-8'
j) 'Agreed Terms and Conditions', as per 'Form F-10'
k) Duly attested documents in accordance with the "BID EVALUATION CRITERIA [BEC]" establishing the qualification.
l) Undertaking on the Letter head, as per the Form F-12.
m) Bidder's Experience Form-13
n) Check List Form-14
o) Format for certificate from bank if bidder's working capital is inadequate Form-15
p) Annual Turnover for last 3 year & Financial Data for last Financial Year Certificate for financial capability of the bidder Format for statutory auditor's / chartered accountant Form-16
q) Power of Attorney for authorized signatory in non-judicial stamp paper, duly notarized by a Public Notary, or a certified copy of Board Resolution (in case the Bidder is a company registered under the Companies Act, 1956 or 2013). the authorized signatory shall be signing the bid and any consequence resulting due to such signing shall be binding on the bidder.
r) Any other information/details required as per Bidding Document
s) All forms and Formats including Annexures.
t) EMD /Bid Security
u) Tender document duly signed by authorized signatory.
v) All the pages of the Bid must be signed by the "Authorized Signatory" of the Bidder.

Further, Bidders are required to upload the scanned copy of EMD/ Bid Security on e-tender portal within due date & time, the hard copy of same must be received in CUGL office, in a sealed envelope, superscribing the details of Tender Document (i.e. tender number & tender for) within 5 days from the Bid Due Date.

Sr.Manager (C&P)
Central UP Gas Ltd,
UPSIDC Complex 7th Floor, A-1/4,
Lakhanpur, Kanpur,
Uttar Pradesh 208024

Bidders are required to submit the EMD in original by Bid Due Date and Time or upload a scanned copy of the same in the Part-I of the Bid. If the Bidder is unable to submit EMD in original by Bid Due Date and Time, the Bidder is required to upload a scanned copy of the EMD in Part-I of Bid, provided the original EMD, copy of which has been uploaded, is received within 5 days from the Bid Due Date, failing which the Bid will be rejected irrespective of their status/ranking in tendering process and notwithstanding the fact that a copy of EMD was earlier uploaded by the Bidder.

11.1.2 **PART-II : "PRICE BID –**
(NOT TO OPEN WITH TECHNO-COMMERCIAL UN-PRICED BID"-PART-I)

i) Not Applicable

12.0 BID PRICES

i) Not Applicable

13.0 TAXES & DUTIES

13.1 Within the contractual delivery period, the statutory variation in applicable GST (CGST & SGST/UTGST or IGST) on supply and on incidental services, shall be to CUGL's account.

Beyond the contractual delivery period, in case CUGL is not entitled for input tax credit of GST (CGST & SGST/UTGST or IGST), then any increase in the rate of GST (CGST & SGST/UTGST or IGST) beyond the contractual delivery period shall be to Supplier's account whereas any decrease in the rate GST (CGST & SGST/UTGST or IGST) shall be passed on to the Purchaser.

Beyond the contractual delivery period, in case CUGL is entitled for input tax credit of GST (CGST & SGST/UTGST or IGST), then statutory variation in applicable GST (CGST & SGST/UTGST or IGST) on supply and on incidental services, shall be to CUGL' account.

The base date for the purpose of applying statutory variation shall be the Bid Due Date.

13.2 In case of statutory variation(s) in the taxes & duties mentioned at clause no. 13.1 above, the Supplier shall submit a copy of the 'Government Notification' to evidence the rate as applicable on the Bid Due Date and on the date of revision. Claim for payment of Statutory variation should be raised preferably along with the Invoice. Any claim for arrears on account of statutory variation shall be submitted to Purchaser within two (02) months from the date of issue of such 'Government Notification', otherwise such claim may not be entertained.

13.3 With respect to clause no. 12.1 and 12.2, the statutory variation in Import Duty (except component (s) for which input tax credit is available) on CIF value indicated, within contractual delivery period shall be to Purchaser's account against submission of the documentary evidence. However, any increase in the rate of Import Duty beyond the contractual delivery / completion period shall be to Bidder's account. In case of wrong classification, no variation including statutory variation of Import Duty will be payable to Supplier and any

penalty due to the same shall be to Supplier's account. Any decrease in the rate of Import Duty shall be passed on to the Purchaser. Statutory variation on account of Import Duty will be allowed only on component for which input tax credit is not available.

13.4 New Taxes & duties: Any new taxes & duties, if imposed by the State/Central Govt. of India on the finished goods after the due date of bid submission but before the Contractual Delivery/Completion Date, shall be reimbursed to the Supplier on submission of copy of notification(s) issued from State/Central Govt. Authorities along with documentary evidence for proof of payment of such taxes & duties, but only after ascertaining it's applicability with respect to the Contract.

13.5 Deemed Export benefits are not applicable and Bidder should furnish prices without considering the same.

13.6 Supplier shall ensure timely submission of correct invoice

13.7 (s), as per GST rules/ regulation, with all required supporting document(s) without a period specified in Contract to enable CUGL to avail input credit of GST (CGST & SGST/UTGST or IGST). Further, returns and details required to be filled under GST laws & rules should be timely filed by Supplier of Goods/Services with requisite details.

13.8 If input tax credit is not available to CUGL for any reason not attributable to CUGL, then CUGL shall not be obligated or liable to pay or reimburse GST (CGST & SGST/UTGST or IGST) claimed in the invoice(s) and shall be entitled to deduct/setoff /recover such GST (CGST & SGST/UTGST or IGST) together with all penalties and interest, if any, against any amounts paid or payable by CUGL to the Suppliers.

13.9 The supplier shall mention the particulars of CUGL on the Invoice. Besides, if any other particulars of CUGL are required to be mentioned, under GST rules/ regulations on the date of dispatch, the same shall also be mentioned on the Invoice.

13.10 In case CBEC (Central Board of Excise and Customs)/ any equivalent government agency brings to the notice of CUGL that the Supplier has not remitted the amount towards GST (CGST & SGST/UTGST or IGST) collected from CUGL to the government exchequer, then, that Supplier shall be put under Holiday list of CUGL for period of six months.

13.11 CUGL will prefer to deal with registered supplier of goods/ services under GST. Therefore, bidders are requested to get themselves registered under GST, it not registered yet.

13.12 However, in case any unregistered bidder is submitting their bid, there prices will be loaded with applicable GST (CGST & SGST/UTGST or IGST) during evaluation of bid. Where CUGL is entitled for input credit of GST (CGST & SGST/UTGST or IGST), the same will be considered for evaluation of bid as per evaluation methodology of tender document.

13.13 In case the GST rating of vendor on the GST portal / Govt. Official website is negative / black listed, then the bids may be rejected by CUGL. Further, in case rating of bidder is negative / black listed, after award of work for supply of goods / services, then CUGL shall not obligated or liable to pay or reimburse GST (CGST & SGST/UTGST or IGST) to such vendor and shall also be entitled to deduct / recover such GST (CGST & SGST/UTGST or IGST) along with all penalties/ interest, if any, incurred by CUGL.

13.14 Anti-profiteering clause

As per Clause 171 of GST Act, it is mandatory to pass on the benefit due to reduction in rate of tax or from input tax credit to the consumer by way of commensurate reduction in prices. The Service Provider may not the above and quote their prices accordingly.

13.15 Contractor is required to take U.P. GST registration in accordance to the tender terms & conditions.

14.0 BID CURRENCY

14.1 Bidders must submit bid in Indian Rupees only.

15.0 BID VALIDITY

15.1 The bid shall remain valid for acceptance for 4 (four) months from the bid due date. Owner/Employer shall reject a bid valid for a shorter period for being non-responsive.

15.2 In exceptional circumstance, prior to expiry of the original bid validity period, the Owner/Employer may request the bidders extend the period of validity for a specified additional period. The requests and the Responses thereto shall be made in writing (by fax/ post / e-mail). A bidder may refuse the request without forfeiture of its bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of its bid security for the period of the extension and in accordance with ITB clause in all respects.

16.0 EARNEST MONEY DEPOSIT

16.1 Bids must be accompanied with **'Earnest Money / Bid Security'** in the form of **'Demand Draft' [**in favour of Central UP Gas Limited, payable at Kanpur**]** or **'Banker's Cheque'** or **'Bank Guarantee' as per the format given in Form -4 of the bidding documents**. Bidders shall ensure that 'Bid Security', having a validity of at least ' two [02] months' beyond the validity of the bid, must accompany the Bid in the format(s) made available in the Bidding Document. Bid not accompanied with 'Bid Security', or 'Bid Security' not in requisite form shall be liable for rejection. The Bid Security shall be submitted in Indian Rupees only.

Bidders can also submit MSME certificate for MSEs (Micro & Small Enterprises) for exemption from submission of EMD in accordance with the MSME act. This exemption is not extended to the traders/dealers/Distributors/stockiest /wholesalers.

In case Bidders registered with NSIC or District Industries Center (DIC) as small/Micro Category Enterprises are exempted from submission of EMD. The above exemption is not extended to the traders/dealers/Distributors/stockiest /wholesalers.

The documentary evidence/certificate in support of being registered with NSIC/DIC submitted by the bidder shall be duly certified by the statutory auditor of the bidder or a practicing Chartered Accountant (not being an employee or a director or not having any interest in the bidder's company/firm). The certificate should not older than 3 months from the bid due date and should indicate the Name of bidder, NSIC/DIC registration Number, Category of Enterprises, CA firm name, CA name and CA membership Number who is issuing the certificate.

16.2 The 'Bid Security' is required to protect CUGL against the risk of Bidder's conduct, which would warrant the 'Bid Security's' forfeiture, pursuant to provision of ITB.

16.3 CUGL shall not be liable to pay any Bank charges, commission or interest etc. on the amount of 'Bid Security'. In case 'Bid Security' is in the form of a 'Bank Guarantee', the same shall be from any Indian scheduled Bank or a branch of an International Bank situated in India and registered with 'Reserve Bank of India' as Scheduled Foreign Bank. However, in case of 'Bank Guarantee' from Banks other than the Nationalized Indian Banks, the Bank must be commercial Bank having net worth in excess of Rs. 100 Crores [Rupees One Hundred Crores] and a declaration to this effect should be made by such commercial Bank either in the 'Bank Guarantee' itself or separately on its letterhead. 'Earnest Money / Bid Security' shall be valid for 'two [02] months' beyond the 'Bid Validity Period'

16.4 Any Bid not secured in accordance with "ITB Clause 16.1 & 16.3" may be rejected by CUGL as non-responsive.

16.5 Unsuccessful Bidder's 'Earnest Money / Bid Security' will be discharged/ returned as promptly as possible, but not later than 'thirty [30] days' after finalization of tender.

16.6 The successful Bidder's 'Bid Security' will be discharged upon the Bidder's acknowledging the 'Award' and signing the 'Agreement' and furnishing the 'Contract Performance Security / Security Deposit' as per the provisions of tender document.

16.7 Notwithstanding anything contained herein, the 'Bid Security' may also be forfeited in any of the following cases:

(a) If a Bidder withdraws his Bid during the 'Period of Bid Validity'
(b) If a Bidder has indulged in corrupt/fraudulent /collusive/coercive practice or has been declared bankrupt, or any proceedings under bankruptcy or insolvency laws are pending against the Bidder.
(c) If the Bidder modifies bids during the period of bid validity (after submission date).
(d) Violates any other condition, mentioned elsewhere in the tender document, which may lead to forfeiture of EMD.
(e) In the case of a successful Bidder, if the Bidder fails to:
(i) to acknowledge receipt the "Notification of Award" / "Letter of Intent [LOI]
(ii) to furnish "Contract Performance Security / Security Deposit"
(iii) To accept 'arithmetical corrections' as per provision of ITB.

16.8 Bid Security should be in favor of Central UP Gas Limited and addressed to CUGL. In case Bid Security is in the form of 'Bank Guarantee' or ‘Letter of Credit’, the same must indicate the Bid Document No. and the Work for which the Bidder is quoting. This is essential to have proper correlation at a later date. The 'Bid Security' should be in the form provided in tender document.

17.0 PRE-BID MEETING

17.1 As per IFB.

18.0 FORMAT AND SIGNING OF BID

18.1 The bidder shall prepare one original of the document comprising the bid as per clause 11 of ITB marked “original” in addition, the bidder shall submit 1 copy of the bid clearly marked as “Copy”. In the event of any discrepancy between the original and the copy, the original will govern.

18.2 The original and all copies of the bid shall be typed or written in indelible ink (in the case of copies, photocopies are also acceptable) and shall be signed by the person or persons duly authorized to sign on behalf of the bidder.

18.3 The name and position held by each person signing must be typed or printed below the signature. All pages of the bid except any catalogues/literatures shall be signed and sealed by the person or persons signing the bid.

18.4 The bid shall contain no alterations, omissions or additions, unless the person or persons signing the bid initial such corrections.

19.0 ZERO DEVIATION AND REJECTION CRITERIA

19.1 ZERO DEVIATION: Deviation to terms and conditions of "Bidding Documents" may lead to rejection of bid. CUGL will accept bids based on terms & conditions of "Bidding Documents" only. Bidder may note CUGL will determine the substantial responsiveness of each bid to the Bidding Documents pursuant to provision contained in clause 30 of ITB. For purpose of this, a substantially responsive bid is one which conforms to all terms and conditions of the Bidding Documents without deviations or reservations. CUGL's determination of a bid's responsiveness is based on the content of the bid itself without recourse to extrinsic evidence. CUGL reserves the right to raise technical and/or commercial query(s), if required, may be raised on the bidder(s). The response(s) to the same shall be in writing, and no change in the price(s) or substance of the bids shall be sought, offered or permitted. The substance of the bid includes but not limited to prices, completion, scope, technical specifications, etc. Bidders are requested to not to take any deviation/exception to the terms and conditions laid down in this "Tender Documents", and submit all requisite documents as mentioned in this "Tender Documents", failing which their offer will be liable for rejection. If a bidder does not reply to the queries in the permitted time frame then its bid shall be evaluated based on the documents available in the bid.

19.2 **REJECTION CRITERIA:** Notwithstanding the above, deviation to the following clauses of Tender document shall lead to summarily rejection of Bid:

a. BEC
b. Scope of work
c. Firm Price
d. Earnest Money Deposit / Bid Security (exempted for SME enterprises as clause no. 16.1)
e. Specifications & Scope of Work
f. Schedule of Rates / Price Schedule / Price Basis
g. Duration / Period of Contract/ Completion schedule
h. Period of Validity of Bid
i. Price Reduction Schedule
j. Contract Performance Bank Guarantee / Security Deposit
k. Guarantee / Defect Liability Period
l. Arbitration / Resolution of Dispute/Jurisdiction of Court
m. Force Majeure& Applicable Laws
n. Not submitting an undertaking that the bidder is not Holiday/ Blacklisted by CUGL or any other Govt. Dept./PSUs.
o. Any other condition specifically mentioned in the tender document elsewhere
p. that non-compliance of the clause lead to rejection of bid

Note: Further, it is once again reminded not to mention any condition in the Bid which is contradictory to the terms and conditions of Tender document.

20.0 E-PAYMENTS

NA

21.0 AGENT / CONSULTANT / REPRESEMTATOVE / RETAINERS / ASSOCIATES

NA

D. SUBMISSION OF BIDS

22.0 Submission of bid Through Online

22.1 WEB PORTAL FOR Bid Submission online **https://etenders.gov.in** For More information please visit our Website and find the attached General Instruction for online bid submission.

Bid must be submitted through e-tender mode in the manner specified in Tender Document.

No Manual/ Hard Copy (Original) Bid shall be acceptable.

23.0 DEADLINE FOR SUBMISSION OF BID

23.1 The Bid must be submitted at the address as specified in clause 13.6 not later than the time and date as specified in Section-I, IFB.

23.2 The Employer may, in exceptional circumstances and at its discretion, on giving reasonable notice by fax or any written communication to all prospective bidders who have been issued the bidding document, extend the deadline for the submission of bids. In which case all rights and obligations of the Employer and bidders, previously subject to the original deadline will thereafter be subject to deadline as extended.

23.4 In case any bid is submitted by bidder who is on Holiday' by CUGL or banned/blacklisted by Government department/ Public Sector on due date of

submission of bid, such bid will not be opened /evaluated and such bids shall be returned to the party immediately

23.5 In case of the days specified in IFB happens to be a holiday in CUGL, the next working day shall be implied.

24.0 LATE BIDS

24.1 Any Bid received after the Bid Due Date & Time of tenders will be treated as late bids. However, e-tendering system of CUGL shall close immediately after the Due Date & Time of Bid submission and no bids can be submitted thereafter.

In case the EMD /physical documents have been received but the Bid is not submitted by the bidder or submitted incomplete in the e-tender Portal within the stipulated time, such EMD/ bid security shall be returned and such bid shall not be considered.

24.2 EMD /physical documents received to address other than one specifically stipulated in the Tender Document will not be considered for evaluation/opening/award if not received to the specified destination within stipulated date & time.

25.0 MODIFICATION AND WITHDRAWL OF BIDS

25.1 The bidder may modify or withdraw its bid after the bid submission, but before the due date of submission provided that written notice of the modification, including substitution or Withdrawal of the bid, is received by the Employer prior to the deadline prescribed for submission of bids.

25.2 The bidder's modification or withdrawal note shall be prepared, sealed, marked and delivered in accordance with the provisions of clause 22 of ITB with the outer envelopes additionally marked "modification" or withdrawal as appropriate. A withdrawal notice may also be sent by fax /post, but followed by signed confirmation copy, post marked not later than the deadline for submission of bids.

25.3 No bid shall be modified/withdrawn after the deadline for submission of bid.

25.4 No bid shall be allowed to be withdrawn/modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidder on the bid form, Withdrawal/ modification of a bid during this interval shall result in the bidders forfeiture of its bid security, pursuant to clause 16 of ITB.

25.5 The latest bid hence submitted shall be considered for evaluation and all other bids shall be considered unconditionally withdrawn.

26.0 OWNER/EMPLOYER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

The Owner/Employer reserves the right to accept or reject any bid, and to annual the bidding process and reject all bids at any time prior to award of the contract without thereby incurring any liability to the affected bidder or bidder or any obligations to inform the affected bidder or bidders of the ground for Owner/Employer action.

E. BID OPENING AND EVALUATION

27.0 BID OPENING

27.1 Unpriced Bid Opening :

CUGL will open bids, in the presence of bidders' designated representatives who choose to attend, at date, time and location stipulated in the tender document. The bidders' representatives, who are present shall sign a bid opening register evidencing their attendance.

27.2 Priced Bid Opening:

CUGL will open the price bids of those bidders who meet the qualification requirement and whose bids is determined to be technically and commercially responsive. Bidders selected for opening of their price bids shall be informed about the date of price bid opening. Bidders may depute their authorized representative to attend the bid opening. The bidders' representatives, who are present shall sign a register evidencing their attendance and may be required to be present on a short notice.

27.3 The price bids of those bidders who were not found to be techno-commercially responsive shall be unopened and returned unopened after opening of the price bids of techno-commercially responsive bidders.

28.0 PROCESS TO BE CONFIDENTIAL

28.1 Information relating to the examination, clarifications, evaluation and comparison of bids, and recommendations for the award of a Contract, shall not be disclosed to bidders or any other person officially concerned with such Process.

28.2 Any efforts by a bidder to influence the Owner/Employer in any manner in respect of Preparation of Bidding document & further evaluation of bids will result in the rejection of that bid.

29.0 CONTACTING THE OWNER/EMPLOYER

29.1 From the time of the bid opening to the time of the Contract award, if any bidder wishes to contact the Owner/Employer for any matter relating to the bid, it should do so in writing. Any effort by a bidder to influence the Owner/Employer in any manner in respect of bid evaluation or award will result in the rejection of that bid.

30.0 EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS

30.1 The owner's determination of a bid's responsiveness is based on the content of the bid only. Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid:-

(a) Meets the "Bid Evaluation Criteria" of the Bidding Documents;
(b) Has been properly signed;
(c) Is accompanied by the required 'Earnest Money / Bid Security';
(d) Is substantially responsive to the requirements of the Bidding Documents; and
(e) Provides any clarification and/or substantiation that the Employer may require to determine responsiveness pursuant to "ITB: Clause-28.2"

30.2 A substantially responsive Bid is one which conforms to all the terms, conditions and specifications of the Bidding Documents without material deviations or reservations or omissions for this purpose employer defines the foregoing terms below:-

a) "Deviation" is departure from the requirement specified in the tender documents.
b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirement in the tender documents.
c) "Omission" is the failure to submit part or all of the information or documentation required in the tender document.

30.3 A material deviation, reservation or omission is one that,

a) If accepted would,
i) Affect in any substantial way the scope, quality, or performance of the job as specified in tender documents.
ii) Limit, in any substantial way, inconsistent with the Tender Document, the Employer's rights or the tenderer's obligations under the proposed Contract.
b) If rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.

30.4 The employer shall examine all aspects of the bid to confirm that all requirements have been met without any material deviation reservation or omission.

30.5 If a Bid is not substantially responsive, it may be rejected by the Employer and may not subsequently be made responsive by correction or withdrawal of the of material deviation, reservation or omission.

30.6 CUGL reserves the right to seek any clarification from the bidder, if required on the submitted document for evaluating their bid, the same shall be asked.

31.0 PRICE BID OPENING

The Owner/Employer will open priced bids of all techno-commercially acceptable bidders.

32.0 ARITHMETIC CORRECTIONS & CORRECTION OF ERRORS

32.1 Not Applicable.

33.0 CONVERSION TO SINGLE CURRENCY

All bids to submitted in INR.

34.0 EVALUATION AND COMPARISON OF BIDS:

1. Bidders would have to quote +/- 5 percent variation in the offered SOR, on overall basis.
2. The L-1 rates shall be obtained in such manner and would be offered to Technically/Commercially qualified bidders.
3. The bidders agreeing to the offered L-1 rates shall be empanelled.
4. The rank of the empanelled contractors for Type 1 and Type 2 shall be decided, as stated:
    a. On the basis of higher annual turnover. The bidders shall be ranked in descending order (higher to lower) of the annual turnover. Average turnover of preceding three Financial Years).
    b. In case more than one bidder is tied up at one position, then the bidders who have got the higher working capital (without taking into consideration of letter of credit submitted from bank) in the last Financial Year, shall be ranked higher.
5. The Type 1 and Type 2 contractors would be asked their location preference of GA, i.e. Kanpur, Bareilly and Jhansi.
6. Based on the location preference and inter-se ranking, the empanelled Type 1 and Type 2 bidders shall be offered the Work Order.

7. In case, if the bidders do not accept the Work Order or reject the offer after being empaneled, the next bidder, from empaneled list, rank wise and location preference wise, shall be offered the Work Order and the subject empaneled contractor will be barred from any further W.O. under the subject tender.

Other Conditions Related to Bid Evaluation

- Canvassing in any form will make the bid liable for rejection.
- Unsolicited clarifications to the offer and/or change in prices during its validity period would render the bid liable for outright rejection.
- Bidders are advised to ensure that their bids are complete in all respects and conform to our terms, conditions and Bid Evaluation criteria of bid. Bids not complying with Owner's requirement may be rejected without seeking any clarifications.
- Bidders will not be allowed to revise their price/bid for any subsequent clarification, compliance to bid conditions after submission of bid.
- Bid should be complete covering the total scope of work indicated in the Bid documents.
- Price bid will be evaluated as per applicable GST and other taxes & duties as on date of Priced bid opening.

34.1 After opening of price bid, tax rates as quoted by different bidders shall be compared and if any variation is observed amongst the qualified bids then confirmation on applicable HSN/SAC codes and tax rates shall be sought from each of them. Reconfirmed tax rates shall be considered for evaluation and award of contract keeping the scope and other tender terms and conditions unchanged.

34.2 Bidders are required to quote and comply with all applicable statutory requirements for invoicing.

35.0 POST QUALIFICATION

35.1 In the absence of prequalification, the Owner/Employer will determine to its satisfaction whether the bidder selected as having submitted the lowest evaluated, responsive bid is qualified to satisfactorily perform the contract.

35.2 The determination will take into account the bidders financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the bidders qualifications submitted by the Bidder, pursuant to ITB Clause-10, as well as such other information as the Owner/Employer deems necessary and appropriate.

An affirmative determination will be a prerequisite for award of the contract to the bidder. A Negative determination will result in rejection of the bidders bid.

F - AWARD OF CONTRACT

36.0 AWARD

36.1 All qualified Contractors shall be empanelled out of them 68 would be offered WO in coherence to their location preference and inter-se ranking.

36.2 The L-1 bidder (Type 1 and Type 2) as identified in bidding, shall be ranked first, irrespective of the ranking criteria mentioned in the clause 34 part 4 i.e. “Evaluation and Comparison of Bids”.

36.3 Type 1 and Type 2 bidders shall be ranked L-2, L-3…. and onwards as per the criteria stated clause 34 part 4 i.e. "Evaluation and Comparison of Bids".

36.4 The No. of WO, initially to be awarded location wise, are as stipulated below:

WORK ORDER TO BE PLACED TO CONTRACTORS				
S.NO	**GA**	**TYPE 1**	**TYPE 2**	**TOTAL (TYPE 1 + TYPE 2)**
1	KANPUR	15	18	33
2	BAREILLY	12	9	21
3	JHANSI	7	7	14
TOTAL WO		**34**	**34**	**68**

Table 1

36.5 Based on the location wise need, the WO shall be awarded to the empanelled bidders as per their location preference.

36.6 There shall be a predefined value of Work Orders that would be awarded to bidders and at any point of time the value of single WO shall not exceed as mentioned below

Type of Contractors	**Duration** (Including Mobilization)	**Single PO Value (in Cr - INR)**
Type I	1st 6 Month	1.00
	2nd 6 Month	1.00
Type II	1st 2.5 Month	0.25
	2nd 5 Month	0.50

Table 2

36.7 Upon successful and timely completion of awarded work, there will be a provision for award of Additional Work Order. The Additional Work Order shall be awarded only after achieving the following target as given below after final reconciliation of free issue material at the sole discretion of CUGL, based on performance evaluation/assessment of contractor

Type of Contractors	**Duration** (Including Mobilization)	**Target (No. of Connections Per PO)**
Type I	1st 6 Month	600
	2nd 6 Month	600
Type II	1st 2.5 Month	150
	2nd 5 Month	350

Table 3

36.8 Upon successful completion of PNG targets and final reconciliation there of in first WO, the bidder would be eligible for additional WO.

36.9 Upon successful completion of PNG targets and final reconciliation thereof in first WO, the bidder would be eligible for additional WO as mentioned in Tables 2

36.10 Initial work order for Type-1 contractor shall be 1 Crore for a period of 6 months with a target for 600 connections and For Type-2 the WO value shall be 25 lakhs for a period of 2.5 months with a target of 150 connections.

36.11 Each additional WO shall carry a value of INR 1.00 Crore for a Type-1 Contractor and INR.0.50 Crore for a Type-2 Contractor.s

36.12 Any contractor shall not be offered more than 2 (two) Work Orders

36.13 Accordingly, the cumulative value of all Work Orders awarded to a bidder (including the initial and additional WOs) shall not exceed INR 2.00 Crore for a Type-1 Contractors and INR 0.75 crore for a Type-2 Contractors

37.0 NOTIFICATION OF AWARD/FAX OF ACCEPTANCE

37.1 Prior to the expiration of period of bid validity, Owner/Employer (CUGL) will notify the successful bidder in writing by Post/Fax/E-mail to be confirmed in writing, that his bid has been accepted. The notification of award/Fax of Intent will constitute the formation of the Contract.

37.2 The Completion period shall commence from the date of notification of award/Fax of Acceptance (FOA).

37.3 The notification of award will constitute the formation of a Contract.

37.4 Upon the successful bidder's/ Contractor's CPBG/SD shall promptly discharge his EMD.

38.0 SIGNING OF AGREEMENT

38.1 After the successful bidder has been empanelled, the bidder is required to execute the Contract Agreement within 21 days of receipt of Fax/email of Acceptance in the form provided in the Bidding Documents. The Contract Agreement is to be executed on the non-judicial paper of appropriate value (the cost of stamp paper shall be borne by the Contractor/Service Provider).

38.2 In the event of failure on the part of the successful bidder to sign the AGREEMENT within the above stipulated period, the Bid Security shall be forfeited and the acceptance of the award shall be considered as cancelled.

39.0 PERFORMANCE GUARANTEE

For provisions relating to Performance Guarantee, default, misrepresentation, and associated remedies, please refer to Clause No. 27 (Contract Performance Bank Guarantee) under the Special Conditions of Contract (SCC) of this document.

40.0 CONTRACT EXTENSION

40.1 The contract may be extended upto 6 months on same Prices and discounts, if any and other terms & conditions upon satisfactory performance.

41.0 CORRUPT AND FRAUDULENT PRACTICES

41.1 The Owner/Employer requires that Bidders/contractors observe the highest standard of ethics during the execution of Contract. In pursuance of this policy, the Employer defines, for the purposes of this provision, the terms set forth below as follows:

a) "Corrupt Practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of public official in contract execution, and

b) "Fraudulent Practice" means a misrepresentation of facts in order to secure the contract or influence the execution of a Contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition; The

Employer will reject a proposal for award if it determines that the bidder recommended for award has engaged corrupt or fraudulent practices in competing for the Contract in question.

41.2 The Owner/Employer will declare a firm ineligible for a period pursuant to clause as per tender.

42.0 INCOME TAX & CORPORATE TAX

42.1 Income tax deduction shall be made from all payments made to the contractor as per the rules and regulations in force and in accordance with the Income Tax Act prevailing from time to time.

42.2 Corporate Tax liability, if any, shall be to the contractor's account.

43.0 WAIVER OR TRANSFER OF THE AGREEMENT

43.1 The successful bidder shall not waive the Agreement or transfer it to third parties, whether in part or in whole, nor waive any interest that is included in the Agreement without the prior written permission of the Owner/Employer.

44.0 Not Applicable

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45.0 EVALUATION OF PERFORMANCE

Performance of the contract awarded shall be evaluated as per vendors evaluation policy of CUGL which is available on CUGL website.

SECTION-III
GENERAL CONDITIONS OF CONTRACT (GCC)

1. DEFINITIONS

1.0 All the initial capitalised terms used in the Agreement shall have the meaning as described to such terms hereunder:

1.1 Agreement' or 'Contract' means the agreement entered into between the OWNER and the Contractor, including all attachments and appendices thereto and all documents incorporated by reference therein, as modified, reinstated or amended from time to time.

1.2 'Completion Schedule' or 'Delivery Schedule' means a schedule approved by the OWNER for completion of all obligations of the Contractor under the Agreement.

1.3 NA

1.4 'Contract Documents' mean all the documents referred to in the Agreement for discharging the requisite obligations by respective party.

1.5 'Contract Price' means the price payable to the Contractor under the Contract for the full and proper performance of all its contractual obligations.

1.6 'Day', 'Month' or 'Year' means calendar day, calendar month or calendar year.

1.7 'Engineer' means an authorized representative of the OWNER, if any, to which the OWNER has entrusted various tasks in relation to the carrying out of his Project and in particular the implementation of the relevant Agreement. The Engineer is fully empowered to represent the OWNER. For avoidance of doubt, Consultant may be an Engineer. In case the Agreement does not specify the intervention by the Engineer, the rights and obligations are exercised and borne by the OWNER, mutatis mutandis.

1.8 'Effective Date' means a date on which Contractor's obligations will commence and thereupon Delivery Schedule and/or Completion Schedule will be drawn up.

1.9 'Goods' means all of the equipment, machinery, and/or other materials which the Contractor is required to supply to the OWNER under the Agreement.

1.10 'GCC' means the GENERAL CONDITIONS OF CONTRACT contained in this section.

1.11 'Inspector' means any person or outside Agency nominated by OWNER to inspect equipment, stage wise as well as final, before despatch, at Contractor's works and/or on receipt at Site as per terms of the Agreement.

1.12 'Notification of Award' means date which is earlier of Letter of Intent (LOI) or Letter of Award (LOA) issued to a successful bidder for award of the work pursuant to bidding process.

1.13 'The OWNER/PURCHASER/CUGL mean CENTRAL UP GAS LIMITED, an undertaking registered under The Indian Co. Act, 1956 having its Registered & Corporate office at 7TH Floor UPSIDC complex, A-1/4 Lakhanpur Kanpur-208024 and includes its successors and assigns.

1.14 'Services' or 'Ancillary Services' means those services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the Contractor covered under the scope of the Agreement.

1.15 'Site' or 'OWNER's stores' means the place or places named in tender document.

1.16 'SCC' means the SPECIAL CONDITIONS OF CONTRACT forming a part of the Contract Documents.

1.17 'Supplier' or 'Seller' or 'Contractor' means the individual person or firm or body corporate supplying the Goods and Ancillary Services under the Agreement.

1.18 'Bid' or 'Tender' shall have the same meaning.

2. INTERPRETATION OF CONTRACT DOCUMENT

2.1 Notwithstanding the sub-division of the documents into these separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the CONTRACT so far as it may be practicable to do so.

2.2 Where any portion of the General Condition of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall to the extent of such repugnancy, or variations, prevail.

2.3 Wherever it is mentioned in the specifications that the CONTRACTOR shall perform certain WORK or provide certain facilities, it is understood that the CONTRACTOR shall do so at his cost and the VALUE OF CONTRACT shall be deemed to have included cost of such performance and provisions, so mentioned.

2.4 The materials, design and workmanship shall satisfy the relevant INDIAN STANDARDS, the JOB SPECIFICATIONS contained herein and CODES referred to. Where the job specification stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied.

2.5 It is expressly clarified that notwithstanding any provisions contained in the Invitation for Bids (IFB) or any associated documents, if any discrepancy or conflict arises between the provisions of the IFB/other documents and this Commercial Volume, the specific terms, conditions, and stipulations contained herein this Commercial Volume shall exclusively govern, supersede, and prevail over such conflicting provisions.

3. CONFIDENTIALITY

3.1 The Contractor cannot, without agreement of the OWNER, disclose nor enable third parties to benefit from the documents drawn up in the course of his obligations under the Agreement or information received from the OWNER / Consultant / Engineer/ Inspector.

3.2 Further, Contractor is not allowed to publish copy or transmit to third parties the documents that are transmitted to him by OWNER/ Consultant/ Engineer/ Inspector. The OWNER/ Consultant retains the right to claim damages from the Contractor in the case where these documents have been used without such written consent.

3.3 However, these obligations do not apply to documents for which it can be demonstrated that

- Such documents were already public before these were communicated to the other party, or have become public since without any fault or negligence of the party concerned, or
- Such documents were already in its possession without having obtained them directly or indirectly from the other party, or
- Such documents were obtained from an independent source that had neither direct nor indirect secrecy commitment to the other party.

3.4 Regarding the application of this clause, the experts appointed by the OWNER/ Engineer are not considered as third parties, and for this reason they have to respect, towards the Contractor, the same obligations as the OWNER in these matters.

3.5 Any document, other than the Agreement itself, enumerated in GCC shall remain the property of the OWNER and shall be returned (all copies) to the OWNER on completion of the Contractor's obligations under the Agreement, if so required by the OWNER.

4. CONTRACT PERFORMANCE BANK GUARANTEE

4.1 Within twenty one (21) days of the receipt of the notification of award/ Fax of Intent, Letter of Intent, or Work Order (whichever is issued first by the Owner), the successful bidder shall furnish the performance guarantee in accordance with General Conditions of Contract in the form provided in the Bid documents.

4.2 The Contract Performance Bank Guarantee shall be taken @ 5% of the total order value (exclusive of taxes) & remaining 5% to be recovered from RA Bills. The Contract Performance Bank Guarantee shall be valid up to 90 days beyond the expiry of defect liability period.

4.3 In the event that completion of work is delayed beyond the scheduled completion date for any reason whatsoever, the contractor shall have the validity of the Contract Performance Bank Guarantee suitably extended to cover the period of delay.

4.4 The Owner shall have the absolute right to invoke and encash the Contract Performance Bank Guarantee, in whole or in part, to recover any losses, damages, liabilities, penalties, or expenses arising from or attributable to the Contractor's non-performance, contractual breach, statutory non-compliance, damage to third-party or Owner's property, loss of life or bodily injury to any third party or the Owner's employees and representatives, or any other negligent act or omission by the Contractor.

4.5 It is expressly clarified that notwithstanding anything contained in Clause 4 or elsewhere herein, the invocation and encashment of the Contract Performance Bank Guarantee, in whole or in part, by the Owner shall not prejudice, limit, or waive the Owner's right to recover any remaining balance or shortfall.

4.6 In the event of any unrecovered dues, the Owner shall have the absolute right to recover the same through any lawful means, including without limitation:

a. Deduction from any pending or future running (RA) or final bills of the Contractor under this Agreement;

b. Encashment of any other Bank Guarantee(s) furnished by the Contractor, to the extent permitted under the terms of the respective contract(s);

C. Subject to the express provisions, terms, and conditions stipulated in the Invitation for Bids (IFB), Commercial Volume, or any other part of this Contract permitting cross-contract adjustments, adjustment against bills or dues payable under any other contract(s) awarded by the Owner TO THE SAME CONTRACTOR; AND/OR

d. Recourse to any other legal remedies, suits, arbitration, or proceedings available to the Owner under applicable laws.

4.7 The Contract Performance Bank Guarantee shall be denominated in the currency of the Agreement and shall be in the following form:

4.8 A bank guarantee issued by a scheduled / nationalized bank is acceptable to the OWNER, in the form provided in the bid documents. The Contract Performance Bank Guarantee will be discharged by the OWNER and returned to the Contractor not later than Ninety days (90) days following the date of completion of all the Contractor's performance obligations under the Contract, including any warranty obligations.

4.9 The contractor shall submit a written request for release of Contract performance Bank Guarantee, on successful completion of defect liability period.

5. INSPECTIONS AND TESTS

5.1 Refer SCC Clause 3.

6. TRANSPORTATION

6.1 Transportation of all items covered in the scope of contractor, will be arranged by contractor at his own cost including insurance and storage. Contractor will also be responsible for taking delivery of free issue material from OWNER's store and Transportation to place of work including its coverage for transit insurance.

7. GUARANTEE/ WARRANTY/ Defect liability period

7.1 The Contractor warrants that the work carried out under the Agreement are meeting the requirement of the Bid document and will rectify/ repair any defective work on receipt of instructions from OWNER/ Consultant.

7.2 The OWNER shall promptly notify the Contractor in writing of any claims arising under this warranty.

7.3 Upon receipt of such notice, the Contractor shall, within a reasonable period, repair or replace the defective Goods or parts thereof, free of cost to the OWNER. The Contractor may take over the replaced parts/ Goods at the time of their replacement. No claim whatsoever shall lie on the OWNER for the replaced parts/ goods thereafter. In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected / replaced Goods or item or material shall be extended to a further period of twelve (12) Months from the date of such repair/replacement if put to use immediately or eighteen (18) Months. Defect liability period shall be 12 months from the date of handing over of the system to OWNER.

7.4 If the Contractor, having been notified, fails to remedy the defect(s) within a reasonable period, the OWNER may proceed to take such remedial action as may be necessary, at the Contractor's risk and expense and without prejudice to any other rights which the OWNER may have against the Contractor under the Agreement.

8. PRICES

8.1 Prices charged by the Contractor for Goods delivered and all Services performed under the Agreement shall be on firm price basis and not vary from the prices quoted by the Contractor in its bid, with the exception of any price adjustments authorized as per tender document.

9. TAXES, DUTIES, ETC.

9.1 The Contractor agrees to and does hereby accept full and exclusive liability for the payment of any and all taxes including BOCW tax (Under the Code on Social Security, 2020), duties, etc. now or hereafter imposed, increased, modified, from time to time in respect of Works and materials and all contributions and taxes for unemployment compensation, insurance and old age pensions or annuities now or hereafter imposed by any Central or State Government authorities which are imposed with respect to or covered by the wages, salaries, or other compensations paid to the persons employed by the Contractor and the Contractor shall be responsible for the compliance with all applicable Central, State, Municipal and local laws and regulations, and requirement of any Central, State or local Government agency or authority.

9.2 Contractor further agrees to defend, indemnify and hold OWNER harmless from any liability or penalty, which may be imposed by the Central, State or Local authorities by reason or any violation by Contractor or Sub-Contractor of such laws, suits or proceedings that may be brought against the

OWNER arising under, growing out of, or by reason of the work provided for by this Contract, by third parties, or by Central or State Government authority or any administrative sub-division thereof.

9.3 Tax deductions will be made as per the rules and regulations in force in accordance with acts prevailing from time to time.

10. STATUTORY VARIATION

10.1 All statutory variations, change in law or imposition of any new taxes/ duties/ levies by any Central Government/ State Government/ Civil Agencies shall be to Contractor's account except for statutory variations in Service Tax, which shall be reimbursed by OWNER against documentary evidence submitted by the Contractor.

11. PAYMENT

11.1 Contractor shall submit his monthly bills to the respective Engineer-In-Charge of OWNER, attaching all the required documentary proof confirming there upon that all statutory obligations as per rules are being observed. Un-disputed payment shall be made to the contractor through Finance Department against Bills, duly certified by respective OWNER's Engineer-In-Charge within 30 (Thirty days, if found in order. No interest shall be paid in case of delay in payments. For payment terms, refer clause no. 5 of SCC.

11.2 Payment shall be released after applicable tax deductions at source as per rules & acts enforced during the tenancy of the contract.

12. SUB-CONTRACTING

12.1 The Contractor shall notify the OWNER in writing of all subcontracts awarded under this Agreement if not already notified in the Contractor's bid and incorporated in the Agreement. Such notification and incorporation shall not relieve the Contractor from any liability or obligation under the Agreement. Such sub-contract shall be limited to certain bought-out items and sub-assemblies, which are not in line of Contractor's manufacturing or proposed manufacturing unit of authorized Contractor.

12.2 Such purchased and subcontracted items shall have to be necessarily in full compliance with the terms and conditions of the Agreement and do not relieve the Contractor of any of his contractual obligations. The Contractor shall be solely responsible for any action, deficiency or negligence of his sub contractors.

12.3 For any subcontract, the OWNER is entitled to demand from the Contractor, for approval of the list of sub-contractors, the Contractor intends to involve and of the orders he may entrust to them. Approval by the OWNER cannot give rise to any legal bond between the OWNER and the sub contractors and leaves full responsibility only to the Contractor.

12.4 In the event where the warranty agreed between the Contractor and his sub-Contractors exceeds in scope or in period those required under the Agreement, the Contractor undertakes to make the OWNER the full and direct beneficiary of such warranty.

13. DELAYS IN THE CONTRACTOR'S PERFORMANCE

13.1 Delivery of the Goods and performance of Services shall be made by the Contractor in accordance with the time schedule prescribed by the OWNER in the Completion Schedule.

13.2 If the CONTRACTOR refuses or fails to execute the WORK or any separate part thereof with such diligence as will ensure its completion within the time specified in the CONTRACT or extension thereof or fails to perform any of his obligation under the CONTRACT or in any manner commits a

breach of any of the provisions of the CONTRACT it shall be open to the OWNER/PMC at its option by written notice to the CONTRACTOR:

13.2.1 TO DETERMINE THE CONTRACT in which event the CONTRACT shall stand terminated and shall cease to be in force and effect on and from the date appointed by the OWNER on that behalf, whereupon the CONTRACTOR shall stop forthwith any of the CONTRACTOR's work then in progress, except such WORK as the OWNER may, in writing, require to be done to safeguard any property or WORK, or installations from damage, and the OWNER, for its part, may take over the work remaining unfinished by the CONTRACTOR and complete the same through a fresh contractor or by other means, at the risk and cost of the CONTRACTOR, and any of his sureties if any, shall be liable to the OWNER for any excess cost occasioned by such work having to be so taken over and completed by the OWNER over and above the cost at the rates specified in the schedule of quantities and rate/prices.

13.2.2 WITHOUT DETERMINING THE CONTRACT to take over the work of the CONTRACTOR or any part thereof and complete the same through a fresh contractor or by other means at the risk and cost of the CONTRACTOR. The CONTRACTOR and any of his sureties are liable to the OWNER for any excess cost over and above the cost at the rates specified in the Schedule of Quantities/ rates, occasioned by such works having been taken over and completed by the OWNER.

13.3 In such events of above sub-clauses:

13.3.1 The whole or part of the Contract Performance Security furnished by the CONTRACTOR is liable to be forfeited without prejudice to the right of the OWNER to recover from the CONTRACTOR the excess cost referred to in the sub clause aforesaid, the OWNER shall also have the right of taking possession and utilising in completing the works or any part thereof, such as materials equipment and plants available at work site belonging to the CONTRACTOR as may be necessary and the CONTRACTOR shall not be entitled for any compensation for use or damage to such materials, equipment and plant.

13.3.2 The amount that may have become due to the CONTRACTOR on account of work already executed by him shall not be payable to him until after the expiry of Six (6) calendar months reckoned from the date of termination of CONTRACT or from the taking over of the WORK or part thereof by the OWNER as the case may be, during which period the responsibility for faulty materials or workmanship in respect of such work shall, under the CONTRACT, rest exclusively with the CONTRACTOR. This amount shall be subject to deduction of any amounts due from the CONTRACT to the OWNER under the terms of the CONTRACT authorised or required to be reserved or retained by the OWNER.

13.4 Before determining the CONTRACT provided in the judgement of the OWNER, the default or defaults committed by the CONTRACTOR is/are curable and can be cured by the CONTRACTOR if an opportunity given to him, then the OWNER may issue Notice in writing calling the CONTRACTOR to cure the default within such time specified in the Notice.

13.5 The OWNER shall also have the right to proceed or take action above, in the event that the CONTRACTOR becomes bankrupt, insolvent, compounds with his creditors, assigns the CONTRACT in favour of his creditors or any other person or persons, or being a company or a corporation goes into voluntary liquidation, provided that in the said events it shall not be necessary for the OWNER to give any prior notice to the CONTRACTOR.

13.6 Termination of the CONTRACT as provided above shall not prejudice or affect their rights of the OWNER which may have accrued upto the date of such termination.

13.7 Except as provided under GCC or for the reasons solely attributable to the OWNER, a delay by the Contractor in the performance of its delivery obligations shall render the Contractor liable to the

imposition of liquidated damages pursuant to GCC, unless an extension of time is agreed upon without the application of liquidated damages.

14. CONTRACTOR REMAINS LIABLE TO PAY COMPENSATION IF ACTION NOT TAKEN UNDER CLAUSE 13

14.1 In any case in which become exercisable and the same had not been exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any further case of default by the CONTRACTOR for which by any clause or clauses hereof he is declared any of the powers conferred upon the OWNER BY CLAUSE 0 thereof shall have liable to pay compensation amounting to the whole of his Contract Performance Security, and the liability of the CONTRACTOR for past and future compensation shall remain unaffected. In the event of the OWNER putting in force the power under above sub-clause vested in him under the preceding clause he may, if he so desired, take possession of all or any tools, and plants, materials and stores in or upon the works or the site thereof belonging to the CONTRACTOR or procured by him and intended to be used for the execution of the WORK or any part thereof paying or allowing for the same in account at the CONTRACT rates or in case of these not being applicable at current market rates to be certified by the ENGINEER-IN-CHARGE whose certificate thereof shall be final, otherwise the ENGINEER-IN-CHARGE may give notice in writing to the CONTRACTOR or his clerk of the works, foreman or other authorised agent, requiring him to remove such tools, plant, materials or stores from the premises (within a time to be specified in such notice), and in the event of the CONTRACTOR failing to comply with any such requisition, the ENGINEER-IN-CHARGE may remove them at the Contractor's expense or sell them by auction or private sale on account of the CONTRACTOR and at his risk in all respects without any further notice as to the date, time or place of sale and the certificate of the ENGINEER-IN-CHARGE as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the CONTRACTOR.

15. TERMINATION FOR DEFAULT

15.1 Save for the cases provided for in Clause, if the Contractor fails to fulfil any of his obligations, the OWNER reserves the right, after simple summons to comply and without prejudice to any other measures provided for in the Contract Documents, to offset the Contractor's deficiency by substituting Contractor by another third party to the Contractor for the purpose of carrying out those obligations, at the Contractor's expense, risk and peril, or to terminate the Agreement without prejudice to the OWNER's rights of receiving reparation for the resulting damage.

15.2 The OWNER may terminate the Agreement when the Contractor's situation at any time after Notification of the Award is found to have become so precarious that there is every indication that he will not be able to fulfil his obligations. Such indications may be, for example, the Contractor's filing for bankruptcy or composition, or going into receivership or liquidation, or any similar procedures under applicable legislation.

16. CHANGE IN CONSTITUTION

16.1 Where the CONTRACTOR is a partnership firm, the prior approval of the OWNER shall be obtained in writing, before any change is made in the constitution of the firm. Where the CONTRACTOR is an individual or a Hindu undivided family business concern, such approval as aforesaid shall, likewise be obtained before such CONTRACTOR enters into any agreement with other parties, where under, the reconstituted firm would have the right to carry out the work hereby undertaken by the CONTRACTOR. In either case if prior approval as aforesaid is not obtained, the CONTRACT shall

be deemed to have been allotted in contravention of clause 0 hereof and the same action may be taken and the same consequence shall ensure as provided in the said clause.

17. MEMBERS OF THE OWNER NOT INDIVIDUALLY LIABLE

17.1 No Director, or official or employee of the OWNER/ CONSULTANT shall in any way be personally bound or liable for the acts or obligations of the OWNER under the CONTRACT or answerable for any default or omission in the observance or performance of any of the acts, matters or things, which are herein contained

18. CONTRACTOR'S OFFICE AT SITE

18.1 The CONTRACTOR shall provide and maintain an office at the site for the accommodation of his Engineer and staff and such office shall be open at all reasonable hours to receive instructions, notice or other communications.

19. CONTRACTOR TO INDEMNIFY THE OWNER

19.1 The contractor shall indemnify the OWNER and every member, officer and employee of the OWNER, also Engineer-In-Charge and his staff against all action, proceedings, claims, demands, costs and expenses whatsoever arising out of all action, proceedings, claims, demands, costs and expenses which may be made against the OWNER for or in respect of or arising out of any failure by the contractor in the performance of his obligations under the contract. The OWNER shall not be liable for or in respect of consequence of any accident or injury to any workmen or other person in the employment of the contractor or his sub-contractor and contractor shall indemnify and keep the OWNER indemnified against all such damages and compensations and against all claims, proceedings, claims, demands, costs and expenses whatsoever in respect thereof or in relation thereof.

19.2 If any action is brought before a Court, Tribunal or any other Authority against the OWNER or an officer or agent of the OWNER, for the failure, omission or neglect on the part of the CONTRACTOR to perform any acts, matters, covenants or things under the CONTRACT, or damage or injury caused by the alleged omission or negligence on the part of the CONTRACTOR, his agents, representatives or his SUB-CONTRACTOR's, or in connection with any claim based on lawful demands of SUB-CONTRACTOR's workmen, Contractors or employees, the CONTRACTOR, shall in such cases indemnify and keep the OWNER and/or their representatives harmless from all losses, damages, expenses or decrees arising out of such action.

19.3 If OWNER have to pay any money in respect of such claims or demands as aforesaid the amount so paid and the costs incurred by the OWNER shall be charged to and paid by the Contractor and the Contractor shall not be at liberty to dispute or question the right of the OWNER to make such payments notwithstanding the same may have been made without the consent or authority or in law or otherwise to the contrary.

20. SAFETY REGULATIONS

20.1 In respect of all labour, directly or indirectly employed in the WORK for the performance of CONTRACTOR's part of this agreement, the CONTRACTOR shall at his own expense arrange for all the safety provisions as per safety codes and abide by all labour laws, fire and statutory regulations and keep the OWNER indemnified in respect thereof.

21. OTHER AGENCIES AT SITE

21.1 The CONTRACTOR shall have to execute the WORK in such place and conditions where other agencies will also be engaged for other works. No claim shall be entertained due to WORK being executed in the above circumstances.

22. LIENS

22.1 The OWNER shall have lien on all materials, equipments including those brought by the CONTRACTOR for the purpose of erection, testing and commissioning of the WORK.

22.2 If, at any time there should be evidence or any lien or claim for which the OWNER might have become liable and which is chargeable to the CONTRACTOR, the OWNER shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify the OWNER against such lien or claim and if such lien or claim be valid, the OWNER may pay and discharge the same and deduct the amount so paid from any money which may be or may become due and payable to the CONTRACTOR. If any lien or claim remain unsettled after all payments are made, the CONTRACTOR shall refund or pay to the OWNER all money that the latter may be compelled to pay in discharging such lien or claim including all costs and reasonable expenses. OWNER reserves the right to do the same

23. TERMINATION FOR OWNER's cONVENIENCE

23.1 The OWNER, by written notice sent to the Contractor, may terminate the Agreement, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the OWNER's convenience, the extent to which performance of the Contractor under the Agreement is terminated, and the date upon which such termination becomes effective.

23.2 The Goods that are complete and ready for shipment/ dispatch as on the date of Contractor's receipt of notice of termination shall be accepted by the OWNER on the terms and prices mutually agreed at that time.

23.3 For the remaining Goods, the OWNER may elect:

- To have any portion completed and delivered at the Agreement terms and prices and / or
- To cancel the remainder and pay to the Contractor an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Contractor; and/or
- To pay any reasonable and demonstrable otherwise non recoverable expenses incurred by the Contractor.

24. PAYMENT IF THE CONTRACT IS TERMINATED

24.1 If the CONTRACT shall be terminated as per Bid pursuant to Clause no. 0 of GCC, the CONTRACTOR shall be paid by the OWNER in so far as such amounts or items shall not have already been covered by payments of amounts made to the CONTRACTOR for the WORK executed and accepted by ENGINEER-IN-CHARGE prior to the date of termination at the rates and prices provided for in the CONTRACT and in addition to the following:

- The amount payable in respect of any preliminary items, so far as the Work or service comprised therein has been carried out or performed and an appropriate portion as certified by ENGINEER-IN-CHARGE of any such items or service comprised in which has been partially carried out or performed.
- Any other expenses which the CONTRACTOR has spent for performing the WORK under the CONTRACT subject to being duly recommended by ENGINEER-IN-CHARGE and

approved by OWNER for payment, based on documentary evidence of his having incurred such expenses.

24.2 The CONTRACTOR will be further required to transfer the title and provide the following in the manner and as directed by the OWNER.

- Any and all completed works.
- Such partially completed WORK including drawings, information and CONTRACT rights as the CONTRACTOR has specially performed, produced or acquired for the performance of the CONTRACTOR.

25. NO WAIVER OF RIGHTS

25.1 Neither the inspection by the OWNER or any of their officials, employees, or agents nor any order by the OWNER for payment of money or any payment for or acceptance of the whole or any part of the Work by the OWNER nor any extension of time, nor any possession taken by OWNER shall operate as a waiver of any provision of the CONTRACT, or of any power herein reserved to the OWNER, or any right to damages herein provided, nor shall any waiver of any breach in the CONTRACT be held to be a waiver of any other subsequent breach.

26. PLANNING

26.1 Unless otherwise stated in the Agreement, the Contractor shall furnish to OWNER not later than fifteen (15) Days from date of Notification of Award the following:
A bar chart, or similar, including the network of activities if required on account of the complexity of the Agreement, showing the time-scale of the main steps in the carrying out of his obligations, and showing at least :

- The dates at which the Contractor has to supply the information's and documents stipulated by the award,
- The dates at which the main orders for materials and equipment (bought out items) must normally be placed, and the required Completion dates for these,
- The method by which the Goods and /or Services are carried out outside the Site so that the contractual time-limits can be met,

26.2 The organizational chart, with names, of the team in control of the studies and the carrying out of the work. The Contractor describes the liaisons between said team and his existing structure. Contractor will state the skills and experience of the personnel involved regarding similar projects. This organizational chart also shows the links with his sub contractors.

26.3 This planning does not relieve the Contractor of any of its obligations including Completion Schedule.

27. PROGRESS

27.1 The planning (bar chart or similar physical progress forecast and quantities of manpower) established as per Clause 26 shall be used as a reference to regularly monitor the progress of the Contractor's obligations. In particular, the latter requires furnishing to the OWNER in principle monthly, the actual physical progress computed by the method referred to in GCC Clause 26.

27.2 The planning is to be updated regularly by the Contractor, and is reviewed when the OWNER so requests, any time particular circumstances significantly affect the elements that were taken into account when the planning was established.

27.3 If the work progress rate is deemed insufficient to meet the prescribed time-limits, the OWNER will notify this to the Contractor and will demand that Contractor defines, in writing and within fifteen (15) Days, the measures he intends to take in order to improve the rate of progress, which measures have to receive the prior approval of the OWNER.

27.4 The OWNER and/or Consultant reserve the right to have the progress of studies, procurement, work or any other contractual services monitored by any person of their choice, without this right in any way diluting the Contractor's obligations.

28. WORK IN MONSOON AND DEWATERING

28.1 Unless otherwise specified elsewhere in the tender, the execution of the WORK may entail working in the monsoon. The CONTRACTOR must maintain a minimum labour force as may be required for the job and plan and execute the construction and erection according to the prescribed schedule. No extra rate will be considered for such work in monsoon.

28.2 During monsoon and other period, it shall be the responsibility of the CONTRACTOR to keep the construction work site free from water logging at his own cost.

29. WORK ON SUNDAYS AND HOLIDAYS

29.1 For carrying out Work on Sundays, and Holidays, the CONTRACTOR will approach the ENGINEER-IN-CHARGE or his representative at least two days in advance and obtain permission in writing. The CONTRACTOR shall observe all labour laws and other statutory rules and regulations in force. In case of any violations of such laws, rules and regulations, consequence if any, including the cost thereto shall be exclusively borne by the CONTRACTOR and the OWNER shall have no liability whatsoever on this account.

30. SETTLEMENT OF DISPUTES

30.1 The rules of procedure for arbitration proceedings shall be as per Indian Arbitration and Conciliation Act 1996 or as amended.

30.2 If any dispute or difference arising between the Parties in respect of or concerning or connected with the interpretation or implementation of this Agreement or otherwise arising out of this Agreement, the parties hereto shall promptly and in good faith negotiate with a view to bring out and amicable resolution and settlement.

30.3 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the OWNER or the Supplier/ Contractor may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.

30.4 In the event that no amicable resolution or settlement is reached within a period of thirty (30) days from the date of receipt of the notice of arbitration or failure of talks, such dispute or difference shall be finally resolved by arbitration through a sole Arbitrator to be appointed with the mutual consent of both Parties, in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and the rules framed thereunder, as amended from time to time.

30.5 In case the Parties fail to reach a consensus on the appointment of the sole Arbitrator within thirty (30) days from the invocation of arbitration, either Party may petition the Hon'ble High Court of Judicature at Allahabad pursuant to Section 11 of the Arbitration and Conciliation Act, 1996, for the designation of the sole Arbitrator. The Arbitrator so appointed shall strictly be an independent, neutral, and impartial individual, free from any disqualification under the Seventh Schedule of the Act, and having no prior employment, financial, or personal relationship with either Party.The Arbitration proceedings shall be held in Kanpur Nagar, Uttar Pradesh and shall be conducted in English Language. The decision of such arbitration shall be binding and conclusive upon the Parties. The Parties to the arbitration shall equally share the costs and expenses of any such arbitration.

30.6 It is hereby clarified that the Courts at Kanpur Nagar, Uttar Pradesh alone shall have jurisdiction to try and entertain any and all suits or other proceedings in respect of, relating to or otherwise arising out of this Agreement.

30.7 Notwithstanding any reference to arbitration herein, the parties shall continue to perform their respective obligations under the Agreement unless they otherwise agree.

31. LIMITATION OF LIABILITY

31.1 Except in cases of wilful negligence or wilful misconduct, and in the case of infringement, the Contractor shall not be liable to the OWNER, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits provided that this exclusion shall not apply to any obligation of the Contractor to pay PRS to the OWNER and the aggregate liability of the Contractor to the OWNER, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

32. GOVERNING LANGUAGE

32.1 The Agreement shall be written in English language unless specified otherwise in the SCC. All correspondence and other documents pertaining to the Agreement which are exchanged by the parties shall be written in the same language. In case, any document/brochure etc. is written in any other language then its English translation shall govern.

33. APPLICABLE LAW

33.1 The Contract shall be governed and interpreted in accordance with the applicable laws of India and Courts at Kanpur Nagar, Uttar Pradesh shall have exclusive jurisdiction.

34. NOTICES

34.1 Any notice given by one party to the other pursuant to this Agreement shall be sent to the other party in writing by registered mail or facsimile and confirmed in writing to the other party's address specified in the Agreement.

A notice shall be effective when delivered or on the notice's effective date, whichever is later.

35. INSURANCE

35.1 GENERAL

CONTRACTOR shall at his own expense arrange secure and maintain insurance with reputable insurance companies to the satisfaction of the OWNER as follows:

a. CONTRACTOR at his cost shall arrange, secure and maintain insurance as may be necessary and to its full value for all such amounts to protect the WORKS in progress from time to time and the interest of OWNER against all risks as detailed herein. The form and the limit of such insurance, as defined here in together with the under works thereof in each case should be as acceptable to the OWNER. However, irrespective of work acceptance the responsibility to maintain adequate insurance coverage at all times during the period of CONTRACT shall be that of CONTRACTOR alone. CONTRACTOR's failure in this regard shall not relieve him of any of his responsibilities and obligations under CONTRACT.

b. Any loss or damage to the work/ material, during transportation, storage, erection and completion of work till such time the WORK is taken over by OWNER, shall be to the account of CONTRACTOR. CONTRACTOR shall be responsible for preferring of all claims and make good for the damage or loss by way of repairs and/or replacement of the parts of the Work damaged or lost. CONTRACTOR

shall provide the OWNER with a copy of all insurance policies and documents taken out by him in pursuance of the CONTRACT. Such copies of document shall be submitted to the OWNER immediately upon the CONTRACTOR having taken such insurance coverage. CONTRACTOR shall also inform the OWNER at least thirty days in advance regarding the expiry cancellation and/or changes in any of such documents and ensure revalidation/renewal etc., as may be necessary well in time.

c. All costs on account of insurance liabilities covered under CONTRACT will be to CONTRACTOR's account and will be included in VALUE OF CONTRACT. However, the OWNER may from time to time, during the currency of the CONTRACT, ask the CONTRACTOR in writing to limit the insurance coverage risk and in such a case, the parties to the CONTRACT will agree for a mutual settlement, for reduction in VALUE OF CONTRACT to the extent of reduced premium amounts. CONTRACTOR as far as possible shall cover insurance with Indian Insurance Companies.

35.2 **EMPLOYEES STATE INSURANCE ACT**:

The CONTRACTOR agrees to and does hereby accept full and exclusive liability for the compliance with all obligations imposed by the Employee State Insurance Act 1948 and the CONTRACTOR further agrees to defend, indemnify and hold OWNER harmless for any liability or penalty which may be imposed by the Central, State or Local authority by reason of any asserted violation by CONTRACTOR or SUB-CONTRACTOR of the Employees' State Insurance Act, 1948, and also from all claims, suits or proceeding that may be brought against the OWNER arising under, growing out of or by reasons of the work provided for by this CONTRACTOR, by third parties or by Central or State Government authority or any political sub- division thereof.

The CONTRACTOR agrees to fill in with the Employee's State Insurance Corporation, the Declaration Forms, and all forms which may be required in respect of the CONTRACTOR's or SUB-CONTRACTOR's employees, who are employed in the WORK provided for or those covered by ESI from time to time under the Agreement. The CONTRACTOR shall deduct and secure the agreement of the SUB- CONTRACTOR to deduct the employee's contribution as per the first schedule of the Employee's State Insurance Act from wages and affix the Employee's Contribution Card at wages payment intervals. The CONTRACTOR shall remit and secure the agreement of SUB-CONTRACTOR to remit to the State Bank of India, Employee's State Insurance Corporation Account, the Employee's contribution as required by the Act. The CONTRACTOR agrees to maintain all cards and Records as required under the Act in respect of employees and payments and the CONTRACTOR shall secure the agreement of the SUB-CONTRACTOR to maintain such records. Any expenses incurred for the contributions, making contributions or maintaining records shall be to the CONTRACTOR's or SUB-CONTRACTOR's account.

The OWNER shall retain such sum as may be necessary from the total VALUE OF CONTRACT until the CONTRACTOR shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948, have been paid. This will be pending on the CONTRACTOR when the ESI Act is extended to the place of work.

35.3 WORKMEN COMPENSATION AND OWNER'S LIABILITY INSURANCE:

Workmen Compensation and OWNER's Liability Insurance shall be taken by the CONTRACTOR at its own cost covering all its employees who are engaged in the performance of this CONTRACT. If any of the work is sublet, the CONTRACTOR shall require the SUB-CONTRACTOR to provide

workman's Compensation and OWNER's liability insurance for the latter's employees if such employees are not covered under the CONTRACTOR's Insurance.
The policy shall indicate:

a. Contract No./ Work Order no.
b. Complete scope of work
c. Site/ location details
d. Details of workmen to be insured
e. Validity period of the insurance coverage

35.4 TRANSIT INSURANCE

Bidder shall have to submit transit policy for the material to be transported from CUGL store to contractor sites or the same shall be covered in contractor all risk policy (CAR) with clearly mention in the CAR policy regarding transit insurance.

35.5 CONTRACTOR'S ALL RISK INSURANCE POLICY (CAR)

The contractor shall take all risk insurance policy at its own cost to cover physical loss or damage to the works at the site occurring prior to acceptance of work or part thereof taken over by the OWNER at its sole discretion with an extended maintenance coverage for the contractor's liability including Third Party Liability in respect of any loss or damage during the warranty period. Endorsements to the policy shall include coverage for faulty workmanship and materials.

Contractor will be required to take insurance coverage of minimum 1.5 times the order value to cover the cost of free issue material/items issued by the OWNER and the cost of materials being procured by the CONTRACTOR.

The Third-Party Liability section of the CAR Policy shall also provide coverage of not less than 1.5 times of the order Value for each and every occurrence and in the aggregate. However, the CONTRACTOR expressly acknowledges and agrees that such insurance coverage shall not in any manner limit, restrict, cap, or reduce its contractual, statutory, tortious, or indemnity liabilities under this CONTRACT.

In the event that:
(i) any claim amount exceeds the available insurance coverage;
(ii) the insurer repudiates, rejects, avoids, contests, limits, or refuses payment of any claim, in whole or in part;
(iii) any exclusion, exception, condition, breach, non-disclosure, misrepresentation, or act of the CONTRACTOR results in denial or reduction of insurance benefits; or
(iv) the insurance proceeds are otherwise insufficient to fully satisfy any loss, damage, liability, compensation, award, judgment, settlement, or claim, the CONTRACTOR shall remain solely and absolutely liable for the entire uninsured, underinsured, disallowed, or excess portion of such loss, damage, liability, compensation, cost, or claim, and shall promptly indemnify and keep indemnified the OWNER against the same without any limitation whatsoever.

The CONTRACTOR further agrees that insurance shall not be construed as a substitute for its liability under the CONTRACT. The CONTRACTOR's liability shall continue irrespective of the existence, validity, adequacy, exhaustion, or availability of any insurance coverage.

In the event that the insurance limit is exhausted, reduced, impaired, or otherwise becomes insufficient due to one or more claims, accidents, incidents, or occurrences during the execution of the Works, Defects Liability Period, or Warranty Period, the CONTRACTOR shall, at its own cost and without any demand from the OWNER:

(a) immediately reinstate the insurance coverage to the originally required limits;
(b) obtain additional insurance coverage or replacement insurance policies;
(c) maintain continuous and uninterrupted insurance protection for the entire remaining duration of the CONTRACT, Defects Liability Period, and Warranty Period; and
(d) furnish documentary evidence of such reinstatement, renewal, replacement, or enhancement of coverage to the OWNER within seven (7) days of such exhaustion, reduction, or impairment.

Failure of the CONTRACTOR to obtain, maintain, renew, reinstate, or extend the required insurance coverage shall constitute a material breach of the CONTRACT, without prejudice to the OWNER's right to obtain such insurance at the CONTRACTOR's risk and cost and/or recover all resulting losses, damages, costs, and expenses from the CONTRACTOR.

The policy shall indicate:

a. Contract No./ Work Order no.
b. Complete scope of work
c. Site/ location details
d. Type of risks covered
e. Validity period of the insurance coverage

The contractor shall take all risk insurance policy at its own cost to cover physical loss or damage to the works at the site occurring prior to acceptance of work or part thereof taken over by the OWNER at its sole discretion with an extended maintenance coverage for the contractor’s liability in respect of any loss or damage during the warranty period. Endorsements to the policy shall include coverage for faulty workmanship and materials.

The policy shall indicate complete scope of work, site, location details of work, type of risks covered and validity of the insurance

35.6 ANY OTHER INSURANCE REQUIRED UNDER LAW OR REGULATIONS OR BY OWNER:
CONTRACTOR shall also carry and maintain any and all other insurance(s), which he may be required under any law or regulation from time to time without any extra cost to OWNER. He shall also carry and maintain any other insurance which may be required by the OWNER

36. DAMAGE TO PROPERTY OR TO ANY PERSON OR ANY THIRD PARTY

36.1 The CONTRACTOR shall exercise the highest degree of care, skill, diligence, and precaution in the transportation, handling, movement, storage, operation, and use of its plants, machinery, equipment, tools, vehicles, materials, personnel, and other resources at or in connection with the Works.

36.2 The CONTRACTOR shall ensure that no injury, loss, damage, destruction, interference, disruption, or adverse impact is caused to any person, property, utility, installation, structure, service, or asset belonging to the OWNER or to any third party, including but not limited to overhead transmission lines, underground cables, pipelines, utility corridors, roads, buildings, equipment, communication networks, water lines, sewer lines, gas pipelines, electrical installations, and other public or private property.

36.3 In the event of any loss, damage, destruction, injury, death, claim, demand, liability, cost, expense, penalty, charge, compensation, or proceeding arising out of or resulting from any act, omission, negligence, breach, default, misconduct, recklessness, or failure of the CONTRACTOR, its

subcontractors, agents, representatives, employees, workmen, vendors, suppliers, or any person acting on its behalf, the CONTRACTOR shall be solely and exclusively responsible and liable for the same.

36.4 The CONTRACTOR shall, at its sole cost and expense, promptly repair, restore, replace, or compensate for all such loss or damage to the satisfaction of the OWNER and/or the affected third party. The CONTRACTOR shall also be liable for all consequential, indirect, incidental, and special damages, including but not limited to loss of production, loss of revenue, loss of profit, business interruption, loss of services, operational disruption, statutory liabilities, penalties, and any other losses suffered by the OWNER or any third party arising out of such incident.

36.5 Notwithstanding anything contained elsewhere in this CONTRACT, including any limitation of liability, exclusion of damages, liquidated damages provision, insurance provision, or any other clause to the contrary, the CONTRACTOR's liability towards any third party and its indemnity obligations under this CONTRACT shall be unlimited in amount and shall not be subject to any cap, ceiling, threshold, limitation, or restriction whatsoever, including any limitation linked to the CONTRACT Price, CONTRACT Value, Work Order Value, Purchase Order Value, insurance coverage amount, or any other monetary limit.

36.6 The CONTRACTOR expressly agrees that its liability in respect of third-party claims shall survive and continue irrespective of whether the amount of such liability exceeds the total CONTRACT Value or the value of the Works executed under the CONTRACT.

37. INDEMNITY AND DEFENSE OBLIGATION

37.1 The CONTRACTOR shall defend, indemnify, and keep indemnified, protected, and harmless the OWNER, its affiliates, directors, officers, employees, representatives, consultants, and agents from and against any and all claims, demands, actions, suits, proceedings, judgments, awards, decrees, orders, liabilities, damages, losses, costs, expenses, penalties, fines, interest, and legal fees (including advocate fees and litigation expenses on a full indemnity basis) arising directly or indirectly from:

a. bodily injury, illness, disease, or death of any person;
b. loss of or damage to any property of any third party or the OWNER;
c. damage to utilities, pipelines, cables, roads, buildings, structures, or public infrastructure;
d. environmental damage or pollution;
e. any act, omission, negligence, misconduct, breach of statutory duty, breach of contract, or violation of law by the CONTRACTOR or its subcontractors;
f. any claim, proceeding, or compensation sought by any third party in relation to the execution of the Works.

37.2 The foregoing indemnity shall apply irrespective of whether such claim, action, suit, or proceeding is filed directly against the OWNER, jointly against the OWNER and the CONTRACTOR, or solely against the CONTRACTOR.

37.3 For abundant clarity, it is expressly agreed that the CONTRACTOR's liability to compensate any third party shall arise immediately upon the occurrence of the loss, damage, injury, or claim and shall not be conditional upon:

a. any claim being filed against the OWNER;
b. the OWNER being impleaded as a party in any proceeding;
c. any finding of liability against the OWNER; or
d. the OWNER first making payment to the affected third party.

37.4 The CONTRACTOR shall remain fully liable to satisfy and settle all third-party claims even where such claims are pursued solely against the CONTRACTOR.

38. REIMBURSEMENT OF AMOUNTS PAID BY THE OWNER

38.1 If, for any reason whatsoever, the OWNER is required, directed, compelled, advised, or ordered by any court, tribunal, arbitral tribunal, governmental authority, statutory authority, regulator, or any competent forum to pay, deposit, compensate, reimburse, or otherwise discharge any amount in respect of any third-party claim, damage, injury, loss, or liability attributable directly or indirectly to the CONTRACTOR, the CONTRACTOR shall immediately reimburse and indemnify the OWNER for the entire amount so paid or incurred by the OWNER, together with all associated legal costs, advocate fees, expert fees, administrative expenses, interest, penalties, and other incidental or consequential costs.

39. SURVIVAL

39.1 The obligations, responsibilities, liabilities, indemnities, warranties, and undertakings of the CONTRACTOR under this Contract, including but not limited to those relating to third-party claims, loss or damage to property, personal injury, death, statutory violations, environmental liabilities, and indemnification of the OWNER, shall survive the completion of the Works, issuance of any completion certificate, taking-over of the Works by the OWNER, final payment, settlement of accounts, expiration of the Defects Liability Period or Warranty Period, and any suspension, expiry, cancellation, or termination of this CONTRACT for any reason whatsoever.

39.2 Without prejudice to the foregoing, the CONTRACTOR shall remain fully liable for any accident, loss, damage, defect, claim, demand, action, suit, proceeding, liability, or cause of action that arises, occurs, is discovered, is notified, or remains pending during the Defects Liability Period, Warranty Period, or thereafter, to the extent such matter is attributable, directly or indirectly, to any act, omission, negligence, breach, default, misconduct, or failure of the CONTRACTOR, its subcontractors, employees, agents, or representatives.

39.3 The obligations and liabilities of the CONTRACTOR under this Clause shall continue in full force and effect and shall remain enforceable until all such claims, proceedings, liabilities, losses, damages, costs, expenses, and obligations have been finally resolved, satisfied, and discharged, irrespective of any contractual limitation period or the closure of the CONTRACT.

40. DATE OF COMING INTO EFFECT

40.1 The date of coming into effect shall be the date of Notification of Award unless otherwise specified in SCC.

41. EXECUTION OF WORK

41.1 The CONTRACTOR shall be responsible for ensuring that works throughout are executed in the most substantial, proper and workmanlike manner with the quality of material and workmanship in strict accordance with the SPECIFICATIONS and to the entire satisfaction of the ENGINEER-IN-CHARGE. The CONTRACTOR shall provide all necessary materials equipment labour etc. for execution and maintenance of WORK till completion unless otherwise mentioned in the CONTRACT.

42. CONSTRUCTION AIDS, EQUIPMENTS, TOOLS & TACKLES

42.1 CONTRACTOR shall be solely responsible for making available for executing the WORK, all requisite CONSTRUCTION EQUIPMENTS, Special Aids, Barges, Cranes and the like, all Tools, Tackles and Testing Equipment and Appliances, including imports of such equipment etc. as required. In case of import of the same the rates applicable for levying of Custom Duty on such Equipment,

Tools, & Tackles and the duty drawback applicable thereon shall be ascertained by the CONTRACTOR from the concerned authorities of Government of India. It shall be clearly understood that OWNER shall not in any way be responsible for arranging to obtain Custom Clearance and/or payment of any duties and/or duty draw backs etc. for such equipments so imported by the CONTRACTOR and the CONTRACTOR shall be fully responsible for all taxes, duties and documentation with regard to the same. Bidder in his own interest may contact, for any clarifications in the matter, concerned agencies/Dept./Ministries of Govt. of India. All clarifications so obtained and interpretations thereof shall be solely the responsibility of the CONTRACTOR.

43. CARE OF WORKS

43.1 From the commencement to completion of the WORK, the CONTRACTOR shall take full responsibility for the care for all works including all temporary works and in case any damages, loss or injury shall happen to the WORK or to any part thereof or to any temporary works from any cause whatsoever, shall at his own cost repair and make good the same so that at completion the WORK shall be in good order and in conformity in every respects with the requirement of the CONTRACT and the ENGINEER-IN- CHARGE's instructions.

44. ALTERATIONS IN SPECIFICATIONS, DESIGN AND EXTRA WORKS -PRESENT

44.1 The WORK covered under this CONTRACT having to be executed by the CONTRACTOR on a lump sum firm price. The OWNER will not accept any proposals for changes in VALUE OF CONTRACT or extension in time on account of any such changes which may arise to the CONTRACTOR's scope of WORK as a result of detailed Engineering and thereafter during the execution of WORK. The only exception to this will be a case where the OWNER requests in writing to the CONTRACTOR to upgrade the SPECIFICATIONS or the size of any major pieces of equipment, plant or machinery beyond what is normally required to meet the scope of WORK as defined in the CONTRACT DOCUMENT.

44.2 In such cases, a change order will be initialled by the CONTRACTOR at the appropriate time for the OWNER's prior approval giving the full back-up data for their review and for final settlement of any impact on price within 30 (thirty) days thereafter.

45. OWNER MAY DO PART OF WORK

45.1 Upon failure of the CONTRACTOR to comply with any instructions given in accordance with the provisions of this CONTRACT the OWNER has the alternative right, instead of assuming charge of entire WORK, to place additional labour force, tools, equipments and materials on such parts of the WORK, as the OWNER may designate or also engage another CONTRACTOR to carry out the WORK. In such cases, the OWNER shall deduct from the amount which otherwise might become due to the CONTRACTOR, the cost of such work and material with ten percent (10%) added to cover all departmental charges and should the total amount thereof exceed the amount due to the CONTRACTOR, the CONTRACTOR shall pay the difference to the OWNER.

46. POSSESSION PRIOR TO COMPLETION

46.1 The ENGINEER-IN-CHARGE shall have the right to take possession of or use any completed or partially completed WORK or part of the WORK. Such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the CONTRACT agreement. If such prior possession or use by the ENGINEER-IN- CHARGE delays the progress of WORK, equitable adjustment in the time of completion will be made and the CONTRACT agreement shall be deemed to be modified accordingly.

47. SUSPENSION OF WORKS

47.1 Subject to the provisions of sub-para (ii) of this clause, the CONTRACTOR shall, if ordered in writing by the ENGINEER-IN-CHARGE, or his representative, temporarily suspend the WORKS or any part thereof for such written order, proceed with the WORK therein ordered to be suspended until, he shall have received a written order to proceed therewith. The CONTRACTOR shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of the WORKS aforesaid. An extension of time for completion, corresponding with the delay caused by any such suspension of the WORKS as aforesaid will be granted to the CONTRACTOR should he apply for the same provided that the suspension was not consequent to any default or failure on the part of the CONTRACTOR

47.2 In case of suspensions of entire WORK, ordered in writing by ENGINEER-IN-CHARGE, for a period of more than two months, the CONTRACTOR shall have the option to terminate the CONTRACT

48. CARE OF WORKS

48.1 **Defects prior to taking over**:

If at any time, before the WORK is taken over, the ENGINEER-IN-CHARGE shall:

a) Decide that any works done or materials used by the CONTRACTOR or by any SUB-CONTRACTOR is defective or not in accordance with the CONTRACT, or that the works or any portion thereof are defective, or do not fulfil the requirements of CONTRACT (all such matters being hereinafter, called `Defects' in this clause), and

b) As soon as reasonably practicable, gives to the CONTRACTOR notice in writing of the said decision, specifying particulars of the defects alleged to exist or to have occurred, then the CONTRACTOR shall at his own expenses and with all speed make good the defects so specified.

In case CONTRACTOR shall fail to do so, the OWNER may take, at the cost of the CONTRACTOR, such steps as may in all circumstances, be reasonable to make good such defects. The expenditure so incurred by the OWNER will be recovered from the amount due to the CONTRACTOR. The decision of the ENGINEER-IN-CHARGE with regard to the amount to be recovered from the CONTRACTOR will be final and binding on the CONTRACTOR. As soon as the WORK has been completed in accordance with the CONTRACT (except in minor respects that do not affect their use for the purpose for which they are intended and except for maintenance there of provided in tender document and have passed the tests on completion, the ENGINEER-IN-CHARGE shall issue a certificate (hereinafter called Completion Certificate) in which he shall certify the date on which the WORK have been so completed and have passed the said tests and the OWNER shall be deemed to have taken over the WORK on the date so certified. If the WORK has been divided into various groups in the CONTRACT, the OWNER shall be entitled to take over any group or groups before the other or others and there upon the ENGINEER-IN-CHARGE shall issue a Completion Certificate which will, however, be for such group or groups so taken over only. In such an event if the group /section/ part so taken over is related, to the integrated system of the work, not withstanding date of grant of Completion Certificate for group/ section/ part. The period of liability in respect of such group/ section/ part shall extend 12 (twelve) months from the date of completion of WORK.

48.2 Defects after taking over:

In order that the CONTRACTOR could obtain a COMPLETION CERTIFICATE he shall make good, with all possible speed, any defect arising from the defective materials supplied by the CONTRACTOR or workmanship or any act or omission of the CONTRACT or that may have been noticed or developed, after the works or groups of the works has been taken over, the period allowed for carrying out such WORK will be normally one month. If any defect be not remedied within a reasonable time, the OWNER may proceed to do the WORK at CONTRACTOR's risk and expense and deduct from the final bill such amount as may be decided by the OWNER.

If by reason of any default on the part of the CONTRACTOR a COMPLETION CERTIFICATE has not been issued in respect of any portion of the WORK within one month after the date fixed by the CONTRACT for the completion of the WORK, the OWNER shall be at liberty to use the WORK or any portion thereof in respect of which a completion certificate has not been issued, provided that the WORK or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completing these works for the issue of Completion Certificate.

49. REPLACEMENT OF DEFECTIVE PARTS AND MATERIALS

49.1 If during the progress of the WORK, OWNER shall decide and inform in writing to the CONTRACTOR, that the CONTRACTOR has manufactured any plant or part of the plant unsound or imperfect or has furnished plant inferior to the quality specified, the CONTRACTOR on receiving details of such defects or deficiencies shall at his own expenses within 7 (seven) days of his receiving the notice, or otherwise within such time as may be reasonably necessary for making it good, proceed to alter, re-construct or remove such work and furnish fresh equipments upto the standards of the specifications. In case the CONTRACTOR fails to do so, OWNER may on giving the CONTRACTOR 7 (seven) day's notice in writing of his intentions to do so, proceed to remove the portion of the WORK so complained of and at the cost of CONTRACTOR's, perform all such works or furnish all such equipments provided that nothing in the clause shall be deemed to deprive the OWNER of or affect any rights under the CONTRACT, the OWNER may otherwise have in respect of such defects and deficiencies.

49.2 The CONTRACTOR's full and extreme liability under this clause shall be satisfied by the payments to the OWNER of the extra cost, of such replacements procured including erection/installation as provided for in the CONTRACT; such extra cost being the ascertained difference between the price paid by the OWNER for such replacements and the CONTRACT price portion for such defective plants and repayments of any sum paid by the OWNER to the CONTRACTOR in respect of such defective plant. Should the OWNER not so replace the defective plant the CONTRACTOR's extreme liability under this clause shall be limited to the repayment of all such sums paid by the OWNER under the CONTRACT for such defective plant.

50. DEFENCE OF SUITS

50.1 If any action is brought before a Court, Tribunal or any other Authority against the OWNER or an officer or agent of the OWNER, for the failure, omission or neglect on the part of the CONTRACTOR to perform any acts, matters, covenants or things under the CONTRACT, or damage or injury caused by the alleged omission or negligence on the part of the CONTRACTOR, his agents, representatives or his SUB-CONTRACTOR's, or in connection with any claim based on lawful demands of SUB-CONTRACTOR's workmen or employees, the CONTRACTOR, shall in such cases indemnify and keep the OWNER and/or their representatives harmless from all losses, damages, expenses or decrees arising out of such action.

51. DEDUCTIONS FROM THE CONTRACT PRICE

51.1 All costs, damages or expenses which OWNER may have paid or incurred, which under the provisions of the CONTRACT, the CONTRACTOR is liable/will be liable, will be claimed by the OWNER. All such claims shall be billed by the OWNER to the CONTRACTOR regularly as and when they fall due. Such claims shall be paid by the CONTRACTOR within 15 (fifteen) days of the receipt of the corresponding bills and if not paid by the CONTRACTOR within the said period, the OWNER may, then, deduct the amount from any moneys due i.e., Contract Performance Security or becoming due to the CONTRACTOR under the CONTRACT or may be recovered by actions of law or otherwise, if the CONTRACTOR fails to satisfy the OWNER of such claims

52. COMPLETION CERTIFICATE

52.1 Application for completion certificate: When the CONTRACTOR fulfils his obligation under Clause 0 he shall be eligible to apply for

52.2 Completion certificate.

The ENGINEER-IN-CHARGE shall normally issue to the CONTRACTOR the COMPLETION CERTIFICATE within one month after receiving any application therefore from the CONTRACTOR after verifying from the completion documents and satisfying himself that the WORK has been completed in accordance with and as set out in the construction and erection drawings, and the CONTRACT DOCUMENTS.

The CONTRACTOR, after obtaining the COMPLETION CERTIFICATE, is eligible to present the final bill for the WORK executed by him under the terms of CONTRACT.

52.3 Completion certificate:

Within one month of the completion of the WORK in all respects, the CONTRACTOR shall be furnished with a certificate by the ENGINEER-IN-CHARGE of such completion, but no certificate shall be given nor shall the WORK be deemed to have been executed until all scaffolding, surplus materials and rubbish is cleared off the SITE completely nor until the WORK shall have been measured by the ENGINEER-IN-CHARGE whose measurement shall be binding and conclusive. The WORKS will not be considered as complete and taken over by the OWNER, until all the temporary works, labour and staff colonies are cleared to the satisfaction of the ENGINEER-IN-CHARGE.

If the CONTRACTOR fails to comply with the requirements of this clause on or before the date fixed for the completion of the WORK, the ENGINEER-IN-CHARGE may at the expense of the CONTRACTOR remove such scaffolding, surplus materials and rubbish and dispose off the same as he thinks fit and clean off such dirt as aforesaid, and the CONTRACTOR shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realised by the sale thereof.

52.4 COMPLETION CERTIFICATE DOCUMENTS:

For the purpose of Clause 0 the following documents will be deemed to form the completion documents:

a. The technical documents according to which the WORK was carried out.
b. Four (4) sets of construction drawings showing therein the modification and correction made during the course of execution and signed by the ENGINEER-IN-CHARGE/Site In-charge.
c. iCOMPLETION CERTIFICATE for `embedded' and `covered' up work.
d. Certificates of final levels as set out for various works.

e. Certificates of tests performed for various WORKS.
f. Material appropriation, Statement for the materials issued by the OWNER for the WORK and list of surplus materials returned to the OWNER's store duly supported by necessary documents.

53. FINAL DECISION AND FINAL CERTIFICATE

53.1 Upon expiry of the period of liability and subject to the ENGINEER-IN-CHARGE being satisfied that the WORKS have been duly completed by the CONTRACTOR and that the CONTRACTOR has in all respect duly made-up any subsidence and performed all his obligations under the CONTRACT, the ENGINEER-IN-CHARGE shall (without prejudice to the rights of the OWNER to retain the provisions of relevant Clause hereof) otherwise give a certificate herein referred to as the FINAL CERTIFICATE to that effect and the CONTRACTOR shall not be considered to have fulfilled the whole of his obligations under CONTRACT until FINAL CERTIFICATE shall have been given by the ENGINEER-IN- CHARGE notwithstanding any previous entry upon the WORK and taking possession, working or using of the same or any part thereof by the OWNER.

54. CERTIFICATE AND PAYMENTS ON EVIDENCE OF COMPLETION

54.1 Except the FINAL CERTIFICATE, no other certificates or payments against a certificate or on general account shall be taken to be an admission by the OWNER of the due performance of the CONTRACT or any part thereof or of occupancy or validity of any claim by the CONTRACTOR.

55. CONTRACTOR'S RESPONSIBILITY

55.1 The contractor shall depute his supervisor for supervision of the services, as per the scope of services mentioned and to receive instructions from Engineer-In-Charge or his representative.

55.2 Contractor shall make the salary payment to his personnel on or before 7th of every month and provide acknowledgement of salary slip by his personnel to the OWNER. In case of default by the contractor, OWNER will hold the release of contractor's payment till the contractor makes the payment of salary to his personnel or OWNER may take suitable action at the risk & cost of Contractor.

55.3 Accommodation/ Transportation/ Conveyance/ Medical: The Contractor shall make his own arrangement for the accommodation & medical assistance to his personnel at respective locations and subsequent transportation / conveyance arrangement for them from their place of residence to work place or any other place as required and OWNER shall have no obligation in this respect. The OWNER shall not be responsible for providing any medical assistance to the contractor personnel.

55.4 Discipline: The Contractor shall be responsible for the discipline and good behaviour of all his personnel deployed in the services and should any complaint be received against any of his employee, he shall arrange to replace such person(s) within 24 hours of notice issued by the Engineer-in-Charge at his own cost. The decision of the Engineer-in-Charge in this matter shall be final and binding on the Contractor.

55.5 Gate pass/ Identity Card/ Uniform: The Contractor shall arrange for the gate pass, uniforms & requirement of supply/ renewal of identity cards to his workforce as per design to be approved by OWNER at his own cost, if so required by OWNER for security or for any other reasons. Contractor's personnel shall be required to carry their respective Identity Cards while on duty and produce on demand.

56. MODIFICATION IN CONTRACT

56.1 All modifications leading to changes in the Contract with respect to technical and/or commercial aspects shall be considered valid only when accepted in writing by OWNER by issuing amendment to

the Contract. Issuance of acceptance or otherwise in such cases, shall not be any ground for extension of agreed completion date and also shall not affect the performance of contract in any manner except to the extent mutually agreed through a modification of Contract.

56.2 OWNER shall not be bound by any printed conditions or provisions in the Contractor's Bid Forms or acknowledgment of Contract, invoices, packing list or any other documents, which imposes any conditions at variance with or supplemental to Contract.

57. RIGHT TO GET SERVICES CARRIED OUT THROUGH OTHER AGENCIES

57.1 Nothing contained herein shall restrict OWNER from accepting similar services from other agencies at its sole discretion and at the risk and cost of the contractor, if the contractor fails to provide the said services any time not up to the satisfaction of Engineer-in-Charge.

58. SUB-LETTING OF CONTRACT

58.1 No part of this contract, nor any share or interest therein, in any manner or extent, will be transferred or assigned or sub-let, directly or indirectly, to any person / firm or organisation by the contractor without written consent of OWNER.

59. EMPLOYMENT LIABILITY OF CONTRACTOR

59.1 The Contractor shall indemnify OWNER & shall be solely and exclusively responsible for any liability arising due to any difference or dispute between him and his employee / Third Party for the execution of this contract at any time during / after the contract period is over. All workmen engaged by the contractor shall be on his roll and be paid by him and OWNER shall have no responsibility towards them.

59.2 The Contractor shall be directly responsible and indemnify the OWNER against all charges, claims, dues, etc. arising out of disputes relating to the dues and employment of personnel deployed by him.

59.3 The Contractor shall indemnify the OWNER against all losses or damages caused to it on account of acts of the personnel deployed by the contractor.

59.4 The Contractor shall ensure regular and effective supervision of the personnel deployed by him.

60. COMPLIANCE OF LAWS

60.1 The contractor deploying contract labour shall obtain license from appropriate licensing authority as per prevailing rules & regulation and as modified from time to time during contract period.

60.2 The contractor (which shall include the contracting firm / company) shall be solely liable to obtain and to abide by all necessary licenses from the concerned authorities as provided under the various Labour Laws / legislations including labour license from the competent authority under the The Occupational Safety, Health and Working Conditions Code, 2020 and Acts made thereafter.

60.3 The Contractor shall also be bound to discharge obligations as provided under various statutory enactments including Code on Wages, 2019, Occupational Safety, Health and Working Conditions Code, 2020, Code on Social Security, 2020 , Industrial Relations Code, 2020 and other relevant Acts, Rules & Regulations in force from time to time.

60.4 The Contractor shall be responsible for necessary contributions towards PF, Family Pension, ESIC or any other statutory payments to Government Agencies as applicable under the laws in respect of the contract and of personnel deployed by the contractor for rendering services to OWNER and shall deposit the required amount with the concerned statutory authorities on or before due dates. The contractor shall obtain a separate PF number from the concerned Regional Provident Fund

Commissioner and submit necessary proof of having deposited the employees as well as the OWNER's contribution to the Provident Fund. The contractor shall also be responsible for payment of any administration / inspection charges thereof, wherever applicable, in respect of personnel deployed by him relating to the work of OWNER.

60.5 The Contractor shall not engage / deploy any person of less than 18 years under this contract, and the person(s) to be deployed should be physically and mentally fit.

60.6 The installations where job is to be carried out are live and have hydrocarbon environment. Contractor shall comply with all safety and security rules and regulations and other rules laid down by OWNER for its operation. Contractor shall follow best Engineering practice and relevant international safety standards. It shall be duty / responsibility of the Contractor to ensure the compliance of fire safety, security and other operational rules and regulations by his personnel. Disregard to these rules by the Contractor's personnel will lead to the termination of the Contract in all respects and shall face penal / legal consequences.

60.7 Personnel protective items like safety helmets, safety shoes, hand gloves, eye protection, cotton working overalls / dresses (not synthetic materials) and other required materials for the safety of the contractor's personnel shall be arranged by the contractor himself. However fire fighting equipment shall be arranged by OWNER.

60.8 The Contractor shall arrange for life insurance for all his personnel deployed on the job as per the relevant Acts, rules and regulations, etc. In case by virtue of provisions of Workers Compensation Act, 1923 or any other law in force, OWNER has to pay compensation for a workman employed by the Contractor due to any cause whatsoever, the amount so paid shall be recovered from the dues payable to the Contractor and/or security deposit with OWNER. General third party insurance for CNG Station shall be arranged by OWNER.

61. THE ENGINEER-IN-CHARGE

61.1 Issue the contractor from time to time during the running of the Contract such further instructions as shall be necessary for the purpose of proper and adequate execution of the Contract and the Contractor shall carry out and bound by the same.

61.2 During the currency of this Contract, OWNER can increase and / or decrease the number of the services required & quantity of work /services shown in from the Schedule of Rates.

61.3 Order the Contractor to remove or replace any workmen whom the OWNER considers incompetent or unsuitable and opinion of the OWNER representative as to the competence of any workman engaged by the contractor shall be final and binding on the Contractor. Key personnel can be deployed at site only after getting approval from the OWNER.

62. REPATRIATION AND TERMINATION

62.1 OWNER shall reserve the right, at any time during the currency of the contract without assigning any reason thereof to terminate it by giving 30 days notice to contractor, and upon expiry of such notice period the contractor shall vacate the site / office provided to him by OWNER immediately.

62.2 Goods procured by the Contractor, but not utilised till date of termination will be the responsibility of the Contractor and no claim will be entertained by the OWNER for the same.

62.3 Also OWNER will not be responsible for any cost incurred by the Contractor including but not limited to repatriation of the workers, lease amount deposit for accommodation provided to the workers, etc. In case OWNER has to incur expenses due to the same, the same shall be recovered from the dues payable to the contractor and / or security deposit held with OWNER.

63. INDEMNITY

63.1 Contractor shall exclusively be liable for non-compliance of the provisions of any act, laws rules and regulations having bearing over engagement of workers directly or indirectly for execution of Contract and the Contractor hereby undertake to indemnify the OWNER against all actions, suits, proceedings, claims, damages demands, losses, etc. which may arise under Code on Wages, 2019, Occupational Safety, Health and Working Conditions Code, 2020, Code on Social Security, 2020 , Industrial Relations Code, 2020, The Fatal Accidents Act, 1855 The Uttar Pradesh Shops and Commercial Establishments Act, 1962 , and deposit Linked Insurance schemes or any other act or statutes not herein specifically mentioned but having direct or indirect application for the persons engaged under this contract.

63.2 Contractor's sub-ordinate staff and their conduct

63.3 Contractor, on or after award of the Contract shall Name and Depute a qualified engineer having sufficient experience in carrying out work of similar nature, to whom the equipments, materials, if any, shall be issued and instructions for works given. The Contractor shall also provide to the satisfaction of the PMC/Engineer-In-Charge. sufficient and qualified staff to superintend the execution of the Contract, foremen and leading hands including those specially qualified by previous experience to supervise the types of works comprised in the Contract in such manner as will ensure work of the best quality, expeditious working. Whenever in the opinion of the PMC/Engineer-In-Charge additional properly qualified supervisory staff is considered necessary, they shall be employed by the Contractor without additional charge on accounts thereof.

63.4 If and whenever any of the Contractor's assistants, foremen, or other employees shall in the opinion of PMC or Engineer -in- Charge be guilty of any misconduct or be incompetent or insufficiently qualified or negligent in the performance of their duties of that in the opinion of the OWNER or the Engineer-In-Charge, it is undesirable for administrative or any other reason for such person or persons to be employed in the works, the Contractor, is so directed by the Engineer-In-Charge, shall at once remove such person or persons from employment thereon. Any person or persons so removed from the works shall not again be employed in connection with the Contract without the written permission of the Engineer-In-Charge. Any person so removed from the Contract shall be immediately re-placed at the expense of the Contractor by a qualified and competent substitute. Should the Contractor be requested to repatriate any person removed from the works he shall do so and shall bear all costs in connection herewith.

63.5 The Contractor shall be responsible for the proper behaviour of all the staff, foremen, workmen, and others, and shall exercise a proper degree of control over them and in particular and without prejudice to the said generality, the Contractor shall be bound to prohibit and prevent any employees from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neighbourhood and in the event of such employee so trespassing, the Contractor shall be responsible therefore and relieve the OWNER of all consequent claims or actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-In-Charge upon any matter arising under this clause shall be final. The Contractor shall be liable for any liability to OWNER on account of deployment of Contractor's staff etc. or incidental or arising out of the execution of Contract.

63.6 The Contractor shall be liable for all acts or omissions on the part of his personnel, staff, foremen and workmen / labour and others in his employment, including misfeasance or negligence of whatever kind in the course of their work or during their employment, which are connected directly or indirectly with the Contract.

64. JURISDICTION

64.1 The CONTRACT shall be governed by and constructed according to the laws in force in INDIA. The CONTRACTOR hereby submits to the jurisdiction of the Courts situated at KANPUR for the purposes of disputes, actions and proceedings arising out the CONTRACT, the courts at KANPUR only will have the jurisdiction to hear and decide such disputes, actions and proceedings.

65. FORCE MAJEURE

65.1 In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by it under this agreement, the relative obligation of the party affected by such Force Majeure shall, after notice under this article be suspended for the period during which such cause lasts.

65.2 The term Force Majeure as employed herein shall mean act of god, war/hostilities, riot/civil commotion, earthquake, Tsunami, fire, flood, tempest, lightening or other natural disaster, restriction imposed by the government or other statutory bodies, acts and regulations or any of its authorised agencies.

65.3 Upon such occurrence, contractor shall immediately inform the OWNER and only in case OWNER decides, contractor shall interrupt the CNG re-fuelling. In case of any emergency, contractor shall activate Emergency Response Plan (ERP) as per OWNER's approved procedures.

65.4 Upon the occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid thereby, shall notify the other party in writing within forty eight (48) hours of the alleged beginning and ending thereof giving full particulars and satisfactory evidence in support of its claim.

65.5 Time for performance of the relative obligation suspended by the Force Majeure shall then stand extended for the period for which such cause lasts.

65.6 Notwithstanding the foregoing, in the event of an urgent situation requiring immediate action on the part of the Owner, the Contractor may inform the Engineer-in-Charge directly through immediate modes of communication like phone, WhatsApp, or text message. However, any such preliminary intimation shall be recognized and valid only if it is subsequently ratified by a formal written communication sent via email or speed post within the stipulated timeframe. In the absence of such formal written notice, the preliminary communication shall be deemed invalid and shall not be considered in the event of any dispute.

66. EVALUATION OF CONTRACTORS PERFORMANCE

66.1 Performance of the contractors awarded shall be evaluated as per vendor's evaluation policy of CUGL which is available on CUGL's website.

67. PRICE REDUCTION SCHEDULE (PRS)

67.1 Time is the essence of the Contract. In case the Contractor fails to complete the Work within the Contractual Completion period, then, unless such failure is due to Force Majeure as defined herewith or due to Owner's defaults, the Contractor shall pay to the Owner, by way of compensation for delay and not as penalty, a sum @ ½% (half per cent) per complete week of delay of the value of the "supply portion for the quantity" OR "the work portion" that is delayed per complete week subject to maximum of 5% (Five Per Cent) of the total contract value.

67.2 The parties agree that this is a genuine pre-estimate of the loss/damage which will be suffered on account of delay/breach on the part of the Contractor and the said amount will be payable on demand without there being any proof of the actual loss or damages caused by such delay/breach. The decision

of Owner in regard to the actual delay shall be final and binding on the Contractor. All sums payable by way of compensation shall be considered as reasonable compensation without reference to the actual loss or damage which shall have been sustained.

67.3 In case of delay in delivery on the part of Seller, the invoice/document value shall be reduced proportionately for the delay and payment shall be released accordingly. In the event the invoice value is not reduced proportionately for the delay, the Purchaser may deduct the amount so payable by Seller, from any amount falling due to the Seller or by recovery against the Performance Guarantee.

68. CROSS-CONTRACT RECOVERY AND SET-OFF

68.1 Without prejudice to any other rights or remedies available to the Owner under this Contract or applicable law, the Owner shall be entitled to withhold, deduct, recover or set off any amounts due and payable by the Contractor to the Owner under this Contract, including any admitted, determined or otherwise contractually recoverable dues, losses, damages, penalties, costs or expenses, from any amounts payable to the Contractor under any other ongoing or separate contract(s) awarded by the Owner to the same Contractor.

68.2 Similarly, the Owner shall be entitled to recover, adjust or set off any amounts due and payable by the Contractor to the Owner under any other contract(s) awarded by the Owner to the same Contractor, from any amounts payable to the Contractor under this Contract, including pending bills, Running Account (RA) Bills, final bills or any other payments, subject to the terms and conditions of the respective contracts and the applicability of such cross-contract recovery provisions.

68.3 The Contractor expressly acknowledges and agrees to the exercise of the aforesaid rights of cross-contract recovery and set-off by the Owner, to the extent permissible under the respective contracts and applicable law. The Contractor shall not raise any objection merely on the ground that the amounts sought to be recovered arise out of a contract other than the present Contract. However, this shall not prejudice the Contractor's right to raise a dispute regarding the correctness, computation or contractual admissibility of the amount sought to be recovered, in accordance with the dispute resolution provisions of the relevant Contract.

68.4 Any adjustment or recovery from Security Deposits, Retention Money or Performance Bank Guarantees shall be governed by the specific terms and conditions applicable to such securities and guarantees, and shall be subject to applicable law. Nothing contained herein shall be construed as authorising any adjustment against or appropriation of a Performance Bank Guarantee otherwise than in accordance with its terms.

SECTION-IV

SPECIAL CONDITIONS OF CONTRACT (SCC)

SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). In the event of any conflict, ambiguity, or inconsistency between the SCC and the GCC, the provisions of the SCC shall prevail and supersede those of the GCC. Corresponding GCC clause numbers are provided in parentheses.

1.0 DEFINITIONS

GCC 1.1(c) : The Consultant is: Resonance Energy Pvt. Ltd

Bid Documents: shall mean documents issued to the bidder pursuant to IFB Clause 7 and listed in ITB.

GCC 1.1 (h): Effective Date: shall mean the date on which Contractor's obligations will commence and that will be the date of First Notification of Award / Fax of Intent.

2.0 INTERPRETATIONS

2.1 Where any portion of the GCC is repugnant to or at variance with any provisions of the SCC then, unless a different intention appears, the provisions of the SCC shall be deemed to govern the provisions of the GCC and SCC provisions shall prevail to the extent of such repugnancy, or variations exist.

2.2 In Contract Documents unless otherwise stated specifically, the singular shall include the plural and vice versa wherever the context so requires.

2.3 Notwithstanding the sub-division of the Contract Documents into separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the Agreement so far as it may be practicable to do so.

2.4 All headings, subtitles and marginal notes to the clauses of the GCC, SCC or to the Specifications or to any other part of Bid Document are solely for the purpose of giving a concise indication and not a summary of the contents thereof, and they shall never be deemed to be part thereof or be used in the interpretation or construction thereof.

2.5 The terms fully capitalized and/or initial capitalized shall be interchangeable and shall have the meaning as assigned to fully capitalized term or initial capitalised term.

3.0 INSPECTIONS AND TESTS

3.1 During execution of work, the works shall be inspected by the Owner or its authorised representative for acceptance of the same.

3.2 For contractor's supplied items, Third Party Inspection report shall be submitted by the contractor.

3.3 The Owner/ Consultant or its representative shall have the right to inspect and/ or to test the material to confirm their conformity to the specifications

3.4 If any inspected or tested material fail to conform the specifications, the Owner/ Consultant may reject them and the Contractor shall either replace the rejected materials or make all the alterations necessary to meet the specifications, free of cost to the Owner/ Consultant.

4.0 STATUTORY VARIATIONS IN TAXES

4.1 The entire work covered under this contract shall be treated as works contract services..

Any statutory variation in the GST during the scheduled completion period only shall be considered by the owner against documentary evidence.

5.0 PAYMENT TERMS AND MODE OF PAYMENT

5.1 1st running bill (RA bill) shall be processed only after submission of statuary documents like Workmen Compensation (WC) policy, Insurance policies (Open transit policy), labour license, BOCW registration (under the Code on Social Security, 2020)Contractor All Risk (CAR) policy, GST registrations of UP. Running bill shall be processed only after submission of RPFC/ESI challans of previous month.

5.2 **In the event that an existing CUGL contractor participating in this Tender has any previous Work Order (WO) remaining unclosed for more than six (6) months, the value of unconsumed Free Issue Material (FIM) / pending material reconciliation against such Work Order shall be recovered by deduction from the fissrst RA Bill payable under the present contract.**

5.3 To ensure continuous works and connectivity of Domestic PNG Connections, no running bills shall be accepted for MDPE Laying alone. The RA Bills should be covering the Above Ground GI Works of 50 PNG Connections as well.

5.4 Payment shall be made for actual MDPE Laying.

5.5 The Payment terms for Execution of Work shall be as follows:

The contractor shall submit material reconciliation statement. Contractor will raise the RA bill on monthly basis and payment shall be made on certification of bill by Engineer- in-Charge as follows:

5.5.1 PE and Related Work (Method: Open Cut &Trenchless i.e. HDD, with or without casing/service line/KMZ file along with coordinates) where gas is available.

i) 45% on completion of laying work Including jointing of pipeline, backfilling and compaction for the complete stretch as per scope of work, graphs and free issued material booking statement.

ii) 25% on testing of completed network and submission of "As Built, As Graph Drawings" subject to installation of permanent markers in the network area.

iii) 20% on commissioning (gas charging) of the network subject to installation of valve chambers and network area handover to owner.

iv) Balance 10% on purchase / work order closure and submission of all documents as per contract for the work executed till final bill submission and reconciliation of free issued material.

5.5.2 Jointing, Testing, Commissioning and documentations of already laid pipeline.

i) 90% on testing Commissioning and submission of As Built, As Graph Drawing

ii) Balance 10% on purchase / work order closure and submission of all documents as per contract for the work executed till final bill submission and reconciliation of free issued material.

5.5.3 Site Survey & Liasoning with Land Owning Agencies for Permissions

i) 10% After Submission and approval of Survey Drawing.
ii) 80% After Commissioning with 100% utilization of the network and restoration of the site.

iii) Balance 10% on purchase / work order closure and submission of all documents as per contract for the work executed till final bill submission and reconciliation of free issued material.

5.5.4 GI / Copper/MLC and Related Work (HSE/Meter Installation)

i) 55% after installation and testing
ii) 35% After submissions of JMR including RFC Documents
iii) Balance 10% on purchase / work order closure and submission of all documents as per contract for the work executed till final bill submission and reconciliation of free issued material.

5.5.5 Restoration Of Excavated Works

i) 55% after Submission of all Reports.
ii) 35% After Receipt the NOC & BG from land owing agency
iii) Balance 10% on purchase / work order closure and submission of all documents as per contract for the work executed till final bill submission and reconciliation of free issued material.

5.5.6 Civil & other Works (Not Covered Above)

i) 90% progressively on completion of individual item work as certified in monthly progress bill.

ii) 10% Balance on completion of all works in all respects and acceptance thereof by Engineer-in-Charge and closure of purchase / work order.

5.6 The Payment shall be released through RTGS only.

5.7 Contractor to note that they can raise RA bills up to 90% of total awarded value of individual Purchase/ Work Order, balance amount will be paid on closure of Purchase / Work Order.

6.0 PAYMENT METHODOLOGY

6.1 The contractor shall raise invoices on monthly basis for works carried out duly certified by Engineer-in-Charge in triplicate. The contractor to ensure that the invoices of completed work should be raised & duly certified by Engineer-in-charge within one month to avoid any statutory penalties on delay in paying taxes.

6.2 The payment shall be released within 30 days from the date of receipt of invoice, if found to be in order and duly certified by PMC.

6.3 Owner will release payment as per SCC clause 5.

6.4 Notwithstanding anything contained in Clause 6.2 above, the period of 30 days for release of payment shall be computed solely from the date of final verification and approval of the invoice by the Engineer-in-Charge, along with all requisite legal, statutory, and contractual compliances and authentic supporting documents. In the event of any deficiency, missing documentation, or non-compliance, the invoice shall be deemed invalid, and the Contractor shall be required to submit a fresh invoice after rectifying all such defects along with a written declaration of full statutory compliance. The Contractor shall not be entitled to claim any interest, compensation, or penalty for any delay in payment resulting from such resubmission or non-compliance. It shall be the sole responsibility of the Contractor to ensure the completeness and legitimacy of all required documents prior to invoice submission. The Owner or Engineer-in-Charge shall bear no obligation or liability to notify or educate the Contractor regarding any missing documents or non-compliances prior to rejecting the invoice.

7.0 COMPENSATION FOR IDLE TIME

7.1 The Owner shall make every reasonable effort to have free issue materials and right - of - use (ROU) available so as not to delay laying activities. No Idle time claim shall be entertained under any circumstances.

8.0 HEALTH SAFETY AND ENVIRONMENT (HSE)

8.1 The Contractor will strictly adhere to Health Safety and Environment policy of this Bid document.

8.2 All the safety rules and regulations prevailing and applicable from time to time at the installations as directed by OWNER will be strictly adhered to by the Contractor.

8.3 Contractor has to ensure the safety of man and machine all the times. Damages to equipment due to bad workmanship/negligence will be recovered as per the decision of Engineer-in-Charge, which will be final and binding upon the contractor.

8.4 The contractor shall supply all the protective safety equipment like helmets / hard head hats, gumboots / safety shoes, hand gloves, safety belts, eye protection, ear protection etc. to his workmen at his own cost as required by operations.

8.5 Carrying / striking of matches, open flames, lighters or smoking or other such acts, which may cause fire hazards at the work site / in the terminals / installations, is strictly prohibited.

8.6 Tobacco/ Ghutka chewing or other such acts, are strictly prohibited at the site.

8.7 The Contractor shall strictly ensure that no worker, laborer, supervisor, agent, subcontractor, or authorized representative enters the site premises, operates machinery, or performs any duties under the influence of alcohol, narcotics, psychotropic substances, or any impairing drug. This mandate extends to medically prescribed or over-the-counter medications that may compromise mental alertness, physical coordination, judgment, or cognitive faculties, and the Contractor shall immediately notify the PMC/Engineer-in-Charge or HSE Officer prior to deploying any personnel currently taking such medication, reassigning them away from hazardous or safety-critical operations if required. The Owner, PMC, or Engineer-in-Charge reserves the absolute right to conduct random, unannounced breathalyzer screenings, drug tests, and physical assessments on any personnel within the site boundaries at any time. Any individual found to be in violation of this safety mandate shall be immediately ejected from the site and permanently banned from re-entry, and any failure by the Contractor to rigorously enforce this policy shall constitute a material breach of contract, subjecting the Contractor to immediate financial penalties, work suspension, and full indemnification of the Owner against all legal liabilities, statutory fines, or damages arising therefrom.Contractor shall follow CUGL's Safety Manual. Contractor may refer the Safety Manual which is available at CUGL's web site and as per Section-VI of tender documents.

9.0 PROVIDENT FUND

9.1 The Contractor shall strictly comply with the provisions of The Code on Social Security, 2020 applicable in India and register them with Regional Provident Fund Commission (RPFC) before commencing the work. The Contractor shall deposit employees and Owners contributions to the RPFC every month. The Contractor shall furnish along with each running bill, the challan / receipt for payment made to the RPFC for the preceding months.

9.2 In case the RPFC's challan / receipt, as above, is not furnished, Owner shall deduct 5% (Five percent) of the payable amount from Contractor's running bill and retain the same as a deposit such retained amount shall be refunded to Contractor on production of RPFC Challan /receipt for the period covered by the related running bill.

9.3 In case it is observed that contractor fails to submit requisite RPFC Challans along with bills more than once during the tenancy of the contract and submits subsequently a token penalty per instance may be imposed by owner as per clause 24.

10.0 POWER AND WATER CONNECTION

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

11.0 CONSTRUCTION AIDS, EQUIPMENTS, TOOLS & TACKLES

11.1 CONTRACTOR shall be solely responsible for making available for executing the WORK, all requisite CONSTRUCTION EQUIPMENTS, Special Aids, Barges, Cranes and the like, all Tools, Tackles and Testing Equipment and Appliances, including Customs of such equipment etc. as required. In case of Customs of the same the rates applicable for levying of Custom Duty on such Equipment, Tools, & Tackles and the duty drawback applicable thereon shall be ascertained by the CONTRACTOR from the concerned authorities of Government of India. It shall be clearly understood that OWNER shall not in any way be responsible for arranging to obtain Custom Clearance and/or payment of any duties and/or duty draw backs etc. for such equipment so imported by the CONTRACTOR and the CONTRACTOR shall be fully responsible for all taxes, duties and documentation with regard to the same.

12.0 CONDITIONS FOR ISSUE OF MATERIALS

12.1 Whenever any material is issued by Owner, following conditions in addition to other conditions as specified in the contract shall be applicable.

12.2 Necessary indents will have to be raised by the Contractor as per procedure laid down by the Engineer in- charge from time to time, when he requires the above material for incorporation in permanent works.

12.3 Materials will be issued only for permanent works and not for temporary works, enabling works etc. unless specifically approved by the Engineer-in-charge and the same shall not be taken into account for the purpose of materials reconciliation.

12.4 The contractor shall bear all other cost including lifting, carting from issue points to work. Site/ contractor's store, custody and handling etc. and return of surplus/ serviceable scrap materials to Owner's storage points to be designated by the Engineer-in-charge etc. No separate payment for such expenditure will be made.

12.5 No material shall be allowed to be taken outside the plant without a gate pass.

12.6 The contractor shall be responsible for proper storage, preservation and watch & ward of the materials.

12.7 All free issue material shall be issued to contractor against submission of indemnity bond against each WO for 100% value of respective WO value.

12.8 In case manufacturing defect found in free issue material, same shall be communicated to Engineer-In-Charge within one month from the date of issue of material and material shall be return to CUGL store within 45 days from the date of issue of material. In case contractor fail to return the defective materials to CUGL store, penalty equal to twice of landed cost of defective materials shall be imposed by Engineer in Charge & his decision will be final & binding on the contractor.

12.9 Contractor to ensure that all free issue material shall be installed within a maximum period of 30 days from the date of issue.

12.10 Unconsumed free issue material value at any point of time against any WO should not exceed 20% of the maximum WO Value.

12.11 FIM will be issued to contractor against WO only after receipt of CPBG & Indemnity bond.

12.12 THE CODE ON SOCIAL SECURITY, 2020Applicability – the said act is applicable to every establishment which employs or had employed on any day often preceding twelve months, 10 or more building workers in any 'Building or other construction work' ("building or other construction work" (BOCW) means the construction, alteration, repairs, maintenance or demolition in relation to buildings, streets, roads, railways, tramways, airfields, irrigation, drainage, embankment and navigation works, flood control works (including storm water drainage works), generation, transmission and distribution of power, water works (including channels for distribution of water), oil and gas installations, electric lines, internet towers, wireless, radio, television, telephone, telegraph and overseas communications, dams, canals, reservoirs, watercourses, tunnels, bridges, viaducts, aquaducts, pipelines, towers, cooling towers, transmission towers and such other work as may be specified in this behalf by the Central Government, by notification, but does not include any building or other construction work which is related to any factory or mine or any building or other construction work employing less than ten workers in the preceding twelve months or where such work is related to own residential purposes of an individual or group of individuals for their own residence and the total cost of such work does not exceed fifty lakhs rupees or such higher amount and employing more than such number of workers as may be notified by the appropriate Government).

13.0 NON COMPLIANCE RATIONALIZATION

13.1 In case of non-availability of required material to be provided by the contractor and the material being available with CUGL, it can be issued to the contractor on chargeable basis. The charges payable by the contractor shall be in advance and at the last WO rate plus 15% overhead charges. However, any delay on account of non-availability of material shall be to contractor's account for applicability of Penalty clause.

14.0 CONTRACTOR'S OBLIGATION AT SITE

14.1 Contractor shall establish site office in the respective areas, allotted to them with adequate facilities like three tables, six chairs, telephone, computer with mailing (internet), printer (including consumables), file rack, AC etc. for effective communication and documentation.

14.2 In addition to above, contractor shall provide separate space with facilities like two tables, six chairs, two telephones, two computers with mailing (internet), printer with consumables, file racks, AC etc. and one office boy within the site office for CUGL & CONSULTANT for effective monitoring & documentation of the project.

14.3 Contractor shall provide 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.

14.4 Contractors shall make appropriate arrangements to ensure that their supervisor(s) are adequately mobile and can attend sites or meetings with CUGL, other authorities or customers as required, without any undue delay.

14.5 Contractors shall provide cell phones to their supervisors for day-to-day communication with CUGL and site representatives of CUGL.

14.6 Contractor shall employ a Project Manager / Coordinator, Billing engineer and two site engineers on company roll. Contractor shall submit Electronic Challan cum Return (ECR) of PF deposit of all employees deployed on CUGL site as proof that employees are on company pay role. The Project Manager / Coordinator must have qualification of BE Mech / Diploma in Mech Engineering with min. 3-5 years, Billing engineer must be Graduate with minimum 3 years' experience & Site Engineers must have minimum Diploma in Mechanical Engineering with 3 years of work experience in gas pipe line job. The contractor shall submit CV of Project manager/Coordinator to CUGL and shall take prior approval from CUGL before deployment at the site.

14.7 Project Manager/ Coordinator shall be single point of contact for all the works and must represent company in the meetings. However, for all monthly review meetings, Owner of the contractor company shall have to be present as and when called by CUGL/Consultant.

14.8 The Contractor shall immediately inform the Owner in writing of any intended change in key site personnel. Every such change must be duly supported by an authorization letter, a notarized Power of Attorney, or a certified copy of the Board Resolution / Minutes of Meeting. The replacement personnel shall assume charge on site only after formal written acceptance by the Owner.

14.9 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.

14.10 Contractor shall deploy Equipment, Tools & tackles etc., at site as defined in tender documents.

14.11 1 No. commercial vehicle (four wheeler with driver) at disposal of site in-charge of CUGL. It shall be well equipped with tools and tackles for attending online connections, VIP cases/ urgent installation and on-going execution work. In case of not providing vehicle within 30 days from date of LOI, contractor shall be liable for penalty of Rs. 2000/- per day. For emergency commute, vehicle should be available for CUGL Officer/PMC/TPIA.

14.12 Contractor shall complete all the activities defined in clause no. 15.1 & 15.2 above within 30 days from the date of LOI. On failure to fulfil the requirement, contractor shall be liable for a penalty of Rs. 2000 per day.

15.0 IT RELATED RESOURCES:

15.1 Contractor is required to arrange for Smartphones/Tablets for its teams/supervisor which would be required to capture the connection details through filed mobility software provided by CUGL. The tentative requirement for smartphone shall be as follows:

- 4GB RAM.

- 5.3 inch Screen (minimum).
- 2G/3G/ 4G (2300 MHz) Connectivity (4G for video uploads).
- GPS Chip (for Location Tracking) with A-GPS (for accuracy during absence of internet).
- GHz Quad Core Processor.
- 8MP+ Back Camera.
- 5MP+ Front Camera.
- 3,500+ mAh Battery Size.
- Android Version 6.0 and above.

15.2 Contractor shall arrange a high speed scanner at his office to ensure scanning and uploading of documents prepared on site as per CUGL requirement.

15.3 Contractor shall arrange to provide the optical code scanner with option for connectivity with smartphone to ensure automatic scanning and meter serial no. capturing in the smartphone application.

16.0 RECONCILIATION OF OWNER SUPPLIED MATERIALS

16.1 The Contractor is responsible for completing the "Material Used" section of the worksheet for each job completed. This record will be used for the reconciliation of material at the end of the job or contract.

16.2 It is mandatory that the contractor is required to undertake and submit inventory details of free issue and purchased materials on monthly basis to Owner/ Owner's representative as per the approved format of the owner. The inventory details shall be in correlation with the Daily progress chart and material reconciliation sheet. Material reconciliation statement of all free issue materials shall be carried out on every three months & reconciliation statement shall be submitted to CUGL.

16.3 After the final reconciliation is carried out, the variances in materials issued against materials used and returned, will be assessed. All unused, scrap materials and salvageable materials shall be the property of the Owner and shall be returned by the Contractor category-wise at his cost to the Owner's designated store yard (s). In case the Contractor fails to do so or exceeds the limits of allowances specified below for scrap/ serviceable materials, then recovery for such quantities not returned as well as returned in excess of permitted limit by the Contractor will be done at the penal rate i.e. 200% (Double of landed cost) at the time of final bill/ closing of contract by Engineer-in-charge shall be effected from the Contractor's bill (s) or from any other dues of the Contractor to the Purchaser. Contractor shall be responsible for the adjustment and measurement of the surplus materials to be returned to the store. Contractor shall also be responsible for suitable segregation of returned materials into separate stacks of serviceable and scrap materials. Wherever certain material is covered under Contractor's scope of supply whether part or in full for any item of work covered under SOR, no allowance towards wastage/ scrap etc. shall be accounted for during execution stage.

Item	Scrap	Unaccountable
Gas Meters	0	0
Regulators	0	0
RIV & Appliance valve	0	0
MDPE Pipes	1% (Length less than 2.0 Mtr.)	0.50%

	Material to be returned	
Gas Meters	0	0

Note:

1. Above-mentioned details are of consumed material.
2. **For usable material, the length of MDPE pipes measuring equal to or more than 2 metres shall be returned in a single continuous length, by duly joining the individual pieces using couplers**.
3. Contractors are required to join usable cut pieces on-site using electro fusion couplers instead of returning short lengths or claiming them as scrap.
4. In case of missing of Gas Meter, recovery shall be done at the rate of ten times of landed cost of material

16.4 Material consumption will be recorded on area wise basis. Material issued from the CUGL stores shall be consumed, recorded and returned using the same CUGL item code.

16.5 Any payments due to the Contractor may be with held to cover these charges.

16.6 All waste materials, part lengths of pipe and other partly used items are the property of CUGL and must be returned to the stores with the appropriate documentation so that they can be considered as part of the material reconciliation.

17.0 COMPLIANCE WITH LAW

17.1 Contractor shall abide by all prevailing Laws of India including but not limited to:

a) The Apprentices Act, 1961
b) The Occupational Safety, Health and Working Conditions Code, 2020 (OSH Code)
c) The Employers' Liability Act, 1938
d) The Environment (Protection) Act, 1986
e) The Industrial Relations Code, 2020
f) Code on Wages, 2019
g) Code on Social Security, 2020
h) Any other Statute, Act, Law as applicable.

18.0 STATUTORY APPROVALS

18.1 General permissions shall be obtained by the Purchaser. However, working approval from any authority required as per statutory rules and regulation of Central/ State Government/ Local Bodies shall be the Contractor's responsibility unless otherwise specified in the bid document. The application on behalf of the Purchaser for submission to relevant authorities along with copies of required certificates complete in all respects shall be prepared and submitted by the Contractor well ahead of time so that the actual construction/ commissioning of the work is not delayed for want of the approval/ inspection by concerned authorities.

18.2 The Contractor shall be responsible for arranging the inspection of the work by the authorities and necessary co-ordination and liaison work. However, Owner will reimburse the statutory fees paid by the contractor at actual on production of documentary evidence.

18.3 Any change/ addition required to be made to meet the requirements of the statutory authorities shall be carried out by the Contractor without additional cost to Owner. The inspection and acceptance of the work by statutory authorities shall however, not absolve the Contractor from any of his responsibilities under this Contract.

19.0 SITE CLEANING

19.1 Contractor shall clean and keep clean (Housekeeping and cleanliness) the work site always to the satisfaction of the PMC or Engineer–in-charge for easy access to work site and to ensure safe passage, movement and working.

19.2 The Contractor shall dispose of the unserviceable materials, debris etc. to any area, as decided by the PMC or Engineer–In–Charge.

19.3 No extra payment shall be paid on this account.

20.0 WORKMANSHIP

20.1 Regarding work completion, the decision of the Engineer-in-Charge will be final and binding.

20.2 The work executed and material supplied shall be to the satisfaction of Engineer-in-Charge and contract price shall include for any incidental and contingent work although not specifically mentioned in the contract but is necessary for its completion in an efficient and workman like manner.

20.3 The Engineer-in-Charge, either directly or upon the recommendation of the PMC, or through an authorized representative, shall inspect and approve the quality of all materials proposed or used by the Contractor from time to time. No material shall be incorporated into the works without such prior formal approval.

21.0 PENALTIES

CUGL shall have right to levy following penalties on the Contractor and deduct applicable amount from the Contractor's Running Bills:

21.1 Penalties in respect of violation of CUGL HSE Policy shall be applicable as per Section VI.

21.2 The PNG Target shall be equally divided in No. of months offered in the WO.

21.3 The penalty pertaining to monthly targets (JMR) shall be held from RA Bills as per the discretion of the EIC/Consultant and would only be released in Final Closure of WO, after successfully achieving the targets.

21.4 The penalty shall be deducted for shortfall in target.

For each non achieved JMR target: Rs. 600.

21.5 Penalty for Late Submission of JMR is proposed as:

JMR Submission will be performed within 2 days from RFC, otherwise penalty of Rs 50.00 per day per JMR will be imposed till submission (For online JMR submission).

JMR Submission to be done within 15 days from RFC, otherwise penalty of Rs 50.00 per day sper JMR will be imposed till submission (For offline JMR submission).

21.6 The contractors have to achieve the WO wise targets and there shall not be any waiver from penalty.

21.7 The waiver from the penalty could only be granted for reasons not attributable to the contractor and based on the recommendation of PMC. The decision of EIC shall be final in such cases.

21.8 **Non-availability of required Manpower (Project Manager, Billing Engineer, Supervisor, DEO) – 1000 per day shall be levied from the running bill.**

21.9 In case of non-submission of material reconciliation statement on monthly basis or along with each RA bill**, Rs 10,000 per** instance of delay shall be levied from the running bill.

21.10 In case of delay in submission of **Monthly Progress Report** by contractors **@ Rs. 5000 per instance**. (MPR to be submitted by contractor by **07th of every month**)

21.11 In case of usage of contractor's supplied-material procured from vendor other than CUGL approved list or without inspection and prior approval EIC/site in charge, **Rs. 50,000/-** per instance shall be levied to the contractor from running bill.

21.12 In case of non-compliance of statutory provisions penalty will be imposed by the owner as detailed below:

a. Contractor's failure to submit EPF/ ESI challans of previous month along with the bills during the validity of the contract, Owner shall **deduct 5% (Five percent)** of payable amount from the contractor's running bill and retain the same as a deposit. Such retained amount shall be refunded to contractor on production of EPF challan/ receipt in immediate subsequent month after deducting penalty. In case of non-submission of challans for a particular month, a penalty of Rs. 5000/- per month of delay **shall be imposed for that particular month.** This penalty will be applicable even if contractor has deposited dues with applicable interest and penalties.

b. Delay of more than 21 days from the date of work order in obtaining / submitting WC cover or taken for shorter duration will result into penalty of Rs. 5000/- per week of delay or part thereof and maximum upto INR 40,000/-.

c. Delay of more than 21 days from the date of work order in obtaining / submitting the required insurance policies as specified in the tender document will result into a penalty of **Rs. 5000/- per week** or part thereof and maximum upto INR 40,000/-.

d. The contractor must obtain labour licence or suitable undertaking as per the state law at the start of work for allotted site. Delay of more than 30 days from the date of work order in submitting the labour licence or suitable undertaking as per the state law shall attract a penalty of Rs. 5000/- per week or part thereof.

e. Contractor has to submit CPBG as per terms of contract within 21 days from the date of LOI. For any delay beyond 21 days in submitting CPBG of requisite amount as well as timely extension of value and / or time period shall attract a penalty of Rs. 5000/- per week for delay.

21.13 In case required numbers of equipment, Tools & Tackles as per the lists enclosed with the Technical Specifications for laying of PE Pipelines and technical Specification for Laying of MDPE pipes and associated works, could not be provided by the contractor at the time of need, a notice shall be issued to the contractor by CUGL Site- In-charge and Rs 1000.00 per day shall be levied as penalty till such time the equipment, Tools & Tackles are available for completion of the work.

21.14 The Contractor shall use portable generator for any site works. In case, if contractor uses electricity from societies/individual residents then the same shall be settled by the contractor and CUGL shall not be responsible for any such claims.

21.15 In case contractor fails to start execution of MDPE Laying & associated works allocated work within 30 days, CUGL shall with-held 5% of amount of such allocated work from contractor's RA bill if reasons are attributable to contractor. If contractor fails to start such work within 45 days, CUGL reserves the right to offload the allocated work, if delay is attributable to contractor and another 5% amount shall be with-held.

21.16 Such with-held amount may be released after penalty analyses recommendation from PMC as per SCC Clause 22. The Penalty in such case (wherein work has been offloaded) shall be calculated from the 31st day of allocation of work till the offloading date based on recommendation of CUGL Site In-charge/PMC.

22.0 MONTHLY TARGETS AND PENALTIES FOR SHORTFALL OF ACHIEVING TARGETS

22.1 The site will be handed over to empanelled Vendor after having sufficient number/ Critical mass of registered Domestic Customers.

22.2 The target and time frame to achieve the same shall be decided by EIC and would be stipulated in the WO.

22.3 Monthly target shall be considered completed after submission of Laying of MDPE Pipeline & GI connections duly certified by PMC.

22.4 Final closure with final billing along with all necessary documentation must be completed within 60 days of the expiry of work order. In case of failure penalty will be imposed at rate of 25,000/- per week and maximum up to 5 lakhs.

22.5 The PNG Target shall be equally divided in No. of months offered in the WO. The penalty pertaining to monthly targets shall be held from RA Bills and would only be released in Final Closure of WO, after successfully achieving the targets. The penalty shall be deducted for shortfall in target.

22.6 The contractors have to achieve the WO wise targets and there shall not be any waiver from penalty. The waiver from the penalty could only be granted for reasons not attributable to the contractor and based on the recommendation of PMC. The decision of EIC shall be final in the cases.

22.7 Penalty for non - achievement of targets is proposed as:

For each non achieved target (JMR)	Rs. 600 for each non-achieved target.

23.0 COMPLETION DOCUMENT

23.1 Contractor in three sets shall submit the following documents in hard binder, as a part of completion documents:

a) Copies of the Inspection reports, Approved construction drawing, As-built drawing, Pneumatic testing, commissioning reports and other Test reports.

b) Consumption statements of free issue materials certified by Owner's Site Engineer.

c) Material Reconciliation.

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

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

f) No claim and No dues certificate by the Contractor.

g) Recovery statement, if any.

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

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

j) Copies of all documents related to statutory requirements like Labour License, CAR Policy, WCP, EPF, ESI challans etc.

k) Any other contractual documents required on completion.

24.0 TIME LIMIT FOR CLAIMS

24.1 Under no circumstances whatsoever, shall the contractor be entitled to any compensation from Owner on any account unless the contractor shall have submitted claim pertaining to the contract in writing to the Engineer-in-Charge within 30 days of cause of such a claim occurring. Contractor shall be deemed to have waived off is writes to claim the same, if the claim is not raised within this period.

25.0 MATERIAL TO BE SUPPLIED BY THE CONTRACTOR

25.1 Contractor will place timely orders on Owner's specified manufacturers/agencies so as to receive the material in accordance with the execution of project activities. The orders to be placed by the contractor shall incorporate certain clauses with respect to delivery schedule, guarantee/warranty, inspection and despatch clearance by Owner. The items and quantities shall be in accordance with the work to be executed and shall be verified by Owner for its appropriations.

25.2 All material will be manufactured as per approved Quality Assurance Plan (QAP) only to be specified by Owner. Material will be inspected by owner's appointed third party inspection (TPIA), the charges of which shall be in owner scope.

25.3 After approval of QAP, Contractor will submit a schedule production plan mentioning qty's of production along with inspection call at-least one week in advance from the date of commencement of production.

25.4 Contractor will submit a written request to Owner for dispatch clearance of material. For this purpose, he will be required to submit detailed material test inspection report and release note issued by the TPIA. On getting the dispatch clearance, the contractor will arrange material dispatch to the designated project site(s).

25.5 Contractor shall arrange for proper storage of his material distinctly separate from free-issued material. Contractor shall require appraising Owner regarding cover area, lock & key arrangement of its safe custody, resources marked safe and proper receiving, stocking, issuing, and maintaining all verifying records on regular basis.

25.6 Contract shall invariably submit copies of order placed by them on various agencies for sourcing material and shall ensure submission of invoices, challans/packing lists, LR Copy, material inspection report and guarantee/warranty certificate for each lot of material received at Owner's site.

25.7 All material should be covered under warranty for satisfactory performance for maximum period of defect liability of executed work. Any defect noticed during defect liability period shall be promptly attended as faulty material must be contractor's responsibility to take-up the matter with material supplier. Any delay on account of non-availability of ordered material or replacement of faulty material shall not be waived by the reason of material having ordered to and inspected by Owner's recommended agencies. Faulty material must be contractor's responsibility to take-up the matter with material supplier. Any delay on account of non-availability of ordered material or replacement of faulty material shall not be waived by the reason of material having ordered to and inspected by Owner's recommended agencies.

25.8 Before award of works order/ starting of work at allotted site, contractor shall provide details of stores and site office established by him for the intended work. Failing which the allocation of work may be deferred by Owner. Also, the contractors shall submit details of tools& tackles under his procession required for execution of the work. Owner shall verify all these aspects before allocating work to the contractor.

25.9 Contractor will not transfer any free issue as well as his supplied material to any other site/ any other contractor without prior written approval of the Engineer- In-charge.

26.0 CONTRACT PERFORMANCE BANK GUARANTEE

In Continuation to GCC Clause No.4 bidder to adhere followings:

Within twenty-one (21) days of the receipt of the notification of award/ Letter of Intent, or Work Order (whichever is issued first by the Owner) the successful bidder shall furnish the performance guarantee in accordance with General Conditionsof Contract in the form provided in the Bid documents.

26.1 Failure of the successful bidder to comply with the requirement of this clause shall constitute a breach of contract, cause for annulment of the award, forfeiture of the bid security and any such remedy the Owner may take under the Contract. Owner also reserves the right to debar the bidder in participating in the tenders for similar work for one year.

26.2 The Contract Performance Bank Guarantee should be kept valid for 90 days beyond the completion of contract performance period of one year from the date of completion of work in all respect. i.e. initial period of CPBG shall be **"Completion Period of Respective Work Order + Contract Performance Period of 12 months+ 90 days".**

26.3 In the event, if contract period is extended, the contractor shall have to extend the validity of the Contract Performance Bank Guarantee suitably to cover the extended period

27.0 CORRESPONDING ADDRESS

Purchaser/ Owner

FOR TENDER RELATED QUERIES:
(1) NAME : Mr. Shekhar Devidas Kankrej
E-mail: shekhar.kankrej@cugl.co.in

(2) NAME : Ms. Sushmita
E-mail: sushmita@cugl.co.in

SECTION - V

FORMS & FORMATS

Form 1
BIDDER'S GENERAL INFORMATION

(Information must be provided on bidder's letterhead)

1-1 Bidder Name: _____

1-2 Number of Years in Operation: _____

1-3 Address of Registered Office: _____

_____

City_____ District _____

State _____ PIN _____

1-4 Operation Address
(If different from above): _____

_____

City_____ District _____

State _____ PIN _____

1-5 Telephone Number: _____
(Area Code) (Telephone Number)

1-6 Mobile Number, if any _____

1-7 E-mail address: _____

1-8 Website: _____

1-9 Fax Number: _____
(Area Code) (Telephone Number)

1-10 ISO Certification, if any {If yes, please furnish details}_____

_____

1-11 Bank's Name : _____

1-12 Bank's Branch : _____

1-13 Branch Code : _____

1-14 Bank account number : _____

1-15 IFSC Code: _____

1-16 MICR Code: _____

1-17 Type of Firm: Proprietary/ Partnership/ PVT/Public Ltd.: _____

1-18 If others, please specify _____

1-19 **Details of Directors/ Proprietors/ Partners** _____

_____

_____

(Kindly attach separate sheets giving details for name of directors / proprietors and their stakes) along with the supporting documents.

1-20 PAN No.: _____

1-21 EPF No.: _____

1-22 GST Registration no.
(If registered) _____

1-23 If unregistered (Reason)

a) Turnover threshold

b) Providing exemption goods/services

c) Others (specify)

(SIGNATURE OF BIDDER WITH SEAL)

Note:

1 The above required information is required on the bidder's letterhead.
2 Bidders have to submit supporting documents for the above details including the following:
   a. PAN card copy
   b. GST certificate copy (of the same state as the office address mentioned above)
   c. Cancelled cheque of the bank account mentioned above

Form 2

BID FORM

To,
Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024 India

Bid Document No:

SUB :.

Dear Sir,

After examining / reviewing the Bidding Documents for the tender of "_____ including "Specifications & Scope of Work", "General Conditions of Contract [GCC]", "Special Conditions of Contract [SCC]" and "Schedule of Rates [SOR]", etc. the receipt of which is hereby duly acknowledged, we, the undersigned, are pleased to offer to execute the whole part of the job and in conformity with the said Bid Documents, including Addenda / Corrigenda Nos. _____.

We confirm that this Bid is valid for a period of "Four [04] months" from the date of opening of "Techno-Commercial / Un-priced Bid", and it shall remain binding upon us and may be accepted by any time before the expiry of that period.

If our Bid is accepted, we will provide the "Contract Performance Security / Security Deposit" equal to "_____ of the Contract Price" or as mentioned in Tender Document for the due performance within "twenty One [21] days" of such Award.

Until a final Agreement/Letter of Award is prepared and executed, the tender document (including addenda/ corrigenda) together with the "Notification of Award" shall constitute a binding Agreement between us.

We understand that Bidding Document is not exhaustive and any action and activity not mentioned in Bidding Documents but may be inferred to be included to meet the intend of the Bidding Documents shall be deemed to be mentioned in Bidding Documents unless otherwise specifically excluded and we confirm to perform for fulfillment of Agreement and completeness of the Work in all respects within the time frame and agreed price.

We understand that you are not bound to accept the lowest priced or any Bid that you may receive.

Place: [Signature of Authorized Signatory of Bidder]
Date: Name:
Designation:
Seal:

Duly authorized to sign Bid for and on behalf of _____

[Signature of Witness]
Name of Witness:
Address:

F-3

LIST OF ENCLOSURES

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :
Dear Sir,

We are enclosing the following documents as part of the bid:

1. Power of Attorney of the signatory to the Bidding Document.

2. Document showing annual turnover for the last three years such as annual reports, profit and loss account, net worth etc. along with information as sought in enclosed format F-16

3.Document showing Financial Situation Information as sought in enclosed format F-16

4. Copy of Bidding Documents along with addendum/corrigendum duly signed and sealed on each page, in token of confirmation that Bid Documents are considered in full while preparing the bid and in case of award, work will be executed in accordance with the provisions detailed in Bid Documents.

5. Documentary Evidences showing the Bidder's claim of meeting Technical Criteria as mentioned in Clause 9 of ITB.

6. Bid Security/EMD*

7. Power of Attorney*

8. Duly certified document from chartered engineer and or chartered accountant.

Note: * In case of e-bidding the bidder has the option to submit specified documents in physical form on/before the bid due date or within seven days from the bid opening date. However, scanned copy of these (same) documents must be submitted on-line as part of e-bid before the bid due date/time.

Place:
Date:

[Signature of Authorized Signatory of Bidder]
Name:
Designation:
Seal:

FORM-4

PROFORMA OF "BANK GUARANTEE" FOR "EARNEST MONEY / BID SECURITY"

(To be stamped in accordance with the Stamp Act)

Ref.....

Bank Guarantee No.....
Date.....

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :.

Dear Sir(s),

In accordance with Letter Inviting Tender under your reference No _____ M/s. _____ having their Registered / Head Office at _____ (hereinafter called the Tenderer), wish to participate in the said tender for_____

As an irrevocable Bank Guarantee against Earnest Money for the amount of _____ is required to be submitted by the Tenderer as a condition precedent for participation in the said tender which amount is liable to be forfeited on the happening of any contingencies mentioned in the Tender Document.

We, the _____ Bank at _____having our Head Office _____ (Local Address) guarantee and undertake to pay immediately on demand without any recourse to the tenderers by Central UP Gas Limited, the amount _____ _____ without any reservation, protest, demur and recourse. Any such demand made by CUGL, shall be conclusive and binding on us irrespective of any dispute or difference raised by the Tenderer.

This guarantee shall be irrevocable and shall remain valid up to _____ [this date should be two (02) months beyond the validity of the bid].If any further extension of this guarantee is required, the same shall be extended to such required period on receiving instructions from M/s. _____ whose behalf this guarantee is issued.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on this _____day of _____ 20__ at _____.

WITNESS:

(SIGNATURE) (SIGNATURE)

(NAME)

(OFFICIAL ADDRESS)

(NAME)
Designation with Bank Stamp
Attorney as per
Power of Attorney No. _____
Date: _____

INSTRUCTIONS FOR FURNISHING "BID SECURITY / EARNEST MONEY" BY "BANK GUARANTEE"

1. The Bank Guarantee by Bidders will be given on non-judicial stamp paper as per "Stamp Duty" applicable. The non-judicial stamp paper should be in the name of the issuing Bank. In case of foreign Bank, the said Bank's Guarantee to be issued by its correspondent Bank in India on requisite non-judicial stamp paper

2. The expiry date should be arrived at in accordance with "ITB: Clause-15.1".

3. The Bank Guarantee by bidders will be given from Bank as specified in "ITB".

4. A letter from the issuing Bank of the requisite Bank Guarantee confirming that said Bank Guarantee / all future communication relating to the Bank Guarantee shall be forwarded to the Employer at its address as mentioned at "ITB".

5. Bidders must indicate the full postal address of the Bank along with the Bank's E-mail / Fax / Phone from where the Earnest Money Bond has been issued.

6. If a Bank Guarantee is issued by a commercial Bank, then a letter to Employer confirming its net worth is more than Rs. 1,000,000,000.00 [Rupees One Hundred Crores] or equivalent alongwith documentary evidence.

F-5
LETTER OF AUTHORITY

[Pro forma for Letter of Authority for Attending Subsequent 'Negotiations' / 'Pre-Bid Meetings' /'Un-priced Bid Opening' / 'Price Bid Opening']

Ref: Date:

To,
Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :.

Dear Sir,

I/We, _____ hereby authorize the following representative(s) for attending any 'Negotiations' / 'Meetings [Pre-Bid Meeting]', 'Un-priced Bid Opening', 'Price Bid Opening' and for any subsequent correspondence / communication against the above Bidding Documents:

[1] Name & Designation _____ Signature _____
Phone/Cell:
Fax:
E-mail: …….. @ ……

[1] Name & Designation _____ Signature _____
Phone/Cell:
Fax:
E-mail: …….. @ ……

[2] Name & Designation _____ Signature _____
Phone/Cell:
Fax:
E-mail: …….. @ ……

We confirm that we shall be bound by all commitments made by aforementioned authorised representative(s).

Place: [Signature of Authorized Signatory of Bidder]
Date: Name:
Designation:
Seal:

This "Letter of Authority" should be on the **"letterhead"** of the Firm / Bidder and should be signed by a person competent and having the 'Power of Attorney' to bind the Bidder. Not more than 'two [02] persons per Bidder' are permitted to attend "Techno-commercial / Un-priced" & "Price Bid" Openings. Bidders authorized representative is required to carry a copy of this authority letter while attending the un-priced and priced bid opening, the same shall be submitted to CUGL.

Form 6

"NO DEVIATION" CONFIRMATION

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:

SUB :.

Dear Sir,

We understand that any 'deviation / exception' in any form may result in rejection of Bid. We, therefore, certify that we have not taken any 'exception / deviation' anywhere in the Bid and we agree that if any 'deviation / exception' is mentioned or noticed, our Bid may be rejected.

Place:
Date:

[Signature of Authorized Signatory of Bidder]
Name:
Designation:
Seal:

FORM-7

DECLARATION REGARDING HOLIDAY/BANNING AND LIQUIDATION, COURT RECEIVERSHIP

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Dear Sir,

We hereby confirm that we are not on 'Holiday' by CUGL or banned by Government department/ Public Sector on due date of submission of bid.

We also confirm that we are not under any liquidation, court receivership or similar proceedings or 'bankruptcy'.

In case it comes to the notice of CUGL that the bidder has given wrong declaration in this regard, the same shall be dealt as 'fraudulent practices' and action shall be initiated as per provision of tender document.

Further, we also confirm that in case there is any change in status of the declaration prior to award of contract, the same will be promptly informed to CUGL by us.

Place: [Signature of Authorized Signatory of Bidder] Date:
Name:
Designation:
Seal:

FORM-8
CERTIFICATE FOR NON-INVOLVMENT OF GOVT. OF INDIA

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :.
Dear Sir,

If we become a successful Bidder and pursuant to the provisions of the Bidding Documents, award is given to us for the tender for " _____", the following Certificate shall be automatically enforceable:

"We agree and acknowledge that the Employer is entering into the Agreement solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood & agreed that the Government of India is not a party to the Agreement and has no liabilities, obligations or rights thereunder. It is expressly understood and agreed that the Employer is authorized to enter into Agreement, solely on its own behalf under the applicable laws of India. We expressly agree, acknowledge and understand that the Employer is not an agent, representative or delegate of the Government of India. It is further understood and agreed that the Government of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the Agreement. Accordingly, we hereby expressly waive, release and forego any and all actions or claims, including cross claims, VIP claims or counter claims against the Government of India arising out of the Agreement and covenants not to sue to Government of India as to any manner, claim, cause of action or things whatsoever arising of or under the Agreement."

Place: [Signature of Authorized Signatory of Bidder] Date:
Name:
Designation:
Seal:

FORM-9
PROFORMA OF "BANK GUARANTEE" FOR "CONTRACT PERFORMANCE SECURITY / SECURITY DEPOSIT"
(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)

To,
Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India
PERFORMANCE GUARANTEE No.

Dear Sir(s),
M/s. _____ having registered office at _____ (herein after called the "contractor" which expression shall wherever the context so require include its successors and assignees) have been awarded the work of _____ vide LOA /FOA No. _____dated_____ for Central U.P. Gas Limited, Kanpur

The Contract conditions provide that the CONTRACTOR shall pay a sum of Rs. _____ (Rupees _____) as full Contract Performance Guarantee in the form therein mentioned. The form of payment of Contract Performance Guarantee includes guarantee executed by Nationalized Bank, undertaking full responsibility to indemnify CUGL, in case of default.

The said _____ has approached us and at their request and in consideration of the premises we having our office at _____ have agreed to give such guarantee as hereinafter mentioned.

1. We _____ hereby undertake to give the irrevocable & unconditional guarantee to you that if default shall be made by M/s. _____ in performing any of the terms and conditions of the tender or in payment of any amount due and payable by the Contractor to Central U.P. Gas Limited under the aforesaid Contract and/or any other contract(s) awarded by the Owner to the same Contractor, to the extent covered by Clause 9 of this Guarantee, we shall on your first demand pay without demur, contest, protest and/ or without any recourse to the contractor to you in such manner as you may direct the said amount of Rupees _____ only or such portion thereof not exceeding the said sum as you may require from time to time.

2. You will have the full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contract with the said _____ and to enforce or to forbear from endorsing any powers or rights or by reason of time being given to the said _____ and such postponement forbearance would not have the effect of releasing the bank from its obligation under this debt.

3. Your right to recover the said sum of Rs. _____ (Rupees _____) from us in manner aforesaid will not be affected or suspended by reason of the fact that any dispute or disputes have been raised by the said M/s. _____ and/or that any dispute or disputes are pending before any officer, tribunal or court and any demand made by you in the bank shall be conclusive and binding. The bank shall not be

released of its obligations under these presents by any exercise by you of its liberty with reference to matter aforesaid or any of their or by reason or any other act of omission our commission on your part or any other indulgence shown by you or by any other matter or changed what so ever which under law would, but for this provision, have the effect of releasing the bank. For the avoidance of doubt, the demand under this Guarantee may relate to a liability of the Contractor arising under the aforesaid Contract or another contract, to the extent that such liability and invocation are covered by Clause 9 of this Guarantee.

4. The guarantee herein contained shall not be determined or affected by the liquidation or winding up dissolution or changes of constitution or insolvency of the said contractor but shall in all respects and for all purposes be binding and operative until payment of all money due to you in respect of such liabilities is paid.

5. This guarantee shall be irrevocable and shall remain valid upto _____ (this date should be 90 days after the expiry of defect liability period) _____. The bank undertakes not to revoke this guarantee during its currency without your previous consent and further agrees that the guarantee. However, if for any reason, the contractor is unable to complete the work within the period stipulated in the contract and in case of extension of the date of completion resulting extension of defect liability period of the contractor fails to perform the work fully, the bank hereby agrees to further extend this guarantee at the instance of the contractor till such time as may be determined by the owner. Any extension of the validity of this Guarantee shall be effective only upon issuance by the Bank of a written extension or amendment, duly authenticated by the Bank, specifying the revised expiry date. The Bank shall not be bound by any request for extension unless such extension is issued by the Bank.

6. The Bank Guarantee's payment of an amount is payable on demand and in any case within 2 working days of the presentation of the letter of invocation of Bank Guarantee. Any dispute arising out of or in relation to the said Bank Guarantee shall be subject to the jurisdiction of KANPUR Courts.

7. Therefore, we hereby affirm that we are guarantors and responsible to you on behalf of the Contractor up to a total amount of _____(amount of guarantees in words and figures) and we undertake to pay you, upon your first written demand declaring the Contractor to be in default under the contract and without caveat or argument, any sum or sums within the limits of (amounts of guarantee) as aforesaid, without your needing to prove or show grounds or reasons for your demand or the sum specified therein.

8. We have power to issue this guarantee in your favor under Memorandum and Articles of Association and the undersigned has full power to do under the Power of Attorney, dated _____ granted to him by the Bank.

9. SCOPE OF GUARANTEE AND CROSS-CONTRACT RECOVERY: Notwithstanding anything contained elsewhere in this Guarantee, the Bank acknowledges and agrees that this Guarantee may also be invoked by the Owner towards recovery of any amounts due and payable by the Contractor to the Owner arising out of any default, breach or liability under any other ongoing or separate contract(s) awarded by the Owner to the same Contractor, provided that the terms and conditions of such other contract(s) expressly permit cross-contract recovery, adjustment, set-off or invocation of security furnished by the Contractor under any contract awarded by the Owner. Accordingly, the Bank shall, upon receipt of a written demand from the Owner, honour such demand in accordance with the terms of this Guarantee, notwithstanding that the underlying default or liability may have arisen under a contract other than the contract in respect of which this Guarantee was originally furnished, provided that such cross-contract invocation is expressly permitted under the terms of the relevant contract(s) and is within the maximum guaranteed amount under this Guarantee. The Contractor expressly acknowledges and consents to such cross-contract invocation of this Guarantee, subject to the aforesaid conditions. Nothing contained herein shall enlarge the Bank's liability beyond the maximum

guaranteed amount or the validity period of this Guarantee, or dispense with compliance with the terms of this Guarantee.

Yours faithfully,

_____

Bank by its Constituted Attorney

Signature of a person duly
Authorized to sign on behalf of the Bank

INSTRUCTIONS FOR FURNISHING
"CONTRACT PERFORMANCE SECURITY / SECURITY DEPOSIT" BY "BANK GUARANTEE"

1. The Bank Guarantee by successful Bidder(s) will be given on non-judicial stamp paper as per 'stamp duty' applicable. The non-judicial stamp paper should be in name of the issuing bank. In case of foreign bank, the said Bank Guarantee to be issued by its correspondent bank in India on requisite non-judicial stamp paper and place of Bid to be considered as Delhi.

2. The Bank Guarantee by Bidders will be given from bank as specified in Tender.

3. A letter from the issuing bank of the requisite Bank Guarantee confirming that said Bank Guarantee and all future communication relating to the Bank Guarantee shall be forwarded to Employer.

4. If a Bank Guarantee is issued by a commercial bank, then a letter to Employer and copy to Consultant (if applicable) confirming its net worth is more than Rs. 100,00,00,000.00 [Rupees One Hundred Crores] or its equivalent in foreign currency alongwith documentary evidence.

FORM-10
AGREED TERMS & CONDITIONS

To,
Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB .

This Questionnaire duly filled in, signed & stamped must form part of Bidder's Bid and should be returned along with Un-priced Bid. Clauses confirmed hereunder need not be repeated in the Bid.

Sl.	DESCRIPTION	BIDDER'S CONFIRMATION
1	Bidder's name and address	
2.	Please confirm the currency of quoted prices is in Indian Rupees.	
3.	Confirm quoted prices will remain firm and fixed till complete execution of the order.	
4	Rate of applicable Service Tax & Edu. Cess thereon	GST Total %
5.	i) Confirm acceptance of relevant Terms of Payment specified in the Bid Document. ii) In case of delay, the bills shall be submitted after deducting the price reduction due to delay.	
6.	Confirm that Contract Performance Bank Guarantee will be furnished as per Bid Document.	
7.	Confirm that Contract Performance Bank Guarantee shall be from any Indian scheduled bank or a branch of an International bank situated in India and registered with Reserve bank of India as scheduled foreign bank. However, in case of bank guarantees from banks other than the Nationalised Indian banks, the bank must be a commercial bank having net worth in excess of Rs 100 crores and a declaration to this effect shall be made by such commercial bank either in the Bank Guarantee itself or separately on its letterhead.	
8.	Confirm compliance to Completion Schedule as specified in Bid document. Confirm contract period shall be reckoned from the date of Fax of Acceptance.	
9.	Confirm acceptance of Price Reduction Schedule for delay in completion schedule specified in Bid document.	
10.	a) Confirm acceptance of all terms and conditions of Bid Document (all sections). b) Confirm that printed terms and conditions of bidder are not applicable.	
11.	Confirm your offer is valid for 04 months from Final/Extended due date of opening of Techno-commercial Bids.	
12.	Please furnish EMD/Bid Security details : a) EMD/ Bid Security No. & date b) Value c) Validity	
13.	Confirm acceptance to all provisions of ITB	
14.	Confirm that Annual Reports for the last three financial years are furnished alongwith the Un-priced Bid.	
15.	Confirm that, in case of contradiction between the confirmations provided in this format and terms & conditions mentioned elsewhere in the offer, the confirmations given in this format shall prevail.	
16.	Confirm the none of Directors of bidder is a relative of any Director of Owner or the bidder is a firm in which any Director of	

Sl.	DESCRIPTION	BIDDER'S CONFIRMATION
	Owner/ CUGL or his relative is a partner.	
17.	All correspondence must be in ENGLISH language only.	
18	Owner reserves the right to make any change in the terms & conditions of the TENDER/BIDDING DOCUMENT and to reject any or all bids.	
19	Confirm that all Bank charges associated with Bidder's Bank shall be borne by Bidder.	

Place:
Date:

[Signature of Authorized Signatory of Bidder]
Name:
Designation:
Seal:

FORM-11
ACKNOWLEDGEMENT CUM CONSENT LETTER

(On receipt of tender document/information regarding the tender, Bidder shall acknowledge the receipt and confirm his intention to bid or reason for non-participation against the enquiry /tender through e-mail/fax to concerned executive in CUGL issued the tender, by filling up the Format)

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :

Dear Sir,

We hereby acknowledge receipt of a complete set of bidding document along with enclosures for subject item/job and/or the information regarding the subject tender.

We intend to bid as requested for the subject item/job and furnish following details with respect to our quoting office:

Postal Address with Pin Code : .....
Telephone Number : .....
Fax Number : .....
Contact Person : .....
E-mail Address : .....
Mobile No. : .....
Date : .....
Seal/Stamp : .....

We are unable to bid for the reason given below:
Reasons for non-submission of bid:

Agency's Name : .....
Signature : .....
Name : .....
Designation : .....
Date : .....
Seal/Stamp : .....

FORM-12
UNDERTAKING ON LETTERHEAD

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :.

Dear Sir

We hereby confirm that "The contents of this Tender Document No. _____ have not been modified or altered by M/s. …….(Name of the bidder with complete address). In case, it is found that the tender document has been modified / altered by the bidder, the bid submitted by M/s…….(Name of the bidder) shall be liable for rejection".

Place:
Date:

[Signature of Authorized Signatory of Bidder]
Name:
Designation:
Seal:

FORM-13

BIDDER'S EXPERIENCE

To,

Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :.

Sl. No	Description of the Services	LOA /WO No. and date	Full Postal Address & phone nos. of Client. *Name, designation and address of Engineer/ Officer-in-Charge (for cases other than purchase)*	Value of Contract/ Order (*Specify* Currency Amount)	Date of Commencement of Services	Scheduled Completion Time (Months)	Date of Actual Completion	Reasons for delay in execution, if any
(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)

Place:
Date:

[Signature of Authorized Signatory of Bidder]
Name:
Designation:
Seal:

F-14
CHECK LIST

Bidders are requested to duly fill in the checklist. This checklist gives only certain important items to facilitate the bidder to make sure that the necessary data/information as called for in the bid document has been submitted by them along with their offer. This, however, does not relieve the bidder of his responsibilities to make sure that his offer is

otherwise complete in all respects.
Please ensure compliance and tick (√) against following points:

S. No.	DESCRIPTION	CHECK BOX	REFERENCE PAGE NO. OF THE BID SUBMITTED
1.0	on each sheet of offer, original bidding document including SCC, ITB, GCC ,SOR drawings, addendum (if any)		
2.0	Confirm that the following details have been submitted in the Un-priced part of the bid		
i	Covering Letter, Letter of Submission		
ii	Bid Security		
iii	Signed and stamped original copy of bidding document along with drawings and addendum (if any)		
iv	Power of Attorney in the name of person signing the bid.		
v	Copies of documents defining constitution or legal status, place of registration and principal place of business of the company		
vi	Bidders declaration that regarding, Holiday/ Banning, liquidation court receivership or similar proceedings		
vii	Details and documentary proof required against qualification criteria along with complete documents establishing ownership of equipment as per SCC are enclosed		
viii	Confirm submission of document alongwith techno-commercial bid as per bid requirement.		
3.0	Confirm that all forms duly filled in are enclosed with the bid duly signed by authorised person(s)		
4.0	Confirm that the price part as per Price Schedule format submitted with Bidding Document.		
5.0	Confirm that annual reports for last three financial years & duly filled in Form 16 are enclosed in the offer for financial assessment (where financial criteria of BEC is applicable).		

Place:
Date:

[Signature of Authorized Signatory of Bidder]
Name:
Designation:
Seal:

(TO BE INCLUDED ONLY WHERE FINANICAL CRITERIA OF BEC IS APPLICABLE

FORM-15

FORMAT FOR CERTIFICATE FROM BANK

IF BIDDER'S WORKING CAPITAL IS INADEQUATE

(To be provided on Bank's letter head)

Date:
To,
Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Dear Sir,

This is to certify that M/s …….. (name of the bidder with address) (hereinafter referred to as Customer) is an existing customer of our Bank.

The Customer has informed that they wish to bid for CUGL's RFQ/Tender no..... dated …… for ……..(Name of the supply/work/services/consultancy) and as per the terms of the said RFQ/Tender they have to furnish a certificate from their Bank confirming the availability of line of credit.

Accordingly M/s …….. (name of the Bank with address) confirms availability of line of credit to M/s …….. (name of the bidder) for at least an amount of Rs. _____

It is also confirmed that the net worth of the Bank is more than Rs. 100 Crores (or Equivalent USD) and the undersigned is authorized to issue this certificate.

Yours truly,

for …… (Name & address of Bank)

(Authorized signatory)
Name of the signatory :
Designation :
Stamp

FORM-16
FORMAT FOR STATUTORY AUDITOR'S / CHARTERED ACCOUNTANT
FORMAT FOR FINANCIAL CAPABILITY OF THE BIDDER

A. ANNUAL TURNOVER OF LAST 3 YEARS:

Year	Amount (Currency)
Year 1:	
Year 2:	
Year 3:	

B. FINANCIAL DATA FOR LAST AUDITED FINANCIAL YEAR :

Description	**Year _____**
	Amount (Currency)
1. Current Assets	
2. Current Liabilities	
3. Working Capital (Current Assets-Current liabilities)	
4. Net Worth (Paid up share capital and Free Reserves & Surplus)	

Place:
Date:

[Signature of Authorized Signatory]
Name:
Designation:
Seal:

Instructions:

1. The financial year would be the same as one normally followed by the bidder for its Annual Report.
2. The bidder shall provide the audited annual financial statements as required for this Tender document. Failure to do so would result in the Proposal being considered as non responsive.
3. For the purpose of this Tender document, (i) Annual Turnover shall be "Sale value/ Operating Income" (ii) Working Capital shall be "Current Assets less Current liabilities" and (iii) Net Worth shall be "Paid up share capital and Free Reserves & Surplus"
4. This format should be submitted on CA letter head duly signed and stamped.

FORM-17

BIDDER'S QUERIES FOR PRE BID MEETING

To,
Central UP Gas Limited,
7th floor, UPSIDC complex
A-1/4, Lakhanpur
Kanpur-208024
India

Bid Document No:
SUB :.

SL. NO.	**REFERENCE OF BIDDING DOCUMENT**				**BIDDER'S QUERY**	**CUGL'S REPLY**
	SEC. NO.	Page No.	Clause No.	Subject		

NOTE: The Pre-Bid Queries may be sent by fax and also by e-mail before due date for receipt of Bidder's queries.

SIGNATURE OF BIDDER: _____

NAME OF BIDDER :

FORM-18

Date

CA CERTIFICATE FORMAT FOR MSE

TO WHOMSOEVER IT MAY CONCERN

This is to Certify that M/s ---------- (Company Name) having its registered office at ---------- ---------- (Address) is registered under MSMED Act 2006 . Entrepreneur Memorandum No. (Part-II) ---------- dated ---------- Category: ----------(Whether Micro or Small).

Further verified from the Books of Accounts that the investment of the company as per last Audited Balance Sheet is as follows:

Investment in Plant and Machinery Rs. ---------- (Lakhs)

The above Investment of Rs. ---------- Lacs is within permissible limit of Rs. ---------- Lacs for ---------- (Micro or Small) Category under MSMED Act, 2006. Also, M/s ---------- (Company Name) have not exceeded the monetary limit criteria mentioned in the NSIC Certificate.

The above format shall be printed on CA's letter head, filled, signed and stamped by a practicing Chartered Accountant (not being an employee or a Director or not having any interest in the bidder's company/firm) where audited accounts are not mandatory as per law. The certificate should not older than 03 months from the bid due date.

FORM-19

UNDERTAKING FOR GA-WISE LOCATION PRIORITY

(To be submitted by the Bidder on its Letterhead)

To,
Central U.P. Gas Limited
7th Floor, UPSIDC Complex,
A-1/4, Lakhanpur, Kanpur – 208024
Bid Document No.: CUGL/REPL/WORKS//_____

Subject: Submission of GA-wise location priority for empanelment and allotment of Work Orders

Dear Sir,

With reference to the above-mentioned tender, we hereby submit our preference in respect of the Geographical Areas (GAs) for consideration while allotting Work Orders, in accordance with the applicable provisions of the Instructions to Bidders, including the Evaluation and Comparison of Bids and Award provisions.

A. GA-WISE PRIORITY

S.No	Geographical Area (GA)	Priority (1/2/3)
1	Kanpur/Unnao	
2	Bareilly	
3	Jhansi	

Note: Please indicate a distinct priority against each opted GA (Priority 1 being the first preference).
B. UNDERTAKING

1. We hereby confirm that the above priority represents our considered preference for the respective GAs. The priority shall be indicated distinctly, with no duplication of priority numbers.

2. Allotment of Work Orders shall be made by CUGL in accordance with the tender provisions, inter-se ranking of empanelled bidders, location-wise requirement and other applicable terms and conditions of the tender.

3. We confirm that the preference furnished herein is true and correct and shall remain valid for the purpose of evaluation and Work Order allotment under the subject tender.

For and on behalf of the Bidder

Name of Bidder: _____
Name of Authorized Signatory: _____

DOCUMENTS TO BE UPLOADED ON E-TENDER PORTAL

Sr. No.	Document Header Name	Document Description
1.	Bid Signatory PoA / Board Resolution	Power of attorney of the signatory to the bid offer on non-judicial stamp paper / Board resolution of company for authorized signatory.
2.	Form 1 General Info with Supporting Docs	Bidder's General Information as per appended format along with PAN card copy, GST registration certificate and copy of cancelled cheque in support.
3.	Form 2	Bid Form
4.	Form 3	List of Enclosures
5.	Form 4	Proforma Of "Bank Guarantee" For "Earnest Money / Bid Security
6.	Form 5	Letter of Authority
7.	Form 6	Deviation Form as per appended format
8.	Form 7	Declaration Regarding Holiday/Banning And Liquidation, Court Receivership
9.	Form 8	Certificate For Non-Involvment Of Govt. Of India
10.	Form 9	Proforma Of "Bank Guarantee" For "Contract Performance Security / Security Deposit
11.	Form 10	Agreed Terms & Conditions
12.	Form 11	Acknowledgement Cum Consent Letter
13.	Form 12	Undertaking On Letterhead
14.	Form 13	Bidder's Experience
15.	Form 14	Check List
16.	Form 15	Format For Certificate From Bank If Bidder's Working Capital Is Inadequate.
17.	Form 16 Annual Turnover for last 3 year & Financial Data for last Financial Year	Certificate for financial capability of the bidder Format for statutory auditor's / chartered accountant
18.	Form 17	Bidder's Queries For Pre Bid Meeting
19.	Audited Annual Financial Statements	Annual audited reports complete in all respect of last three financial years in support of Form 16
20.	Form 18	CA Certificate Format For MSE
21.	Agreement	Contract agreement

AGREEMENT

Contract agreement for the work/hiring services of……2026 (Two Thousand Twenty six) ……..…….…. between M/s ……..…… in the town of ……..hereinafter called the "CONTRACTOR (which term shall unless excluded by or repugnant to the subject or context include its successors and permitted assignees) of the one part and the CUGL hereinafter called the "Owner" (which terms shall unless excluded by or repugnant to the subject or context include its successors and assignees) of the other part.

WHEREAS

a) The OWNER being desirous of having provided and executed certain mentioned, enumerated or referred to in the Bidding Document including Invitation for Bids, General Conditions of contract, Special conditions of Contract, Specifications, Drawing, Plans, time schedule of completion of jobs, Schedule of rates, agreed variations, other documents has called for Tender.

b) The CONTRACTOR has inspected the SITE and surrounding s of WORK specified in the Bidding Documents and has satisfied himself by careful examination before submitting his bid as to the nature of the surface strata, soil, sub-soil and ground, the form and nature of SITE and local conditions, the quantities, nature and magnitude of the work, the availability of labor and materials necessary for the execution of WORK, the means of access to SITE, the supply of power and water there to and the accommodation he may require and has made local and independent enquiries and obtained complete information as to the matters and things referred to, or implied in the Bidding Document or having any connection therewith, and has considered the nature and extent of all probable and possible situations, delays hindrances or interferences to or with the execution and completion of WORK to be carried under contract and has examined and considered all other matters, conditions and things and probable and possible contingencies, and generally all matters incidental thereto and auxiliary thereof affecting the execution and completion of WORK and which might have influenced him in making his bid.

c) The bidding Documents including the Invitation for Bids, General Conditions of Contract, Special Conditions of Contract, Schedule of Rates, General Obligations, Specification, drawings, Plans, Time Schedule of Completion of jobs, Letter of Acceptance of Tender and any statement of agreed variations with its enclosures copies of which are here to annexed form part of this CONTRACT thought separately set out herein and are included in the expression 'CONTRACT" wherever herein used.

AND WHEREAS

The OWNER accepted the Bid of CONTRACTOR for the provision and the execution of the said WORK at the rates stated in the schedule of quantities if work and finally approved by OWNER (hereinafter called the "Schedule of Rates) upon the terms and subject to the conditions of CONTRACT.

NOW THIS AGREEMENT WITNESSED & IT IS HEREBY AGREED AND DECLARED AS FOLLOWS:

1. In consideration of the payment to be made to CONTRACTOR for the WORK/HIRING SERVICES to be executed by him, the CONTRACTOR hereby covenants with OWNER that the CONTRACTOR shall and will duly provide, execute and complete the said WORK and shall do and perform all other acts and things in the CONTRACT, mentioned or described or which are to be implied there from or may be reasonably necessary for completion of the said WORK and at the times and in the manner and subject to the terms and conditions or stipulations mentioned in the CONTRACT.

2. In consideration of the due provision, execution and completion of the said WORK/HIRING SERVICES, the OWNER does hereby agree with the CONTRACTOR that the OWNER will pay to the CONTRACTOR the respective amounts for the WORK actually done by him and approved by the OWNER at the Schedule of Rates and such other sum payable to the CONTRACTOR under provision of CONTRACT, such payment to be made at such time and in such manner as provided for in the CONTRACT.

AND

3. In consideration of the due provision, execution and completion of the said WORK/HIRING SERVICES, the CONTRACTOR does hereby agree to pay such sums as may be due to OWNER for the services rendered by the OWNER to the CONTRACTOR, such as power supply, water supply and other as set for in the said CONTRACT and such other sums as may become payable to the OWNER towards the controlled items of consumable materials or towards loss, damage to the payments to be made at such time and in such manner as is provided in CONTRACT.

It is specifically and distinctly understood and agreed between the OWNER and the CONTRACTOR that the CONTRACTOR shall have no right, title or interest in the SITE made available by the OWNER for execution of the works or in the building, structures or work executed on the said SITE by the CONTRACTOR or in the goods, articles, materials etc. brought on the said SITE (unless the same specifically belongs to the CONTRACTOR) and the CONTRACTOR shall not have or deemed to have any lien whatsoever charge for unpaid bills will not be entitled to assume or retain possession or control of the SITE or structures and the OWNER shall have an absolute and unfettered right to take full possession of SITE and to remove the CONTRACTOR, their servants, agents and materials belonging to the CONTRACTOR and lying on the SITE.

The CONTRACTOR shall be allowed to enter upon the SITE for execution of the WORK/HIRING SERVICES only as a licensee simplicities and shall not have any claim, right, title or interest in the SITE or the structures erected thereon and the OWNER shall be entitled to terminate such license at any time without assigning any reasons.

The materials including sand, gravel, stone, loose, earth, rook etc. dug up or excavated from the said SITE shall, unless otherwise expressly agreed under this CONTRACTOR, exclusively belong to the OWNER and the CONTRACTOR shall have no right to claim over the same and such excavation and materials should be disposed off on account of the OWNER according to the Instruction in writing issued from time to time by the ENGINEER-IN-CHARGE.

In WITNESS WHEREOF the parties have executed these presents in the day and the year first above written.

Signed and Delivered for and on behalf of OWNER	Signed and Delivered for and on behalf of CONTRACTOR
(CENTRAL UP GAS LIMITED)	
DATE	DATE

PLACE

PLACE

IN PRESENCE OF TWO WITNESSES

1……

2……

1…….

2…….

INDEMNITY BOND

PROFORMA OF INDEMNITY BOND FOR SUPPLY OF MATERIALS BY OWNER

(To be executed on non-judicial stamped paper of appropriate value)

WHEREAS Central UP Gas Limited. (hereinafter referred to as OWNER) which expression shall unless repugnant to the context includes their legal representatives, successors and assigns having their registered office at ……..has entered into an Contract with _____ (hereinafter referred to as the Contractor which expression shall unless repugnant to the context include their legal representatives, successors and assigns) for _____on the terms and conditions as set out, inter-alia, in the Contract No..... Dated..... and various documents forming part thereof hereinafter collectively referred to as the "Contract" which expression shall include all amendments, modifications and/or variations thereto.

AND WHEREAS

i) **The Owner ship of the material supplied by the Contractor has transferred to OWNER as per the provisions of Incoterms 2000 and/or Ownership already held by OWNER but Contractor's obligations require the said material to be under the possession of the Contractor and/or its sub-supplier/sub-vendor. OWNER agrees to hand over the material to the Contractor or its sub-supplier/sub-vendor for the purpose of execution of the said Contract by the Contractor (hereinafter for the sake of brevity referred to as the "said materials") and pending execution by the Contractor of the Contract the said materials shall be under the custody and charge of the Contractor and shall be kept, stored, altered, worked upon and/or fabricated at the sole risk and expense of the Contractor.**

ii) **As a pre-condition to the supply of the said materials by OWNER to the Contractor, OWNER has required the Contractor to furnish to OWNER an Indemnity Bond in the manner and upon terms and conditions hereinafter indicated.**

NOW, THEREFORE, in consideration of the premises aforesaid the Contractor hereby irrevocably and unconditionally undertakes to indemnify and keep indemnified OWNER from and against all loss, damage and destruction (including but not limited to any or all loss or damage or destruction to or of the said materials or any item or part thereof by theft, pilferage, fire, flood, storm, tempest, lightning, explosion, storage, chemical or physical action or reaction, binding, warping, exposure, rusting, faulty workmanship, faulty fabrication, or faulty method or technique of fabrication, strike, riot, civil commotion, or other act or omission or commission whatsoever within or beyond the control of the Contractor, misuse and misappropriation (including but not limited to the misuse or misappropriation by the Contractor and the Contractor's Sub-supplier/sub-vendor) whatsoever to, or of in the said materials or any part of them thereof from the date that the same or relative part of item thereof was supplied to the Contractor up to and until the date of return to OWNER of the said materials or relative part of item thereof or completed fabricated works(s) incorporating the said material and undertake to pay to OWNER forthwith on demand in writing without protest or demur the value as specified by OWNER of the said material or item or part thereof, lost, damaged, destroyed, misused and/or misappropriated, as the case may be or, together with OWNER'S costs and expenses (inclusive of but not limited to handling, transportation,

cartage, insurance, freight, packing and inspection costs/or expenses up to) and aggregate limit of _____
(_____
_____) {the currency to be currency of bid}.

AND THE Contractor hereby agrees with OWNER that:

i)This Indemnity/Undertaking shall be a continuing Indemnity/ Undertaking and shall remain valid and irrevocable for all claims of OWNER arising hereunder up to and until the midnight of _____. However, if the Contract for which this Indemnity/Undertaking is given is not completed by this date, the Contractor hereby agrees to extend the Indemnity/Undertaking till such time as is required to fulfil the Contract.

ii) This Indemnity/Undertaking shall not be determined by any change in constitution or upon insolvency of the Contractor but shall be in all respects and for all purposes be binding and operative until payment of all moneys payable to OWNER in terms of hereof.

iii) The mere statement of allegation made by or on behalf of OWNER in any notice or demand or other writing addressed to the Contractor as to any of the said material or item or part thereof having been lost, damaged, destroyed, misused or misappropriated while in the custody of the Contractor and/or prior to completion of the completed fabricated work(s) and delivery to job site thereof incorporating the said materials shall be conclusive of the factor of the said material or item or part thereof having been supplied to the Contractor and/or the loss, damage, destruction, misuse or misappropriation thereof, as the case may be, while in the custody of the Contractor and/or prior to the completion of the completed fabricated work(s) and delivery to job site thereof incorporating the said materials without necessity on the part of OWNER to produce any documentary proof or other evidence whatsoever in support of this.

iv) The amount stated in any notice of demand addressed by OWNER to the Contractor as to the value of such said materials lost, damaged, destroyed, misused or misappropriated, inclusive relative to the costs and expenses incurred by OWNER in connection therewith shall be conclusive of the value of such said materials and the said cost and expenses as also of the amount liable to be paid to OWNER to produce any voucher, bill or other documentation or evidence whatsoever in support thereof and such amount shall be paid without any demur and on demand and no dispute shall be raised concerning the same.

The undersigned has full power to execute this Indemnity Bond on behalf of the Contractor under the Power of Attorney dated_____.

(SIGNED BY COMPETENT AUTHORITY)

Place:

Dated:

Official seal of the Contractor.

Undertaking

I, _____ Proprietor / Partner / Director of _____ do hereby declare and undertake as under:----

(i) That in the capacity of independent contractor by M/s. Central UP Gas Limited, Kanpur, I have complied with the provisions of Contract Labour (Regulation and Abolition) Act, 1970 in holding a valid licence under the Act and the Rules thereto. I have paid the wages for the period from _____ to _____ during contract works to all employees as per the minimum wages and no dues are payable to any employee.

(ii) That I have covered all the eligible employees under Employees Provident Fund and Miscellaneous Provisions Act and the Employees State Insurance Act and deposited the contributions under our code numbers for the period and as such no amount whatsoever is payable.

(iii) I further declare and undertake that in case any liability pertaining to my employees is to be discharged by the principal employer for any lapse, I undertake to reimburse the same from my dues as payable.

Stamp, Name & Signature of the Contractor

MSME Undertaking Format for CUGL Tender
(To be printed on the Bidder's Official Letterhead)

To,
Central U.P. Gas Limited
7th Floor, UPSIDC Complex,
A-1/4, Lakhanpur, Kanpur – 208024
Bid Document No.: CUGL/REPL/WORKS//_____

Sub: Declaration/Undertaking for Availing MSME Exemption from EMD and Tender Fee

Tender No:
Name of Work

Dear Sir/Madam,

We, M/s. [Company Name], hereby declare and confirm the following in connection with our bid submission for the aforementioned tender:

1. We are registered as a Micro / Small Enterprise *(Strike out whichever is not applicable)* under the Ministry of Micro, Small and Medium Enterprises, Government of India.
2. Our Udyam Registration Number is [Insert Udyam Registration Number], and a valid copy of our Udyam Registration Certificate is enclosed herewith in our submission.
3. We confirm that our enterprise is a Manufacturer / Service Provider *(Strike out whichever is not applicable)* of the goods/services relevant to the scope of this tender.
4. We explicitly confirm that we are not operating as a trader, dealer, distributor, stockist, or wholesaler for this bid.
5. We acknowledge that if we withdraw or modify our bid during the period of validity, or if we are awarded the contract and fail to sign the contract or fail to submit a Performance Bank Guarantee (PBG) before the deadline defined in the bidding documents, we will be liable for suspension/banning/holiday listing by CUGL as per the tender terms.

The facts stated above are true and correct to the best of our knowledge and belief.

For and on behalf of the Bidder

Name of Bidder: _____
Name of Authorized Signatory: _____

SECTION - VI

HEALTH, SAFETY AND ENVIRONMENT [HSE] SPECIFICATIONS

HEALTH, SAFETY AND ENVIRONMENT [HSE] SPECIFICATIONS

1.0 SCOPE

These specifications establish the 'Health, Safety and Environment [HSE] Management' requirement to be complied with by the Contractors during executing their Job. Requirements stipulated in these specifications shall supplement the requirements of 'HSE Management' given in relevant act(s) / legislation(s).

2.0 REQUIREMENTS OF 'HEALTH, SAFETY AND ENVIRONMENT [HSE] MANAGEMENT SYSTEM' TO BE COMPLIED BY BIDDERS

2.1 Preferably, the Contractor should have a documented 'HSE Policy' to cover commitment of their organization to ensure health, safety and environment aspects in their line of operations or they must follow the ‘HSE policy’ of CUGL for safe execution of work.

2.2 The Contractor shall ensure that the CUGL's 'Health, Safety and Environment [HSE]' requirements are clearly understood and faithfully implemented at all level, at sites.

2.3 Contractor shall promote & develop consciousness for Health, Safety & Environment among all personnel working for the Contractor. Regular work-site meetings (Tool box talk) shall be arranged as 'HSE' activities to cover hazards involved in various operations during executing their jobs, location of First Aid Box, trained personnel to give First Aid, Assembly Points, and fire protection measures such as water and fire extinguishers etc.

2.4 Non-conformance of 'HSE' policy and directives as per CUGL by Contractor [including their sub-Contractors] as brought out during review/audit by CUGL / external agency authorized by CUGL, shall be complied by Contractor and its report to be submitted to CUGL.

2.5 Contractor shall adhere consistently to all provisions of 'HSE' requirements. In case of non-compliance of continuous failure in implementation of any of the 'HSE' provisions, CUGL may impose penalty and subsequent stoppage of work for non-compliance. The decision of imposing monitory penalty & work-stoppage shall be taken by EIC with consultation with Safety Officer of CUGL.

2.6 All fatal accidents and other personnel accidents shall be investigated for root cause by CUGL and Contractor shall extend all necessary help and cooperation in this regard. Recommend corrective and preventive actions of findings will be communicated to Contractor for taking suitable actions should be taken by the Contractors to avoid recurrence of such incidences.

2.7 Contractor shall ensure that all their staffs and workers, including their sub-Contractor(s), shall wear 'Personal Protective Equipments [PPEs]' such as safety helmets, safety shoes, safety belts, dust mask, ear plug, protective goggles, gloves, etc., as per job requirements. All these gadgets shall conform to relevant IS specifications or equivalent.

2.8 Contractor shall assign competent & qualified personnel for carrying out various tasks/jobs as per requirement.

2.9 All equipments should be tested and certified for its capacity before use.

2.10 Contractor shall ensure storage and utilization methodology of materials that are not detrimental to the environment. Where required, Contractor shall ensure that only the environment-friendly materials are used.

2.11 All persons deployed at site shall be knowledgeable of and comply with the environmental laws, rules and regulations relating to the hazardous material substances and waste. Contractor shall not dump release or otherwise discharge of dispose-off any such materials without the express authorization of EIC of CUGL.

2.12 Contractor should obtain all work permits before start of activities [as applicable] like hot work, cold work, confined space, electrical isolation, work at heights and its use & implement all precautions mentioned therein.

2.13 Contractor should display at site office and work locations caution boards, provide posters, banners for safe working to promote safety consciousness, etc.

2.14 Contractor should properly barricade the facility where work is in progress for safe working and reclaim the work zone after completion of work to promote safety consciousness.

3.0 RELEVANT CODES FOR 'PERSONAL PROTECTION EQUIPMENTS'

IS: 2925 - 1984	Industrial Safety Helmets
IS: 47701 - 1968	Rubber Gloves for Electrical Purpose
IS: 6994 - 1973 [Part-I]	Industrial Safety Gloves [Leather & Cotton Gloves]
IS: 1989 - 1986 [Part-II]	Leather Safety Boots & Shoes
IS: 5557 - 1969	Industrial & Safety Rubber Knee Boots
IS: 6519 - 1971	Code of Practice for Selections, Care & Repair of Safety Footwear
IS: 11226 - 1985	Leather Safety Footwear Having Direct Molding Sole
IS: 5983 - 1978	Eye Protectors
IS: 9167 - 1979	Ear Protectors
IS: 3521 - 1983	Industrial Safety Belts & Harnesses

Guidelines for imposition of punitive fines

4.0 Punitive fines on contractors are imposed for violation of safety rules & regulations during execution of jobs. Objective of punitive fines is to work as deterrent for contractors in violation of safety rules & regulation and to improve safety atmosphere in general at all site.

Proposed guidelines for imposition are described below:

4.1 For first time violation of safety rules & regulation by any contractor, HSE-officer will issue a

warning letter to contractor with intimation to EIC of work centre with a copy to MD & DC.

4.2 In case of second time violation of safety rules & regulations by same contractor, EIC will call contractor in person and will have a meeting to discuss reason for repetitive violation along with HSE-Officer. A warning letter will also be issued by EIC to contractor.

4.3 In case of further violation, punitive fines will be imposed on contractor. Amount as fine will be decided as per severity of violation of safety. However, minimum fine would be Rs.5,000/- and in multiple of Rs.5,000/-, thereafter for every instant.

4.4 This will be limited to 5% of contract value, as maximum cumulative penalty.

4.5 This practice of punitive fines is to be implemented across all CUGL sites for all contracts.

4.6 Practice of punitive fines will be applicable for projects sites also and would be over and above the deduction made by M/s CUGL for safety violation from running bills.

SECTION VII
SCHEDULE OF RATES

SCHEDULE OF RATES

TENDER INVITING AUTHORITY : CENTRAL UP GAS LIMITED

NAME OF WORK : EMPANELMENT OF CONTRACTORS FOR D-PNG CONNECTIVITY WORKS IN KANPUR, UNNAO, BAREILLY AND JHANSI FOR A PERIOD OF 1 YEAR CUGL

TENDER NO : CUGL/REPL/WORKS/2026/33

S.No.	ITEM DESCRIPTION	UOM	Quantity	UNIT RATE (INR)	AMOUNT (INR)
Part -I	**PE SECTION**				
1	Receiving, handling, loading, transportation and unloading of owner supplied MDPE pipes from Owner's designated stock yards to Contractor's own stock-yards/ work-sites. Proper storing, stacking, identification, providing security and insurance cover for the materials. Procurement and Installation of PE Fittings, PE Valves, Transition Fittings, Warning Mats, HDPE Pipes and other items required for execution shall also be in Contractor's scope. Preparation of detailed route plan, making trial pits to determine the underground utilities/ services etc. Restoration of the abandoned excavation / trial pits (excavated to depth of 1.5 m or more as per satisfaction to CUGL/PMC) to original condition, barricading the work area as per the procedures & drawings provided in the tender and as per the directions of CUGL /PMC/TPIA. Dewatering of trenches / pits if required as per site condition. Repairing of all damaged utilities if any, and payment of any compensation (if claimed by owner / other utility agencies). Trenching to the required depth in all type of surface (however putting up sufficient protection/casings without any additional cost at locations where proper depth cannot be attained), uncoiling / stringing of pipes, jointing of the pipe ends/ fittings/ valves by qualified personnel, using approved electro fusion techniques as per the specification.				
	Preparation and getting approval of schedules, execution procedures, drawings/ sketches/ wherever required, making trial pits to determine the underground utilities/ services etc., restoration of the abandoned trial pits to original condition.				
	Lowering the MDPE pipe line in trench, padding around pipeline with suitable soil, laying of PE warning mat over the pipeline along the complete route and backfilling with available excavated material, if suitable, after screening or procurement of suitable sand/ soil as per directions of CUGL/PMC/TPIA. Compaction with manual technique/ jumping jack compactor and water at subsequent layers of 150mm, placement of all tiles/ slabs/ curb stones etc. removed during excavation. Roads, pavements, footpaths etc. shall be made motorable wherever pipeline is laid. Cleaning the area of all unserviceable materials, debris, excess earth near trenches to the designated disposal area as per specifications, instructions of land owners/ EIC to the complete satisfaction of local authorities. The laying shall be carried out by any methodology as per specification in consultation with CUGL/PMC. The list of areas where the pipeline to be laid/ allocation of work will be done after awarding of the tender. The quantities are tentative and it may be changed during the tenure of contract as per the requirement of the Owner.				
	Procurement & installation of GI Sleeves, 2.5" NB x 300 mm length to 3" NB x 300 mm length GI Sleeve / Half Round Concrete Sleeves for domestic connections installations as per Instruction of Owner/Owner's representative for satisfactory completion of job. Excavation, breaking through any obstructions, insertion of pipe, sealing the annulus, firm fixing of the sleeves with concrete mix, preparation of pedestal & restoration of excavated pits within the size of pedestal & the same pit with the laying of pipe as defined in technical specification / instruction of CUGL/PMC.				
	Preparation and getting approval of schedules, execution procedures, drawings/ sketches/ wherever required, making trial pits to determine the underground utilities/ services etc., restoration of the abandoned trial pits to original condition.				
	Preparation, Certification and submission of (DPR) daily progress reports, graphs, As-built drawings, crossings details, utility graphs, collection of GIS data and imposing the same on Q-GIS/Google Earth and deviation statements. Restore all surrounding ground features to that as existing before and as directed by CUGL/PMC, which would include replanting of any uprooted trees etc. Pneumatic testing and commissioning as per specification and approved procedures, providing all tools and tackles, test ends, Nitrogen, instruments, manpower and other related accessories as per the instructions of the CUGL/PMC. Returning of all unused material to Owner stores on completion of Gas Charging. Submission of all documents required for contract closure as mentioned in the contract. Any other activities related to operation / safety / statutory / maintenance of the works not mentioned above shall also be covered under the Scope of work and has to be completed by the Contractor within specified schedule without any extra cost to Owner.				
	Final clean-up of right-of-use or area disturbed by contractor during their construction activities for laying of pipeline works and disposal of debris and surplus material to designated disposal areas and backfilling of trench and compaction of the same as per satisfaction of Owner and / or as directed by Engineer–in–charge.				
	Handing over the completed works to Owner for their operation/ use, reconciliation of material area wise				
	Includes laying of pipeline in all type of surface i.e. all kinds including Kutcha, metal, concrete (PCC/RCC), bituminous, tiled, brick lined etc. after raking up of hard surface of any type. Roads, Pavement, Footpaths etc. shall be made motorable once the pipeline is laid.				
	Laying using any method (Open trench including chipping method, Moling and/or HDD) with or without casing, it Includes survey of the under ground utilities, submission of site plans/layout drawings and HDD profiles for approval by CUGL/PMC, execution of the work as per the specification, including excavation of the pits, moling with hole size not exceeding 20% of the the pipe dia. Jointing and insertion of the carrier pipe in casing pipe (on case to case basis) and subsequent backfilling, compaction, submission of as-graphs and as-built drawings as per the attached specification and the instruction of CUGL/PMC.				
	Any other activities 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 Owner. All the work shall be executed in accordance with the provision of contract.				
	The Laying of Service Line of Dia 20 mm, would include installation of TF inside the pedestal and supply of material and making of pedestal for TF shall be inclusive.				
1.1	**Laying in all type of surface by any method**				
	a 20 mm Dia	**m**	**5,000.00**	**364.11**	**18,20,550.00**
	b 32 mm Dia	**m**	**3,00,000.00**	**394.66**	**11,83,98,000.00**
	c 63 mm Dia (Excluding HDD with casing)	**m**	**1,00,000.00**	**455.54**	**4,55,54,400.00**
	MDPE Pipe line laying by HDD / Other Method, with Casing (Including Procurement of HDPE Casing Pipes)				**-**

SCHEDULE OF RATES

TENDER INVITING AUTHORITY : CENTRAL UP GAS LIMITED

NAME OF WORK : EMPANELMENT OF CONTRACTORS FOR D-PNG CONNECTIVITY WORKS IN KANPUR, UNNAO, BAREILLY AND JHANSI FOR A PERIOD OF 1 YEAR CUGL

TENDER NO : CUGL/REPL/WORKS/2026/33

S.No.		ITEM DESCRIPTION	UOM	Quantity	UNIT RATE (INR)	AMOUNT (INR)
1.2		Survey of the under ground utilities, submission of HDD profile (excluding road and nalla crossings) for approval, execution of the work as per the standard procedure attached, including excavation of the pits, Jointing of casing and carrier pipe and insertion of the carrier pipe in contractor supplied casing of dia ranging from 110mm to 250mm, subsequent sealing of casing, backfilling, compaction, submission of as built graphs, final HDD profiles as per attached specification and the instruction of CUGL/PMC. The other activities are as per SOR Item No. 1 and as detailed in specification and as per the instructions of the CUGL /PMC. The payment shall be made for length of casing pipe laid in HDD, remaining carrier pipe length without casing shall be paid under SOR item no.1.1.				-
	a	Laying of 63 mm Dia MDPE by HDD method with HDPE Casing of 125 MM Dia.	**m**	**750.00**	**997.33**	**7,48,000.00**
	b	Laying of 125 mm Dia MDPE by HDD method with HDPE Casing Pipe of 250 MM Dia.	**m**	**250.00**	**1,515.00**	**3,78,750.00**
1.3		**MDPE Pipe line laying in all type of surface by open trench method / Moling; With or Without Casing**				-
		Laying of pipeline in all type of surface by open trench method after raking up of surface of any type . Roads, Pavement, Footpaths, Kutcha etc. shall be made motorable once the pipeline is laid. The other activities are as per SOR Item No. 1 and as detailed in specification and as per the instructions of the CUGL/PMC				-
	a	125mm dia	**m**	**5,000.00**	**538.65**	**26,93,250.00**
1.4		**MDPE Pipe line laying by HDD Method, without Casing**				-
		Survey of the under ground utilities, submission of profile for approval, execution of the work as per the standard procedure attached, including excavation of the pits, Jointing and insertion of the carrier pipe, subsequent backfilling, compaction, submission of as built graphs and final HDD profiles as per attached specification and the instruction of EIC / Site Engineer of Owner. The other activities are as per SOR Item No. 1 and as detailed in specification and as per the instructions of the EIC / Site engineer of Owner				-
	a	125 mm Dia HDD without casing	**m**	**19,750.00**	**586.87**	**1,15,90,722.00**
1.5		**GPS coordinates at every 50 meters along with the corresponding depth.**				-
		Contractors need to prepare the Google Earth Drawing of 32mm, 63mm, 90mm & 125mm of MDPE pipe line route on daily basis and mark GPS coordinates at every 50 meters along with the corresponding depth in the as-built dwg submitted along with the bill. **Same shall be submitted with each RA bill and final compiled KMZ file shall be submitted with the final bill.** **In KMZ file contractor needs to update every TF location, chamber location, stone and pole marker, MDPE laying dia wise. (MDPE laying shall be marked with different colour for different dia)**	**m**	**4,25,750.00**	**6.00**	**25,54,500.00**
1.6		**MDPE Service Pipe line Laying in Project and O&M area**				-
		Includes laying of pipeline (for 20 & 32mm) in all type of surface i.e. Kutcha, metal, concrete (PCC/RCC), bituminous, tiled, brick lined etc. after braking up of hard surface of any type by any methodology. Roads, Pavement, Footpaths etc. shall be made motorable once the pipeline is laid. Supply & installation of GI Sleeve / Half round Concrete sleeve shall be included in laying rates. All other activities mentioned in SOR no.1 are applicable.				-
		Supply & installation of GI Sleeves, 2.5" NB x 300 mm length Half Round Concrete Sleeves for domestic connections, and/or 3" NB x 300 mm length GI Sleeve for commercial and industrial installations excavation, breaking through any obstructions, insertion of pipe, sealing the annulus, fixing of the sleeves with concrete mix, preparation of pedestal & restoration of excavated pits within the size of pedestal & the same pit with the laying of 20/32 mm as defined in technical specification and instruction of EIC.**The rates shall include liaison rates with statutory bodies,** HSE and no separate rates are payable under this SOR. Wherever service lines are to be laid as per Dwgs.				-
		Note:- 1. Old Project area shall be defined as an area where MDPE line is already been laid by another contractor (currently not working in respective zone), only service line connectivity shall be done by the contractor. 2. Additional rate for construction of RCC structure for protection of service line shall be payable extra under SOR no. 13 3. Restoration shall be paid extra.				-
	(A)	**20/32mm PE pipe Up to 4 mtr. (For O & M Area)**	**Nos.**	**10,500.00**	**3,430.94**	**3,60,24,912.00**
	(B)	**20/32mm PE pipe Up to 4 mtr.(For Project Area)**	**Nos.**	**19,500.00**	**2,401.66**	**4,68,32,385.60**
	(C)	**For 20/32mm MDPE Service Line laying above 4 mtr for both in O&M and Project area.**	**Mtrs**	**24,000.00**	**353.73**	**84,89,600.00**
1.7		**Jointing, Testing, Commissioning and documentations of already laid pipeline.**				-
		Jointing, Testing , Commissioning, Liasoning with local Authorities, submission of As-built drawings with all supporting documents and reconciliation of material of already laid MDPE network, rectification of leakages (if any) & replacement of defective fittings , if required shall be provided by CUGL.				-
	(A)	20 mm Dia	**Mtrs**	**1,000.00**	**212.00**	**2,12,000.00**
	(B)	32 mm Dia	**Mtrs**	**15,000.00**	**248.00**	**37,20,000.00**
	(C)	63 mm Dia	**Mtrs**	**5,000.00**	**325.00**	**16,25,000.00**
	(D)	125 mm Dia	**Mtrs**	**2,000.00**	**500.00**	**10,00,000.00**
		EXCAVATION IN HARD ROCK				-
2		Trenching of Hard Rock is defined as trench material with a single piece of rock, dimension exceeding 1 meter in any direction, which requires cutting only by use of manual/pneumatic chisel/drill or sledge hammer and chisel or removal of same by additional techniques and supply of approved coarse sand (Size 0.6-2 mm as per IS 383) free from any impurities like clay, mica and soft flaky pieces for padding of 150 mm above and below laid pipeline as per the specifications and direction of EIC; The rates are payable over and above the Laying rates as per relevant SOR item no 1.1 and 1.3.This SOR is applicable for those cases where restoration is required as per instruction of EIC.				-
	a	Excavation of Hard Rock:	**CU.M**	**400.00**	**3,563.30**	**14,25,319.20**

SCHEDULE OF RATES

TENDER INVITING AUTHORITY : CENTRAL UP GAS LIMITED

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TENDER NO : CUGL/REPL/WORKS/2026/33

S.No.	ITEM DESCRIPTION	UOM	Quantity	UNIT RATE (INR)	AMOUNT (INR)
	Trenching of Morrum (red soil) and boulders of size above 300 mm excavated using manual/pneumatic chisel and supply of approved coarse sand (Size 0.6-2 mm as per IS 383) free from any impurities like clay, mica and soft flaky pieces for padding of 150 mm above and below laid pipeline as per the specifications and direction of EIC; The rates are payable over and above the Laying rates as per relevant SOR item no 1.1 and 1.3 and applicable as per EIC instructions only.				-
	b Excavation of Morrum/Boulder:	**RM**	**26,400.00**	**832.09**	**2,19,67,070.40**
3	**Fabrication & Installation of Pipeline Markers:**				-
	Supply and Installation of RCC Route Markers, Powder Coated Plate / Pole Markers as per the attached drawings, along the route / along boundary wall, lamp posts including all associated civil works such as excavation and construction in all types of soils, construction of pedestals and grouting with concrete, cleaning, supply and application of approved colour and quality of primer and paint, stencil letter cutting of numbers, direction, chainage etc., restoration of area to original condition and performing all works as per drawings, specification and instruction of Engineer-in-Charge. The rates shall include liaison rates with statutory bodies and restoration rates and no separate rates are payable under this SOR.				-
	a RCC Route Markers as per Drawing	**Nos**	**8,000.00**	**395.01**	**31,60,076.19**
	b Pole markers with foundation as per Drawing and instructions of EIC and specification.	**Nos**	**2,667**	**2,960**	**78,93,600.00**
	c Plate marker as per Drawing (Construction & installation and Submission of all Reports incl drawings)	**Nos**	**50,000.00**	**301.48**	**1,50,74,000.00**
4	**Site Survey & Liasoning with Land Owning Agencies for Permissions**				-
	Submission of applications as per approved drawings provided by owner / owner's representative (Initial Route Survey,Preperation of Drawings, measuring and providing details of surface type shall be in scope of Contractor with approval from Owner / Owner's representative), obtaining & submission of demand note, Coordination, Liaisoning, Obtaining written permissions from Land owing agencies like MCD, PWD, NHAI, AAI, Forest Dept, NHAI, Indian Railways, other government agencies who maintains the public lands and Private lands i.e. Apartments/institutions etc. Note: This SOR item rate is applicable for Line item no. 1.1 to 1.4 only. This rate is not applicable on the service line.				-
	a Liasoning	**Mtrs**	**1,70,300.00**	**98.95**	**1,68,50,475.42**
	b liasioning in O&M charged area where fresh permissions is not required.This amount is paid over and above the SOR no 1.1 (b &c),1.2,1.3 &1.4	**Mtrs**	**2,55,450.00**	**59.37**	**1,51,65,427.88**
Part-II	GI/COPPER SECTION				-
5	**Supply & Installation of Powder Coated GI Service Pipe & Fittings-By Threaded Piping Method**				-
	Assessment of material requirement for installation at site, Order placement and Purchasing of Powder coated Gl Pipes, GI fittings, Copper pipes & fittings, Brass Fittings & Flexible hose (Anaconda) from approved /recommended vendors of CUGL, Scheduling, Planning of material & Forwarding inspection call, getting dispatch clearance, handling, loading, transportation and unloading of these items at respective contractor's store. Receiving, taking over, handling, loading, transportation and unloading of owner supplied above ground fittings such as regulators, meters, Isolation Valves & appliance valves and other free issue items as defined in specification from Owner's designated stock yards to Contractor's own stores / work sites, proper storing, stacking, identification, providing security and insurance cover. Preparation and approval of sketches, schedules & execution procedures. Finalising optimum route with consent of customer from transition fitting to cooking oven / appliance and ensuring installations in well ventilated area. Making temporary but stable platforms/ scaffolding/ rope ladders and supply of all other safety devices. Portal entry for new connections - New registration tracking and feasibility survey and its updation as per CUGL defined TAT;printing of stationary as per approved CUGL formats required during connections.				-
	Installation of GI service pipes & fittings from TF to final installation, regulators, Valves etc. including NPT threading, as specified, Drillings of holes through the walls (Brick, RCC), Granite, Marble, Wood Cutting, Glass Cutting with proper heavy duty hammer drill machine, tools & tackles, using proper sealant/grout material and colours to match the original replacement of the damages during drilling, restoring the area to the original condition, Painting of scratched length of powder coated pipe and fittings after proper surface finish by one coat of approved primer paint and two coats of approved synthetic enamel paint. Restoring the wall surface to original conditions.				-
	Supply & fixing of approved clamps & nylon rawl plugs with SS 304 2" screws, grout material, suitable thread sealant i.e. Teflon Tape, Joining of transition fitting to above ground service GI pipes, testing, purging and commission of the complete installation. The rates in connections also includes meter installation, tap off rates and conversion of burners. The GI installation in already gas charged areas, planning & coordinating with existing consumer's for New tap offs from existing riser with or without tee, testing of these existing risers and commissioning of these connections with newly tapp offs etc.is inclusive.				-
	Supply of material and making pedestal for TF and Riser shall be inclusive. HSE Rates				-
A	**GI / COPPER SECTION IN PROJECT AREA**				-
A.1	GI PIPE 1/2"	**Mtrs**	**4,00,000.00**	**410.69**	**16,42,74,666.67**
A.2	MLC Pipe(in Outlet Part of Meter)	**Mtrs**	**2,00,000.00**	**328.55**	**6,57,09,866.67**
A.3	GI PIPE 3/4"	**Mtrs**	**2,000.00**	**523.00**	**10,46,000.00**
A.4	12 mm Copper pipe	**Mtrs**	**500.00**	**409.02**	**2,04,510.00**
A.5	Welded GI pipe 3/4"	**Mtrs**	**2,000.00**	**567.00**	**11,34,000.00**
A.6	Welded GI pipe 1"	**Mtrs**	**500.00**	**618.30**	**3,09,150.00**
A.7	Installation & fixing of Meters with associated inlet connections/ fittings, valves, approved meter brackets and other supports by proper scaffolding/ grouting, Restoration of the work area to its original condition to the entire satisfaction of EIC. (Meter and Regulator will be provided as free issue Items)	**Nos.**	**50,000.00**	**557.00**	**2,78,50,000.00**
B	**For PNG Connection in already charged apartments/area where either riser is to be incrased or individual flat is to be connected.**				-

SCHEDULE OF RATES

TENDER INVITING AUTHORITY : CENTRAL UP GAS LIMITED
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TENDER NO : CUGL/REPL/WORKS/2026/33

S.No.	ITEM DESCRIPTION	UOM	Quantity	UNIT RATE (INR)	AMOUNT (INR)
	Supply and installation from lateral isolation valve to appliance along with meter installation, Testing , Commissioning, Submission of Isometric drawing, RFC, JMR and all supporting documents and Reconciliation of Material. The cumulative length of 1/2 "or 3/4'' GI pipe,MLC pipe up to 4m after lateral isolation valve and upto appliance and conversion of appliance thereof.				-
B.1	GI PIPE 1/2"MLC Pipe (in meter Outlet) or 3/4" all floors upto 4 mtr.	**Nos.**	**10,000.00**	**3,216.55**	**3,21,65,500.00**
B.2	**For Installation of GI PIPE 1/2'' or 3/4" GI all floors more than 4 mtr**				-
B.2 (a)	1/2" GI	**Mtrs**	**69,300.00**	**361.95**	**2,50,83,135.00**
B.2(b)	1/2" GI/MLC Pipe(in Outlet Part of Meter)	**Mtrs**	**40,000.00**	**289.56**	**1,15,82,400.00**
B.2(c)	3/4" GI	**Mtrs**	**1,100.00**	**523.00**	**5,75,300.00**
C	**Testing & Commissioning of Already Installed GI & Cu Pipe in project/O&M Area**				-
C.1	1/2"GI / 3/4"GI /MLC/ 12 mm Copper Pipe - Testing , Commissioning, Submission of Isometric drawing, RFC, JMR and all supporting documents and Reconciliation of Material of Already Installed Riser/Lateral (including installation of regulator & replacement of defective fittings , if required NOTE: Any extra installation of pipeline more than the installed pipeline shall be paid as per SOR item No. 5(A)	Mtrs	2,25,000.00	104.65	**2,35,46,700.00**
	Note: 1. GI, Cu,brass fittings shall not be counted separately. It shall be measured along with GI,MLC & Cu pipe.				-
6	**Testing and Conversion of Domestic Appliances**				-
	Conversions of all types of LPG Kitchen appliances to NG based appliances, Supply & changing of the nozzles / jets and associated controls for domestic & imported appliances with proper tools and tackles. The rates include testing of Kitchen piping from meter to Appliance valve and supply and fixing of one steel reinforced rubber hose per appliance/stove with clamps. Cleaning and performing minor maintenance, greasing etc. of the appliance. Testing and showing the performance to the customer, signing of joint meter records (JMR) and instructing the customer on use & safety norms, complete as per specifications & to satisfaction of owner / Engineer in Charge. Appliance should be installed at the time of NG.Perfoming Slab hole/Core cutting/glass cutting by using specific tools (wherever required) NOTE: Payment of NG Conversion shall be paid based on number of Burners converted from LPG to PNG				-
	Conversion of Burner	**nos.**	**1,25,000.00**	**131.33**	**1,64,16,000.00**
7	**Registration of Dom. Connection**				-
	Collection of registration forms duly filled with required supporting documents, Submission to CUGL marketing on schedule as decided by CUGL; This SOR may be used only after instruction of EIC/Site-in-Charge.	**Nos**	**40,000.00**	**230.67**	**92,26,800.00**
8	**Charges for compliance to Health, Safety & Environment (HSE) as detailed in Scope of Work.**				-
	GI Section- Safety requirement per Rise-Use of Fall arrestor/ petzl, Ascendors/descendors, PPE, Barricades/ Warning Boards (03 Nos.) connected with warning/Caution tapes in areas where piping work is in progress , Use of Safety shoes, Hand gloves, Reflective jackets, Hard hats(helmets), eye and ear safety equipments, Fire extinguishers and as per the detailed scope of work in tender specifications; In case of non compliance- Refere SCC clause - for applicable penalty . GI (G+4) and above including high rise Above 5th floor including lateral tapping where required full body safety harness & assessories shall be of PETZL is compulsory. Note- This SOR is applicable for G+4 and for riser only.	**No**	**2,000.00**	**917.35**	**18,34,700.00**
Part-III	**Civil Works**				-
8	**Foundation works: (Excavation, Providing and Laying Reinforced Cement Concrete (M-25)**				-
	Excavation in any plane & dimension including disposal of excavated earth up to any lead in all conditions, backfilling using serviceable earth and disposal of surplus and unserviceable earth. Soil to be levelled and properly compacted complete in all respect as per scope of work, technical specification and directions of EIC. Providing and laying REINFORCED CEMENT CONCRETE OF M-25 Grade (Concrete shall be design mix / nominal mix) with 20mm & down size graded crushed stone aggregates in NON SUSPENDED slabs/pavement slabs including pedestals, ramps etc., laying in alternate panels to required slopes, all necessary form work and finishing the top surface rough or smooth as required and directed, providing pockets/openings etc. including vibrating, tampering, curing, rendering and making smooth if required in any position, shape, level and thickness etc. as specified and directed by EIC. The rates include grouting of pockets, supply of material, shuttering, tools & tackles, Reinforcement etc.	**CU.M**	**50.00**	**10,418.40**	**5,20,920.00**
9	**Foundation works: (Excavation, Providing and Laying Plain Cement Concrete (1:2:4))**				-
	Excavation in any plane & dimension including disposal of excavated earth up to any lead in all conditions, backfilling using serviceable earth and disposal of surplus and unserviceable earth. Soil to be levelled and properly compacted complete in all respect as per scope of work, technical specification and directions of EIC. Providing and laying PLAIN CEMENT CONCRETE (PCC) (1:2:4) (Concrete shall be design mix / nominal mix) with 20mm & down size graded crushed stone aggregates in NON SUSPENDED slabs/pavement slabs including pedestals, ramps etc. leaving pockets, laying in alternate panels to required slopes, all necessary form work and finishing the top surface rough or smooth as required and directed, providing pockets/openings etc. including vibrating, tampering, curing, rendering and making smooth if required in any position, shape, level and thickness etc. as specified and directed by EIC.	**Cu. M**	**50.00**	**4,167.90**	**2,08,395.00**
10	**Preparation & Installation of Valve Chambers**				-
	All civil works including supply of materials, excavation of pit, piping supports including all PCC, RCC and Brick works for valve pits, sand filling to cover valve body, pedestals with insert plates as required, sealing of pipes in pits, providing cover etc., finishing, clean up and restoration. The work shall be executed as per specification. Also providing water proofing agents internal and external plaster of chamber to avoid water seepage.				-
	a Brick Valve Chambers- Size (L x W)- 2m x 1 m	**Nos**	**10.00**	**43,632.00**	**4,36,320.00**
	b RCC Valve Chambers- Size (L x W)- 2m x 1 m	**Nos**	**10.00**	**46,496.00**	**4,64,960.00**
	c Brick Valve Chambers- Size (L x W)- 1.5m x 1 m	**Nos**	**300.00**	**38,354.00**	**1,15,06,200.00**
	d RCC Valve Chambers- Size (L x W)- 1.5m x 1 m	**Nos**	**100.00**	**36,178.00**	**36,17,800.00**
	INSTALLATION OF SERVICE REGULATOR				-

SCHEDULE OF RATES

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TENDER NO : CUGL/REPL/WORKS/2026/33

S.No.		ITEM DESCRIPTION	UOM	Quantity	UNIT RATE (INR)	AMOUNT (INR)
11		Receiving, Handling, loading, transportation & unloading of owner supplied service regulator from CUGL designated stock yard to Contractor's own Stock- yard/ work-site. Proper storing, Stacking, identification, providing security and insurance cover for the materials. Installation and fixing if service Regulator with foundations, Regulator box & all associated work as per approved, restoring including all civil & structured work as per requirement of EIC				-
	a	INSTALLATION OF SERVICE REGULATOR	**Nos**	**125.00**	**6,876.54**	**8,59,567.50**
Part -IV		**RESTORATION OF EXCAVATED WORKS**				**-**
12		Restoration to original condition surface like asphalted/Bituminous Road, Concrete Pavement, Agra/ Kota Stones/ Tiles(Chequered/ Interlocking. Etc.).				-
		For NOC/Permission from land owning agencies/private builders etc., based on "Dig and Restore" basis, payment for restoration will be released only after satisfactory completion and certification by Third party/Consultant.				-
		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.				-
		Restoration to original conditions of dismantled surface like Asphalted/Bituminous Road, Concrete Pavement, Agra /Kota Stones / Tiles (Chequered/interlocking etc.), Dry Brick Pavement as per the technical specifications attached in the tender after laying of pipeline in Built- Up surface, as per the directions of EIC / Site Incharge. Scope includes supply of the approved quality material, testing of materials by third party agencies as per technical specification / CPWD / IRC Standards, submission of the restoration reports, obtaining no objection certificates from the concern local authorities /land owners / third party inspection agencies designated by land owing agencies and Owner. Bidder has to provide No objection certificate from land owning agency. The payment against this item shall be made after receipt of No objection certificate.				-
	a	Temporary brick surface	**Sq.mt**	**90,000.00**	**652.50**	**5,87,25,000.00**
	b	Permanent brick surface	**Sq.mt**	**6,000.00**	**1,255.50**	**75,33,000.00**
	c	Cement Concrete surface	**Sq.mt**	**6,000.00**	**7,850.00**	**4,71,00,000.00**
	d	Interlocking tiles	**Sq.mt**	**6,000.00**	**1,583.10**	**94,98,600.00**
	e	Hotmix plant Surface	**Sq.mt**	**12,000.00**	**2,740.50**	**3,28,86,000.00**
13		Nallah Crossing construction of RCC structure for protection of service line				**-**
		Construction of RCC structure for MDPE protection for drain/nallah crossing as per tender specifications - The scope includesconstruction providing and laying reinforced cement concrete of M-25 grade (Concrete shall be design mix/nominal mix) with 20mm & down size graded crushed stone aggregates in Non suspended slabs/pavement slabs including pedestal/ramp etc., laying in alternate panels to required slopes, all necessary form work and finishing the top surface rough/smooth as required in any position, shape, level and thickness etc. as specified and directed by EIC. The rates includes grouting of pockets, supply of material, tools,shuttering, Reinforce ment etc.	**No.**	**1,500.00**	**2,200.00**	**33,00,000.00**

NOTE

1	**The above quantities are tentative and may vary considerably depending upon site condition, methodology adopted as per site requirement with due approval of Owner / Consultant.**
2	**The SOR shall be read along with the relevant clauses of Laying of PE network, which is provided in the tender document**
3	**The above mentioned rates are basic, shall be inclusive of all taxes duties excluding BOCW 1% and GST as per actuals.**

CENTRAL UP GAS LIMITED
(CITY GAS DISTRIBUTION PROJECT IN KANPUR, UNNAO, BAREILLY & JHANSI)

TENDER FOR

EMPANELMENT OF CONTRACTORS FOR D-PNG CONNECTIVITY WORKS IN KANPUR, UNNAO, BAREILLY AND JHANSI FOR A PERIOD OF 1 YEAR

TENDER NO. CUGL/REPL/WORKS/2026/33

VOLUME II OF II

TECHNICAL VOLUME PART-A
OPEN DOMESTIC COMPETITIVE BIDDING
(THROUGH E-TENDERING MODE)

0	12.11.2026	Issued for Bid	VS	GSJ	AN
Rev	**Date**	**Description**	**Prepared by**	**Checked by**	**Approved by**

MAIN TABLE OF CONTENTS

LAYING OF MDPE PIPE, INSTALLATION OF GI/MLC/CU AND ASSOCIATED WORKS FOR CITY GAS DISTRIBUTION PROJECT AT KANPUR, UNNAO, BAREILLY & JHANSI GA

SL.NO.	DESCRIPTION		PAGE No.
	NIT		
I	**SECTION A - COMMERCIAL (VOLUME I OF II)**		
II	**SECTION B - TECHNICAL (VOLUME II OF II)**		
1	TS	INTRODUCTION	1-3
2	TS	LAYING OF MDPE MAIN PIPELINE & SERVICE PIPELINE	4-29
3	TS	INSTALLATION OF ABOVE GROUND GI PIPING & FITTINGS	30-42
4	TS	ELECTROFUSION FOR PE PIPES & FITTINGS	43-51
5	TS	HEALTH, SAFETY & ENVIRONMENT	52-72
6	TS	SUPPLY OF MDPE FITTINGS, VALVES AND TRANSITION FITTINGS	73-79
7	TS	GI PIPES	80-84
8	TS	GI FIITINGS	85-89
9	TS	WARNING MAT	90-95
10	TS	ISOLATION BALL VALVE	96-101
11	TS	APPLIANCE BALL VALVE	102-107
12	TS	POWDER COATING	108-111
13	TS	INSTALLATION GI, COPPER	112-127
14	TS	COPPER FITTINGS	128-132
15	TS	BRASS FITTINGS	133-137
16	TS	CORRUGATED FLEXIBLE METAL HOSE	138-142
17	TS	STEEL REINFORCED RUBBER HOSE	143-147
18	TS	COPPER TUBE	148-152
19	GTS	PE ACCESSORIES FOR UNDERGROUND NETWORK FOR NATURAL GAS DISTRIBUTION	153-174
20	GTS	PE COMPOUNDS FOR MANUFACTURE OF PIPES AND FITTINGS FOR UNDERGROUND NETWORKS FOR NATURAL GAS DISTRIBUTION - ACCEPTANCE PROCEDURE	175-184
21	GTS	PE VALVES FOR NATURAL GAS DISTRIBUTION UNDERGROUND NETWORK	185-204

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

INTRODUCTION

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1. Central U.P. Gas Limited (CUGL) is a joint venture company of GAIL (India) Limited & BPCL is responsible for distribution of Natural Gas for Domestic, Commercial & Industrial sectors including setting up CNG refueling stations for vehicles etc. in district of Kanpur, Unnao, Bareilly, Jhansi.

1.2. Central U.P. Gas Limited (CUGL) (hereinafter referred as Owner), is supplying piped natural gas (PNG) to domestic, commercial and industrial consumers and compressed natural gas (CNG) to automobiles in above mentioned GAs through its CGD and CNG networks. CUGL intends to develop its CGD and CNG network in above mentioned GA.

Resonance Energy Private Limited (REPL) is consultant for EPMC for Kanpur, Unnao, Bareilly and Jhansi for 02 year for city gas Distribution. Currently REPL is engaged in preparation of tender, Evaluation and recommendation of bidders for Laying. Installation, testing and Commissioning of MDPE P/L & PNG Domestic Connection in CUGL.

The present document covers the technical specifications for the enquiry.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

LAYING OF MDPE MAIN PIPELINE AND SERVICE PIPELINE

CUGL Central U.P. Gas Limited	**TECHNICAL SPECIFICATION** **LAYING OF MDPE MAIN PIPELINE AND SERVICE PIPELINE**	Resonance Energy

TABLE OF CONTENTS

1.0 GENERAL INFORMATION
2.0 DEFINITIONS
3.0 SCOPE OF WORK
4.0 MATERIAL, MANPOWER, EQUIPMENT AND MACHINERY
5.0 PROGRESS OF WORK
6.0 CO-ORDINATION/LIAISON FOR PIPELINE LAYING
7.0 REFERENCE SPECIFICATION, CODES AND STANDARD
8.0 QUALITY OF WORK
9.0 SAFETY
10.0 ROUTE SURVEY
11.0 ORGANISATION STRUCTURE
12.0 STRUCTURES, SERVICES AND OTHER PROPERTY
13.0 TRENCHING
14.0 LAYING
15.0 JOINTING OF POLYETHYLENE PIPE
16.0 BACKFILLING
17.0 TRENCHLESS LAYING (ONLY FOR 90MM & 125 MM)
18.0 RESTORATION
19.0 TESTING
20.0 PURGING
21.0 VALVE CHAMBERS
22.0 PERMANENT MARKERS
23.0 ASSISTANCE IN COMMISSIONING
24.0 STANDARD OF WORK
25.0 RECORDING (AS-BUILT DRAWINGS)
26.0 CIVIL WORKS

1.0 GENERAL INFORMATION

Central UP Gas Limited (CUGL), is a joint venture of Bharat Petroleum Corporation Limited (BPCL) and GAIL (India) Limited. CUGL plans to install an underground Natural Gas Distribution network in District of Kanpur, Unnao, Bareilly, Jhansi. The objective is to supply Natural Gas to both Domestic customers and to provide compressed gas as a fuel for automobiles. CUGL is seeking contractors to assist in meeting the above objective.

The main scope of this Specification comprises of laying of underground Medium Density Polyethylene (MDPE) main pipelines and service pipeline. The scope covers all the activities associated with the purchasing (specified items only), laying, testing and commissioning of MDPE main pipelines and service pipelines in new gas charged areas of sizes ranging from 20 mm upto 125mm OD, which includes PE/GI transition fitting above ground level and LMC work.

This technical specification defines the basic guidelines to develop an acceptable design and suitable construction methodology for carrying out different activities listed out in the schedule of rates of this tender.

Compliance with these specifications and / or approval of any of the Contractor's documents shall in no case relieve the Contractor of his contractual obligations.

2.0 DEFINITIONS

Owner	CENTRAL U.P. GAS LIMITED (CUGL)
PMC	Resonance Energy Private Ltd.,
TECHNICAL SPECIFICATION	Present <<Technical Specification>>and its entire Appendix, if any.
TPIA	Third Party Inspection Agency
EIC	Engineer – in – charge

3.0 SCOPE OF WORK

Generally, the following shall constitute the Contractor's scope of work but not limited to:

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

3.2 Prior to start of construction activity, contractor shall prepare route survey drawing marked for proposed gas pipeline laying and submit to Client/PMC for approval.

3.3 Co -ordination /Liaison from respective land-owning agencies such as CPWD, ADA, NHAI, KDA and any other local authorities etc. for road cutting for laying of the pipelines, Liaison with the concerned authorities during execution of the job, obtaining NOC from concerned authorities once the work is completed. Getting back/Refund of Bank Guarantee/security deposits made to the agencies for laying of the pipelines.

3.4 Obtaining clearances and coordination with concerned RWA of the allotted area for internal network laying.

3.5 Proper storing, stacking, providing security, insurance cover during storage, laying, commissioning and handing over the pipelines to Owner.

3.6 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. for deciding optimum feasible route and depths for laying the pipelines based on the route plans indicated by Owner/PMC.

3.7 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.

3.8 Installation of Safety/warning Signs and barricading of the entire route to be trenched. Pits to be similarly barricaded along with warning signs and caution boards.

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

3.10 Unloading/stringing the MDPE pipes of required sizes (i.e. 125, 90, 63, 32 & 20 mm) pipes into trenches as per approved procedure.

3.11 Joining the pipe ends with fittings & valves by approved automated electro-fusion techniques only as per Tender Specification.

3.12 Laying pipelines by any methodology including trenchless technology methods with or without casing pipes (HDPE pipes) as per specifications and as directed by EIC. Casing Pipe (HDPE Pipes) shall be supplied by Contractor i.e. PE 80/PE 63, PN 6, IS 4984.

3.13 Fabrication, Supply and Inspection of good quality of GI sleeve and half concrete sleeves and other materials, fittings to be supplied by the contractors as per the provisions of tender.

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

3.15 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.

3.16 Supply, fabrication & Installation of RCC route marker, Pole marker with foundations, Plate markers, valve chamber etc. as per the directions of the EIC/PMC.

3.17 Commissioning of gas in the tested PE Line shall be done as per the approved procedure.

3.18 Restoration of existing ground features such as grass/turfing, paving, roads, drains, concrete, floral beds, fencing, tiles, marbles, flooring masonry etc. to original condition and to match with adjoining conditions, functionally and aesthetically up to the entire satisfaction of Client/PMC /any other Third-Party agency designated by Owner and local authorities, failing which, it will be done at the risk and cost of the contractor. Obtaining satisfactory completion certificates form the restoration work done from the concerned authorities.

3.19 Returning surplus material to Owner stores after obtaining clearance from TPIA/Consultant/ Owner, reconciliation of free issue material/consumables.

3.20 Handing over the completed works to Owner for their operation/use purposes.

3.21 Rectification of defects arising due to poor workmanship during defect liability period of pipelines / installations handed over to Owner.

3.22 Preparation and submission of all documents like Pit wise As graph, As-built drawings, details of crossings, utility graphs, PE cards for service line and deviation statements on completion/commissioning of work by way of drawing, sketches and tables in soft & hard copy.

3.23 Preparation and submission of KMZ file of laid MDPE pipeline with exact coordinates at every 50meter.

3.24 RCC Structure for MDPE Protection (Drain/Nallah Crossing) for service line

3.25 Any other activities 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 OWNER.

3.26 Contractor to note that sizes to be taken as precisely as per drawing given in tender document. In any case due to site constraint, sizes given in drawing may vary.

4.0 MATERIAL, MANPOWER, EQUIPMENT AND MACHINERY

4.1 Material, Procurement and Supply

Material to be Supplied by Owner as Free Issue

4.2 Unless otherwise specified, Owner will only supply following material such as MDPE – pipes (125, 63, 32- & 20-mm OD). Other than Carrier Pipe, fittings, Transition fittings and valves shall be supplied by contractor as per attached technical specification to complete the laying of gas main pipelines and service pipelines.

4.3 The free issue material shall not be procured from any other source by contractor.

4.4 Material reconciliation statement of free issue material duly certified by Owner and PMC shall be submitted to OWNER on monthly basis.

4.5 **Material to be supplied by the contractor**: The supply of items as indicated in **SOR** shall be strictly as per relevant Technical Specifications enclosed with the Tender and as per guidelines of various clauses of SCC and **SOR**. All materials shall be handled safely and stored in a permanent, covered, lockable store/ ware house preferably near site in such a manner as to prevent any damage to the materials from scratching, gouging, indentation, excessive heat or by contact with any sharp objects or chemicals. The MDPE pipes and fittings shall be stored in covered storage to protect material from sunshine, rain etc.

4.6 Contractor shall procure the materials such as HDPE Casing Pipes & required valves fittings and Warning Mat etc.

4.7 Backfilling material

The Contractor shall be responsible to arrange the supply of approved coarse sand (size 0.6 – 2 mm as per IS 383) free from any impurities like clay, mica, and soft flaky pieces, as per the instructions of EIC/PMC. **For supply of sand in trench for rocky terrain, no separate charges are payable and is included in rates - excavation of hard rock / Morrum.** Also, supply of sand in Valve Chambers, Normal surface & built up surface, if required, as per the instructions of EIC¸ is not separately payable.

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

4.9 **Other Materials**: The Contractor shall supply the following items wherever required:

- All materials required for framework, trench support and temporary trench crossings.
- All sign boards, barricades, tin sheets, lighting arrangement and protective equipment.
- All minor items not mentioned in the Contract but necessary for the satisfactory completion and performance of the Work under this Contract.
- Material required for installation of valve chambers.
- GI/ Half Round Concrete Sleeves.
- Permanent markers with foundation

4.10 Manpower

The Contractor shall provide the skilled labour, tools, material and equipment necessary for the proper execution of the Work.

Project Manager (Min 5 year CGD experience with B.tech Mech/Civil), Billing Engineer (Min

3 year CGD experience with B.tech Mech/Civil) and one customer executive must be available.

4.11 Equipment, Machinery & Tools

This will include but is not limited to the list of specialized items included in Annexure # 1.

4.12 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.

4.13 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 conditions of the contract, will be levied and deducted from the running bills.

4.14 Acquisition, Receipt & Storage of Materials

The Contractor shall collect all free issue materials from OWNER during stores working hours following all documentation procedures laid down and as directed by the EIC. The Contractor shall carry pipe in such a manner as to preclude damage during transportation and handling. PE pipes supplied in straight lengths may be carried in straight pipe racks.

The Contractor shall at the time of receipt of material physically examine all materials and notify the EIC immediately of any damage or defect noticed by the Contractor. The EIC shall duly note any damage or defect in a site instruction book and both parties shall countersign the entry. Any damage not so recorded will be deemed not to have existed at the time of receipt of material by the Contractor and the cost of repair or replacement or rectification shall be borne by the Contractor. Any material once issued from OWNER store, if found in nonworking condition at site shall be brought to the notice of EIC with PO reference in written within 15 days and after subsequent approval shall return defective material in OWNER stores within 30 days.

If delay is more than 30 days and material is under warranty, the material will be accepted with a penalty, else the material will not be reconciled and amount of the same will be deducted from bills and same shall be levied as per SCC. The contractor shall ensure that no defective material shall be returned to store at the time of closure of contract. The format for defective materials returning to stores will be made available by EIC.

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

The Contractor shall maintain logbook at their respective stores stating issue and availability of free issue material at a given day. Further, it is mandatory that the contractor is required to undertake and submit inventory details of free issue and purchased materials on monthly basis to Owner/ PMC as per the approved format of the owner. The inventory details shall be in correlation with the Daily progress chart and material reconciliation sheet. The material to be procured by Contractor from approved vendors only and its MTC, IRN, Invoices etc. shall be submitted to PMC for vetting to check its authenticity.

In case of non-submission of material reconciliation on first week of every month, applicable penalties shall be levied as per SCC from the running bills.

5.0 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, completion schedule etc.

6.0 CO-ORDINATION/LIAISON FOR PIPE LAYING

Contractor has to CO-ORDINATE from statutory bodies for laying of pipelines. Statutory bodies in this case are NHAI, CPWD, Indian Railways, LDA, ADA, KDA and any other Government Agencies who maintains the public lands and accord permissions for laying of the utilities. The contractor shall obtain demand note (Road Restoration charges) from these statutory bodies. Contractor shall ensure that the Road Restoration Charges are to the minimum against the work to be carried out. OWNER may return back the demand note, if the Road Restoration charges are not found reasonable then OWNER shall not be liable to pay any Road Restoration Charges against the same to Concern Authority.

However, OWNER will pay the road restoration / Departmental charges / security deposit / Bank guarantees for getting the clearances from statutory bodies. It is the contractor's responsibility to inform and co-ordinate the concerned local authorities and also other utility agencies before and after the commencement of work at site. To ensure smooth execution of the work on a day-do-day basis, the contractor has to liaison with respective authorities. The contractor shall plan and ensure that work taken up under a single permission shall be completed within the stipulated time period and revalidation process is avoided. No separate Road Restoration Charges are liable to OWNER for revalidation cases.

It is the responsibility of the contractor to obtain "No Objection Certificate" (NOC) from land owing agencies/Statutory bodies after completion of the restoration to their satisfaction and getting released the security deposit / bank guarantees submitted by OWNER for obtaining permissions on production of documentary evidence.

On behalf of the owner, contractor shall prepare in advance and submit the proposed route plan complete in all respect and well ahead of time so that the actual construction work is not delayed because of approval/inspection / permission by concerned authorities. Further, the contractor shall also coordinate with the relevant authorities for necessary approvals of these proposed pipeline route drawings / certificates. The inspection of work by statutory authorities shall be the responsibility of the contractor without any extra cost to OWNER.

In case contractor delays laying of pipeline work under a single permission, the work or part of work may be offloaded to some other contractor on his risk and cost.

Any change / addition required to be made to meet the requirements of the statutory authorities shall be carried out by the contractor without any extra cost to OWNER. The inspection and acceptance of the work by statutory authorities shall, however, not absolve the contract from any of his responsibilities under this contract.

The owner shall pay the statutory fees. However, the Contractor shall be solely responsible for obtaining and maintaining all permits, NOCs, approvals, clearances, consents, work permits, traffic permissions, utility permissions, and other day-to-day authorizations required for execution and completion of the Works from the concerned authorities, local bodies, utility agencies, service providers, landowners, and any other entities having jurisdiction over the Works.

The Contractor shall, on behalf of the Owner, coordinate and liaise with all relevant authorities and shall prepare, submit, and pursue all applications, drawings, route plans, certificates, method statements, and other documents required for obtaining such approvals and clearances. The Contractor shall ensure that all submissions are made sufficiently in advance so that the progress of the Works is not delayed. The Contractor shall also arrange all inspections required by the concerned authorities and shall be responsible for all related follow-up, coordination, and liaison activities.

Notwithstanding the above, all statutory fees, restoration charges, security deposits, permit fees, approval charges, traffic management charges, utility shifting charges, and any other fees or charges imposed by any authority, utility owner, service provider, or local body in connection with the execution of the Works shall be borne by the Contractor. Such costs shall be deemed to

have been included in the quoted prices, and no separate payment or reimbursement shall be made by the Owner on this account.

Prior to commencement of any excavation, trenching, drilling, boring, HDD operations, or other construction activities, the Contractor shall identify all existing utilities, infrastructure, and services located within or adjacent to the work area and shall provide prior written notice to the concerned utility owners, service providers, and authorities. Such entities may include, without limitation, water supply and sewerage authorities, electricity distribution and transmission utilities, telecommunication and optical fibre operators, gas utilities, highway authorities, railway and metro authorities, industrial establishments, government departments, residential societies, and other public or private infrastructure owners whose assets may be affected by the Works.

The Contractor shall obtain the necessary written acknowledgements, permissions, clearances, or confirmations, as applicable, before carrying out any excavation or drilling activity, whether by manual or mechanical means. The Contractor shall take all necessary precautions to protect existing utilities and infrastructure and to prevent any interruption, damage, or adverse impact on third-party assets and services.

Any loss, damage, disruption, claim, demand, penalty, injury, death, or liability arising from the Contractor's failure to identify utilities, provide prior intimation, obtain the required permissions, or exercise due care during execution of the Works shall be the sole responsibility of the Contractor. The Contractor shall indemnify and keep indemnified the Owner, its officers, employees, and representatives against all claims, actions, proceedings, losses, damages, costs, expenses, compensation, penalties, and liabilities arising therefrom.

Where the Contractor commences or executes any part of the Works without the requisite coordination, intimation, permission, or clearance from the concerned authority or utility owner, the Contractor shall bear full responsibility and liability, whether civil, criminal, statutory, contractual, or otherwise. The Contractor shall further be liable for all consequential losses, damages, injuries, fatalities, and third-party claims, and the provisions of the clause titled “Damage to Property or to any Person or any Third Party” contained in the Commercial Part of this Contract shall apply in full and without limitation.

7.0 REFERENCE SPECIFICATION, CODES AND STANDARD

The contractor shall carry out the work in accordance with the requirement of latest relevant applicable standards, this specification, Owner’s Engineering Standards; relevant Oil Indian Safety Directorate (OISD) norms, PNGRB Regulations, 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 OWNER’s 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.

8.0 QUALITY OF WORK

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

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

Fusion operators and other skilled personnel shall be approved by Client/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 Electro fusion jointing of MDPE Pipes & Fittings. OWNER may provide Training and certification on chargeable basis

where the cost shall be borne by contractor.

9.0 SAFETY

9.1 The Contractor shall conform to the safety 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.

9.2 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.

9.3 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.

9.4 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.

9.5 The Contractor shall provide PPE's like helmets, safety shoes, etc. to the labour which are necessary for safe working practice.

9.6 Any accident causing injury to any person or damage to property or equipment shall be reported to the EIC and the cost of repair / replacement of the damage equipment shall be borne by the contractor. 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.

9.7 For further details Refer "Special Terms and conditions of Contract" and attached TECHNICAL SPECIFICATION – Laying of MDPE Main Pipeline and Service pipeline.

10.0 ROUTE SURVEY

10.1 Planning, detailing the size, underground utilities, foreign pipelines, crossings, and location of valve chamber, FRS / DRS / MRS as well as service line location.

10.2 Main lines

The final alignment of mainlines will be worked out at site in consultations with the Owner /PMCs after route survey and trial pits, at contractor cost. 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.

10.3 Service lines

- Consultant/Third Party Inspection Agency and the contractor will conduct a joint survey at each probable premise/housing colony/pockets/area to be supplied with gas. The survey record will note customer's detailed potential gas supply points, proposed regulator positions and estimates of material quantities. The contractor's representatives will make sketch of the agreed pipe routes.
- The contractor will be responsible for contacting the customer and making the necessary arrangements for access and appointments to carry out the work. Contractor shall maintain job card and complaint books at site. Owner will not be responsible for time lost due to failed appointments or disputes with customers.

11.0 ORGANISATION STRUCTURE

11.1 Contractor shall designate Project Manager / Coordinator who will be responsible to interact with EIC/Consultant/TPIA and authorized to attend review meetings, receive material, authorized to sign documents, claims and receive payments etc. Contractor shall employ a Project Manager / Coordinator

on company roll. The Project Manager / Coordinator must have qualification of BE / Diploma in Engg. with min. 5 - 8 years of work experience in gas pipeline job respectively. He shall be single point of contact for all the works and must represent company in the review meetings.

11.2 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 Owner 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 Owner.

11.3 The contractor will deploy his own supervisors as directed by site engineers/EIC. These personnel will be reporting to the Site Engineer for monitoring construction standards and for ensuring that all technical requirements are met for the job being carried out. The contractor's supervisor(s) will have day-to-day liaison with the Site Engineer and will provide the Site Engineer with technical reports and audits, and other management information as is required on work progress and construction quality standards.

11.4 The contractor's supervisor shall have mobile telephones to ensure that they can be contacted at all times. The contractor will also nominate one person who can be contacted if necessary, in odd 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 Owner. The normal day-to-day issue of work instructions, communication between Owner and the contractor's supervisor and the Site Engineer.

12.0 STRUCTURES, SERVICES AND OTHER PROPERTY

12.1 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 Site Engineer in advance of any excavation. In any event, trial pits shall be made at intervals of a maximum of 30 meters. Restoration of the abandoned trial pits and trenches shall be the contractor's responsibility. No payments shall be made for such type of jobs. The trial pits shall be excavated to minimum depth of 1.5 meters so as to locate any utilities present in the trench.

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/ PMC.

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

12.2 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 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 of pipelines near the trees.

12.3 Interference with Traffic, Street Drainage and General Public

The Work shall be executed in such a manner so as to cause a minimum inconvenience to persons using 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 soil 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 use a private driveway, access track or entrance without the prior approval of the EIC in any circumstance.

The Contractor shall provide suitable access wherever 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 divert them wherever necessary and use all proper measures to provide for the free passage of water.

The Contractor shall handover the completed works after proper cleaning of the site.

The contractor shall conduct his operation at all times, with a view to minimize as far as practicable noise and other objectionable nuisances (e.g. oil leakage).

13.0 TRENCHING

The schematic drawing with the details of trench is enclosed in the tender.

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 in the Drawings, Specifications or as otherwise directed by the EIC.

Contractor shall excavate and maintain the pipeline trench on staked centerline as per approved drawing 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 over the ROU 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. Owner may require excavation by hand, local route and detouring 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 the bottom and sidewalls of the trench.

13.1 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.

In case of crossing of water bodies, the minimum depth shall be measured from the top of the pipe to the bottom of Scour level.

The depth of the trench will be such as to provide minimum cover as stipulated

below: For Distribution and service lines

- Minor Water Crossing/Canal 2.5 meter
- Uncased/Cased Road Crossing 1.5 meter
- Rail/Road Cased Crossing 1.5 meter
- Normal Areas 1.0 meter

The minimum depth may be greater than as mentioned above 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.

Also, in case of Drains/Culverts/Utilities crossing through open cut where excavation cut is more than 1.5m, the extra excavation is inclusive in the laying rates. **No separate payment is chargeable for extra excavation and includes backfilling as well**.

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 any extra cost to Owner.

13.2 Width of Trench

The width of the trench shall be wide enough to provide bedding around the pipe as specified 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 the drawing enclosed in the tender.

13.3 Trench Base

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

In case trenching is done in rocky terrain, a bedding of soft soil or sand shall be provided in the trench base to the satisfaction of EIC.

Hard Rock:

Hard rock is defined as trench material with a single piece of rock, dimension exceeding 1.0 m in any direction, which requires cutting only by use of chisel / pneumatic chisel / drill or sledge hammer or removal of the same by additional excavation. Additional rates shall be payable for hard rock excavation as per the **SOR item** over and above the pipeline laying rates. Excavation through soil mixed with small boulders that have been used for a road base will not be considered as hard rock for the purpose of payment.

Murram

It shall be obtained from pits of weathered disintegrated rocks. It should preferably contain siliceous material and natural mixture of clay of cal carious origin. The size of the Murram shall not be more than 20 mm. Murram for filling shall be clean and well graded. Murram shall not contain any vegetation, organic, clayey or other material. Additional rates shall be payable for Murram excavation as per the **SOR item** over and above the pipeline laying rates.

Boulder –

It is a rock with grain size of usually not less than 256 mm (10 inches) diameter. Additional rates shall be payable for Boulders excavation as per **SOR item** over and above the pipeline laying

rates.

13.4 **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/utilities in the vicinity of the Works.

- 150 – 300 mm where the gas pipe crosses other assets/utilities, etc., for electric cables, the clearance shall be 300mm minimum or special protection shall be provided as per approval of EIC.
- 300mm where the gas pipe is on a similar alignment to the other assets/utilities.

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 subject to discretion of EIC.

13.5 **Under Ground Interferences**

The Contractor shall locate and expose manually all underground facilities if any during trenching. Safety barriers shall be erected along the trench to prevent any damages or accident. On locations where pipeline is laid under the existing facilities and near the approaches of 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 Owner to open cut paved road crossing, or where the 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 Owner. After laying the pipeline, backfilling shall be immediately performed, and all the areas affected connected with the excavation 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 the satisfaction of concerned authorities, resident and Owner.

13.6 **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' jurisdiction and/or Owner.

Fencing of the work site shall generally be at the discretion of the Contractor, subject to compliance with applicable laws, statutory requirements, safety standards, Good Engineering Practices, and the directions of the Engineer-in-Charge or the Project Management Consultant (PMC) appointed by the Owner for the Project. However, any area where work is being carried out above man height or involving excavation exceeding 0.5 feet below ground level shall be adequately barricaded and protected at all times.

In locations involving traffic movement, public access, congested areas, densely populated zones, or any area presenting a potential risk to public safety, the Contractor shall provide hard barricading, warning signs, caution boards, reflective tapes, lighting arrangements, flagmen, traffic diversion measures, and such other safety arrangements as may be necessary or as directed by the Engineer-in-Charge or the PMC. In other areas, soft barricading may be used with the approval of the Engineer-in-Charge or the PMC, provided that such barricading is sufficient to ensure public and workplace safety.

Notwithstanding the foregoing, whenever a reasonably prudent contractor would consider additional safety measures necessary to prevent injury, loss of life, damage to property, disruption of public services, or any other foreseeable hazard, the Contractor shall immediately implement such measures without waiting for any instruction, approval, or direction from the Owner, the Engineer-in-Charge, or the PMC. The absence of any instruction or objection from the Owner, the Engineer-in-Charge, or the PMC shall not relieve the Contractor of its responsibility to adopt and maintain adequate safety measures.

The Contractor shall be solely responsible for planning, implementing, maintaining, and monitoring all safety measures necessary for the protection of persons, property, equipment, utilities, the environment, and the Works. The Contractor shall take all preventive, protective, and precautionary measures required to avoid accidents, injuries, fatalities, damage to property, utility interruptions, and environmental harm during the execution of the Works.

The Contractor shall be fully responsible for any loss, damage, accident, injury, death, disruption, claim, demand, penalty, cost, or liability arising out of or in connection with the execution of the Works, whether affecting the Owner, the Contractor, its employees, subcontractors, visitors, utility owners, or any third party. The Contractor shall indemnify, defend, and hold harmless the Owner, the Engineer-in-Charge, the PMC, and their respective officers, employees, representatives, and agents from and against all claims, actions, proceedings, losses, damages, costs, expenses, penalties, compensation, and liabilities arising therefrom.

Notwithstanding anything contained elsewhere in the Contract, the primary and absolute responsibility for safety shall at all times remain with the Contractor. The Contractor shall not commence or continue any activity unless appropriate safety measures commensurate with the nature, location, and risks of the work have been implemented and maintained.

Any review, inspection, approval, consent, instruction, comment, observation, or omission by the Owner, the Engineer-in-Charge, or the Project Management Consultant (PMC) shall not relieve, reduce, transfer, or otherwise affect the Contractor's obligations, responsibilities, or liabilities relating to safety. The Contractor shall not be entitled to contend or claim, at any stage, that any accident, injury, fatality, loss, damage, or third-party claim occurred due to the failure of the Owner, the Engineer-in-Charge, or the PMC to provide instructions, approvals, comments, observations, or directions regarding safety measures.

The Contractor shall remain solely and fully responsible for identifying hazards, assessing risks, and implementing all preventive, protective, and precautionary measures necessary to avoid accidents, injuries, fatalities, damage to property, utility disruptions, and third-party claims during the execution of the Works. Any liability arising out of such events shall be governed by and construed in accordance with the provisions of the clause titled "Damage to Property or to any Person or any Third Party" contained in Commercial part of this Contract, which shall apply in full and without limitation.

For all roads, paths, walkways etc. which are open cut, the Contractor shall provide temporary diversions properly constructed to allow the passage of normal traffic with the minimum 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 trenches is required at the approaches to crossings of roadways, railroads, rivers, streams, drainage and ditches without any extra cost implication to Owner.

The Contractor shall excavate all such aforesaid depths as may be required at no extra cost to Owner. 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 Owner or relevant authorities.

Where the pipeline crosses underground utilities/structures, Contractor shall first manually excavate to a depth and in 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 perform the work to the satisfaction of the Owner of the existing pipeline/cable/utility. 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.

13.7 **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 Site Engineer. 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 and surrounding sand shall confirm specifications. There shall be no void space in the packing sand around the pipe.

14.0 LAYING

Main line

Laying of MDPE pipelines shall be commenced 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 up to 150mm below underside of pipe and any other material, which could lead of perforation/tearing of the pipe wall. After ensuring above, the MDPE 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.

Contractors shall ensure 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 inside the pipe during the laying process as this could cause a future blockage or regulator malfunction due to dust, etc.

In case of open cuts where two pipes are to be laid parallel in same trench or same pits, 30% of the respective SOR of the lower pipe size for the laid length shall be paid in additionally to the rates applicable to the higher pipe size.valves shall be installed at locations shown in the Design Plan or as directed by the EIC and joined with PE pipes by electro fusion techniques. The valves shall be placed on a concrete square block at the bottom to achieve equivalent support of the incoming and outgoing pipe work.

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

A pipe may pass through an open drain or nallah with prior approval from EIC. Where this is permitted, the PE pipe shall be installed inside a concrete or steel sleeve for protection with no cost implications to the owner. The sleeve material shall be procured and laid by the Contractor with prior inspection and approval of the EIC for the quality of material. In general, the GI Sleeve material specification shall be confirming to IS 1239 (Heavy Duty) specification

of reputed make.

LAYING OF SERVICE LINE IN project and Charged area:

O&M area shall be defined as those areas where PE line is already charged and handed over to owner. However, Old Project area shall be defined as an area where MDPE line is already been laid by another contractor (currently not working in respective zone), only service line connectivity shall be done by the contractor. Laying of pipeline (for 20 & 32mm) in all type of surface i.e. all kinds including Kutcha, metal, concrete (PCC/RCC), bituminous, tiled, brick lined etc. after racking up of hard surface of any type by any methodology. Roads, Pavement, Footpaths etc. shall be made motor able once the pipeline is laid. Supply & installation of GI Sleeve / Half round Concrete sleeve shall be included in laying rates. The rate includes liasoning with statutory bodies and no separate rates are payable. Wherever service lines are to be laid after dismantling nallah / drain, no additional cost for dismantling and repairing shall be payable.

Contractor to ensure majority (up to 70% of the available potential) of service lines for connecting houses shall be laid at first instance of internal network laying, however any slippage
/ deviation shall be submitted with consents for approval from EIC/PMC

In case of service lines, EIC shall decide either half round concrete sleeve or GI pipe sleeve shall be installed at any particular site depending upon site condition. The half round concrete sleeve shall be preferred over GI Sleeve, however in case where the installation of half round Concrete Sleeve is not possible due to technical feasibility and site conditions, GI sleeves shall be installed only after written approval from EIC. The rate of GI Sleeve / half round concrete sleeve shall be included in laying of 20/32 mm dia., depending upon surface conditions. The details are mentioned below:

GI Sleeve:

A bending tool shall be used to bend the GI sleeve pipe so that it has the appropriate curvature and is free of kinks. The installation of GI sleeve for service lines shall be done by sealing the annulus between pipe and sleeve, firm fixing of the GI sleeves by concrete mix pedestal, clamping, sand filling, etc.

The contractor shall supply the minimum dia. Size of 2.5” & 3”, 300 mm in length, GI sleeves (Heavy Duty reputed make) respectively for domestic installations. The vertical portion of the sleeves shall be fixed to the wall of the premises in a secure manner. The material test certificates/ inspection reports shall be submitted at the time of submission of bill. The material shall be inspected by TPIA / PMC before installation.

Half Round Concrete Sleeve:

The installation of Half Round Concrete sleeve for service lines shall be done by sealing the annulus between pipe and sleeve, firm fixing of the Concrete sleeves by concrete mix pedestal, clamping, sand filling, etc. Half round concrete sleeve shall be made as per enclosed drawing in the tender. The dimensions shown are tentative and may vary depending upon the site conditions. The material shall be inspected by TPIA / PMC at the fabrication stage & prior to final dispatch at site for installation. The material test certificates/ inspection reports shall be submitted at the time of submission of bill.

RCC Structure for MDPE Protection (Drain/Nallah Crossing) for service line:

Construction of RCC structure for MDPE protection for drain/nallah crossing as per tender specifications - The scope includes construction providing and laying reinforced cement concrete of M-25 grade (Concrete shall be design mix/nominal mix) with 20mm & down size graded crushed stone aggregates in Non suspended slabs/pavement slabs including pedestal/ramp etc., laying in alternate panels to required slopes, all necessary form work and finishing the top surface rough/smooth as required in any position, shape, level and thickness etc. as specified and directed by EIC. The rates includes grouting of pockets, supply of material, tools, shuttering, Reinforce ment etc.

Construction of RCC structure for MDPE protection for drain/nallah crossing as per attached drawing; payment against such executed item shall be payable as per SOR item. Construction of this structure shall be as per instruction of Site In-charge or site RCM/PMC & in locations which are not prone to damage by heavy vehicular movement (Rates shall be irrespective of drain width).

15.0 JOINTING OF POLYETHYLENE PIPE

The procedure for jointing of PE pipes and fittings shall be as per applicable TECHNICAL SPECIFICATION which is part of this tender document. Only Bar coded electro-fusion machine (Automatically Readable) that can read the bar code of the fittings automatically shall be used for joining of the MDPE pipes/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 instructions of Owner. Contractor shall ensure that the machines are always available at site. No stoppage of work due to the non-availability of machines shall be allowed.**

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. The jointing process shall start only after Alignment clamps with the correct size are aligned with the pipe and coupler during the electro- fusion cycle.

The Contractor shall ensure that polyethylene pipe is only cut with an approved plastic pipe-cutting tool (Rotary Cutter up to 63mm/Guillotine Cutter for 63mm and above). Before fusion is attempted, the contractor shall remove the oxidized surface of the pipe using Universal Scrapper up to 63mm/Rotary Peeler for 63 mm and above before inserting into the electro-fusion coupler. The tool must remove a layer of 0.1mm to 0.4mm from the outer surface of the polyethylene pipe. No fusion will be allowed without clamping device and the approved cutting tools (Hack saw shall not be allowed for cutting the pipe).

The contractor has to supply all the consumables required for carrying fusion of the joints (like tissue 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 replacing joint shall be borne by the Contractor including the cost of pipe and fittings removed.

For electro-fusion joining, the contractor must bring own tools, tackles and equipments.

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 Client/PMC as per the standard procedures. All approved Jointers shall bear identity cards signed by Client/PMC during fusion job and shall furnish the same on demand by Client/PMC.

Contractor shall arrange generator along with voltage stabilizer for power supply to fusion machine. Taking power connection form electric poles, connections without written permission from the concerned authorities or residential premises is strictly not permitted.

16.0 BACKFILLING

Backfilling shall be done after ensuring that appurtenance have been properly fitted and the pipe is following the trench 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 of compacted thickness 150mm is put over and around the pipe immediately after lowering where required.

Backfilling shall be carried out immediately after the post padding where required has been completed in the trench, inspected and approved by Owner/ 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 300mm 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 Owner/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 backfilling, 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 landowner or authority having jurisdiction at no extra cost to Owner.

Where rock, gravel, lumps of hard soil or like materials are encountered at the time of trench excavation, sufficient earth, sand 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 area acceptable shall be soil, sand, clay or other material containing no gravel, required selected backfill material has been placed, provided the rock or lumps of hard soil. The padding earth shall not contain any stones, i.e. the earth shall be screened for sand padding of the Pipeline in order to avoid damage to the pipeline. Contractor shall carry out all these works at no extra cost to Owner. 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 / site engineer sand padding is to be provided upto height of 150 mm around the pipe.

When the trench has been dug through driveways or roads, all backfilling shall be executed with sand/suitable material in layers as approved by Owner /PMC 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-up to.

PE Warning Grid/Mat 1mm thick and 300mm wide shall be placed on distribution main and service line inside premises, after backfilling of the trench up to a height of 300mm on the top of the carrier pipes. The warning grid 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, wherever required and as per instruction of EIC, and watering in layers of 150mm above the warning mat. Proper crowning of not more than 150mm shall be done. All the excavated material that could be used during the Restoration process shall be stacked and kept separately and properly. Wherever Road cutting / Tiles removal/PCC 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 jointing of pipes.

Debris and other surplus material shall be removed immediately after the back filling.

17.0 TRENCHLESS LAYING (ONLY FOR 90MM & 125 MM)

Both Manual Moling and HDD are to be considered as methods of trenchless laying for 90mm & 125 mm diameter pipeline only.

Manual Moling

The Manual Moling shall be carried out as per the requirement specified by Client/PMC and approved procedures. The contractor has to carry out survey of the underground utilities before going for the Moling to avoid any damage to other utilities. No extra payment will be made for any trial/abandoned pits made during the survey. The supply of all equipment required for carrying out moling work is in contractor's scope. The type of moling to be carried out i.e. with or without casing shall be at the discretion of Owner and prior approval is to be taken before starting the Moling.

For Moling the contractor shall ensure that the size of the hole shall not be more than 20% of the size of the casing/carrier pipes whichever is applicable. After completion of Moling the hole shall be properly compacted / filled with soil by watering and by approved procedures.

The length of the Hole (excluding the sizes of the pits on both ends) shall be considered for the measurement of Moling length.

The usage of casing pipe will be decided by EIC at the time of final approval for crossing/laying.

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

HDD (Horizontal Directional Drilling)

HDD is required to be carried out where conventional trenching/Moling is not possible viz. major waterways, highways, roads, congested areas etc. The Contractor shall obtain details of such crossings and the Contractor in consultation with Owner shall prepare construction drawings. Execution of the work shall be based on the Client/PMC approved

drawings. The contractor has to do the thorough survey of the underground utilities before commencement of HDD to avoid the damage to the other utilities. No other extra payment will be made for any trail/abandoned pits made during the survey. The supply of all equipment required for carrying out the HDD is in contractor's scope. The HDD operation shall be carried out in accordance with API-1102. The type and availability of machines is sole responsibility of the contractor and as per the site conditions & requirements to entire satisfaction of EIC.

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 contract. However, in such cases, owner may mobilize HDD machines and carry out execution of work on the contractor's risk and cost.

The length of the Hole (excluding the sizes of the pits on both ends) shall be considered for the measurement of HDD length and is payable as per relevant SOR item no. The type of HDD to be carried out with or without casing shall be at the discretion of Owner and prior approval is to be taken from EIC before starting. The rates are inclusive of excavation of pits, jointing, pilot boring, bentonite cleaning, reaming, insertion of carrier pipe, backfilling, compaction, etc.

As per the specification, HDD to be carried out with or without casing pipe depends on the type of crossing. Any damages occurred to other utilities during the HDD operation shall be immediately notified and rectified by the contractor without any cost implication to OWNER.

HDD profiles should be properly marked/ recorded in graphs as per scale before it is drafted in the as built drawing.

Casing Pipe

The tentative sizes of the HDPE casing pipe for Moling/Horizontal Directional Drilling shall be as follows:

S. No.	MDPE Carrier Pipe Dia. size (mm)	Min. Dia. of HDPE Casing Pipe (mm)	Max. Dia. of HDPE Casing Pipe (mm)
1	20		50
2	32	50	90
3	63	110	160
4	90	180	200
5	125	200	250

However, the size of the casing pipe may vary according to the length of the carrier pipe and requirement of laying of HDPE duct & OFC cable, if required. Also, the higher size of HDPE casing pipe shall be preferred over lower size casing pipe without any extra cost to the Owner.

18.0 RESTORATION

Wherever the restoration to the original surface condition is in the scope of Owner or as directed by EIC, all roads, footpaths (including roads and footpaths inside colonies) shall be restored to its original condition and the same shall be done as per CPWD/IRC norms and to the satisfaction of the concerned local Authority/Third Party Agencies designated by Owner. To retard curing of the installed concrete, wet sackcloth is to be placed on the finished surface and kept damp for a period of 7 days.

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 lying.

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 procedure for restoration of Road/Footpath, placed at Annexure # 2, is only indicative. However, the restoration shall be done in accordance with the norms of the concerned Land-owning agencies.

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 restoration 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 restore the defective work.

The rate of restoration includes Asphalted / bituminous, concrete pavement, Agra stone/Kota stone / Tiles (Chequered / any other type of tiles), Marbles, interlocking paver blocks, Dry brick pavements etc. and is payable under one SOR.

Note that payment for restoration will be released only after satisfactory completion and certification by Third party/Consultant.

Contractor has to obtain the No Objection Certificate (NOC) from the concerned local authorities/RWA 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 the latest version CPWD/IRC specification to its original condition and also to the entire satisfaction of landowner (Private/Public).

The expenditure incurred towards testing of the material used for restoration, as per the applicable standards, shall be borne by contractor.

19.0 TESTING

Pressure testing will be carried out with compressed air (free from oil and greases). Compressed air will be provided by Contractor for testing purposes and is to be included in the laying rates.

For both main & service pipeline laying, the Contractor shall perform progressive pressure testing to ensure no leaks in long lengths of pipe. The test pressure shall be 6.0 bar (g), and there shall be no unaccountable pressure loss during the test period.

Overall scheme drawing for pressure testing shall be prepared by the contractor and get approval from Owner/PMC.

For main line, the test duration shall be 24 hrs. with stabilization period of 30 minutes after pressurization. Then only the holding period may commence and continue for 24 hours. Measuring instruments shall have been calibrated and their accuracy and sensitivity confirmed before the start of testing, where in, 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 EIC.

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.

In special cases, where the mainline or service line length is less than 500 mtrs. holding period for testing may be reduced to 4 hrs. with stabilization period of 15 minutes. For service lines, in some cases, testing shall be carried out independently than of mains

for which the test duration may be reduced to 4 hrs. The service line testing in this case will be performed after the service line installation is complete but before the service line tee has been tapped for gas charging.

20.0 PURGING

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

The Contractor shall also provide nitrogen required for purging as per the direction of Site In-charge. Nitrogen shall be supplied in labelled, tested and certified cylinders and completed with all necessary regulators, hoses and connections, which will be in good and working condition. No separate payment shall be paid for supplying Nitrogen cylinders for purging and is included in the laying rates.

In addition, the Contractor shall submit purging plan and get approval from Owner / PMCbefore 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 Adaptor, Purge stack with flame trap and gas sampling point, Gas sampling equipment (may be gas leak detector), squash- off tool, Polyethylene connecting pipe.

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.

21.0 VALVE CHAMBERS

Valve Chambers (RCC/Brick Wall) shall be constructed as per drawing. Prefabricated valve chambers with same dimensions are also allowed however the final designing and specifications shall be approved by EIC/PMC before start of production, without any extra cost to owner.

The construction of the valve chambers shall be taken up immediately after installation of valve, before commissioning of the pipeline network.

If required, it may also be instructed for construction of new valve chambers on existing gas charged pipeline before or after Gas charging for extensions or new pipeline network.

The location for construction of valve chamber shall be proposed by contractor and approved by EIC/PMC before start extension / new MDPE network.

Materials for Valve Pit

RCC Pre-cast Slab shall conform to IS: 456. Heavy Duty RCC Manhole Cover shall be used. It shall be with raised with Lifting hooks. The RCC manhole cover shall have a clear opening as per the Construction Drawings issued to the contractor.

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. Sandbags to be placed below pipeline without disturbing the laid pipe. Gunny bags and Sand should be of approved quality.
- PCC to be placed below the pipe as indicated. Once PCC is set sand is to be filled and properly rammed so that pipe and pre-cast concrete blocks are firmly place.

- Valve will be supplied without the operating stem. Approved quality sand is to be placed in between area. The supply of sand is included in the rates.
- Surrounding area to be properly cleared and PCC to be placed around the location where pre-cast slab with RCC Manhole cover is placed. The RCC pre-cast slab to be laid in level and finished smooth.

22.0 PERMANENT MARKERS

22.1 Permanent Markers (As per Drawings enclosed with the tender document) shall be Fabricated, supplied and installed on the ROU at regular intervals as per the instructions of the EIC immediately after laying of the Pipeline. The installation of the type of the Permanent Marker shall be decided by the EIC depending on the site condition. The contractor shall also ensure that a sample of all type of markers shall be inspected and approved by Owner / PMC before shipment of the lot at site and prior to installation at the site. The inspection of all types of markers shall be carried out lot wise.

22.2 The RCC Markers shall be painted before installation as per the approved procedure. Whereas the Pole marker (Markers with foundation) are to be supplied with powder coated Golden Yellow paint. The supply of the paint and application as per the specification is in contractor's scope. Contractor shall obtain the approval lot wise & before installation at site from the PMC / TPIA.

22.3 Guidelines for Marker installation:

- The installation of these markers shall be such that in between two Pole markers two RCC markers are installed with equal spacing of 50 mtrs. on either sides. However, Pole markers shall be installed at all the Tapping /Branching points in the mainline.
- Interval between any two markers for mainline (for 20 mm up to 125 mm) shall not be more than 50m.
- A Pole marker shall be installed next to valve chamber on Mainline & internal network for apartments/pockets respectively for indication.
- Pole markers with foundations shall be installed after every two RCC route marker
- Every entry and exit pits for laying of pipeline by HDD
- Road crossings shall be marked by Pole markers or RCC markers depending upon the site conditions.
- In addition to above, Pole markers with foundation (Enclosed in Tender) shall be nstalled outside of individual societies/areas as per the instructions of the PMC.
- For the distribution network, 125, 90, 63, 32 & 20mm OD pipe, plate markers shall be installed as per the site conditions and directions of the Site-in-Charge.

22.4 The artwork is typical for all the markers, with Owner's logo on it. The contractor must take prior approval for the artwork from EIC before installation of Markers. The lot wise approval shall be attached with bills.

14.0 ASSISTANCE IN COMMISSIONING

Contractor shall provide the required personnel, Vehicles, labour, supervision, tools, equipment, instruments and technical assistance for performance tests and commissioning activities as per requirement / satisfaction of Owner /PMC.

15.0 STANDARD OF WORK

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. The manpower deployed on the respective work shall be adequately trained and 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.

Fusion Operators and other skilled personnel like plumbers, conversion techniques shall be approved by Third Party Inspector Agency/PMC. Simultaneously Identification Cards duly signed by Third Party Inspector Agency/PMC shall be issued to them. The contractor shall maintain proper record for the identification cards issued to their workers.

16.0 RECORDING (AS-BUILT DRAWINGS)

The following points shall be taken care to the preparation of as built drawings.

a) The as laid drawings should be in the scale of 1:200 and shall be submitted in an A-0 sheet. The drawings shall be in layers according the AUTOCAD features category.

b) Pipeline feature shall be shown as a continuous line, breaks only at joints, fittings, valves, tee point, etc. Diameter, Pipe material, length, and location of pipeline whether on the road or footpath, should be clearly indicated.

c) Distance of pipeline from permanent property/structure should be provided at least every 20 meters. If there is any change in alignment / orientation and offset distances etc. Of the pipeline in between the above said 20 mtr, the same shall be dearly mentioned in the as laid. Gas objects (off valves, tees, elbows, couplers, transition fittings etc.,) shall be shown as block objects (which form a single node to connect) with respect to Owner symbols / legend. The As laid drawings shall be as per the approved legends provided by EIC.

d) Details & offset distances from other utilities present (e.g. BSES, DJB etc.) should be given in as laid drawing. If there is any change in depth of the pipeline, the same shall be clearly marked with details in the as laid drawings. The details (material, size &. Length) of additional protection provided to pipeline shall also be clearly indicated.

e) Details of the PE stop off valves &. Other fittings used (i.e. tees, elbows, couplers, transition fittings, etc.) should be shown with adequate information orientation &. Offsets from permanent structures in the immediate vicinity.

f) Technical deviations (if any) should be provided with reference to the building's permanent structures around, and the same should be cited clearly with all the relevant details, including separate sketches/Blowups / sectioned drawings / exploded view.

g) Total as laid length (size wise), bill of materials should be mentioned in each sheet.

h) Complete details of nallah crossings should be shown in a separate sketch.

i) Names of roads, major landmarks and buildings should be mentioned appropriately for reference.

j) Proper chainage shall be mentioned on all the drawings to be referred with continuation reference.

k) Direction of gas flow shall be indicated in each of the drawings.

l) Text on the as laid drawing should be clearly visible.

m) Land base features shown on the drawing shall match the exact distance as they were on real ground with respect to scale (1:200).

n) As laid drawings shall be duly signed & stamped by area TPIA / PMC.

o) The details shall be prepared in standard format using MAP INFO/AUTOCAD MAP and submitted CD RAM. 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

17.0 Google Earth/KMZ Drawing (MDPE 32/63/90/125mm)

Contractor needs to daily-map pipeline route with GPS coordinates every 50m length and final compiled KMZ file (dia-wise colour-coded MDPE, TF/chamber/marker locations).

Contractors need to prepare the Google Earth Drawing of 32mm, 63mm, 90mm & 125mm of

MDPE pipe line route on daily basis and mark GPS coordinates at every 50 meters along with the corresponding depth in the as-built dwg submitted along with the bill.

Same shall be submitted with each RA bill and final compiled KMZ file shall be submitted with the final bill.

In KMZ file contractor needs to update every TF location, chamber location, stone and pole marker, MDPE laying dia wise. (MDPE laying shall be marked with different colour for different dia).

Tools & tackles required for exact coordinates & KMZ file shall be in scope of contractors.

18.0 CIVIL WORKS

The contractor has to supply the adequate materials and skilled manpower for the completion of all the civil works. The contractor shall also ensure that the work is carried out as per the details mentioned in the Schedule of rates.

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

The contractor has to ensure that sample of the all the materials 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 OWNER/PMC. The contractor shall ensure extra
/ surplus materials / malba shall be immediately removed from the site after completion of the job.

ANNEXURE-I

TOOLS & EQUIPMENTS TO BE PROVIDED BY THE CONTRACTOR FOR PE LAYING

Sl. No.	Equipment Details	Indicative Requirement (In Nos.)
1	Automated Electro Fusion Machine	2
2	Voltage Stabilizer	2
3	Generator (5.5 KVA)	2
4	Moling Equipment (for all sizes)	As and when required
5	HDD Machines & Equipment (for all types & sizes)	As and when required
6	Squeeze Tools (Manual) upto 90 mm	4
7	Squeeze Tools (Hydraulic) from 63 mm upto 125 mm	2
8	Rotary Peelers	2
9	Universal Scrapers	2
10	Tapping Tools/Allen Keys	Three sets of all sizes
11	Pipe Cutter (Round)	2
12	Pipe Cutter (Guillotine)	2
13	Gas Detection Unit	As and when required
14	Cable and Pipe Locator	As and when required
16	Pipe Alignment Clamps	2
17	Joining Clamps for Coupler (All sizes)	2
18	Joining Clamps for Saddle (All sizes)	2
19	Pipe Straightener	2
20	Re-rounding Tools (All sizes)	2
21	Jumping Jack Compactor	As and when required
22	Roller for Asphalting	As and when required
23	Calibrated Pressure Gauges (0-10 Bar) *	10
24	Water Tankers	As and when required
25	Heating Element for HDPE Butt Joint along with clamping, roller and other accessories.	As and when required

Note: * **All** Pressure Gauges (0-10 Bar) shall be calibrated at every Six months.

ANNEXURE # 2

RESTORATION PROCEDURE / GUIDELINES FOR ROAD CUTS

1.0 PURPOSE AND OBJECTIVE

The main purpose and objective of this document is to ensure that all the work are carried out with proper specifications and standards with high quality and timely accomplishment, and the restoration of infrastructure is according to standards Aimed at achieving the original condition of the road infrastructure.

2.0 DOCUMENTS/FILES TO BE MAINTAINED:

The following documents shall be maintained during execution of the job and shall be handed over to OWNER/Consultant/TPI after completion of the job;

- Copy of permission letter obtained from Competent authority.
- Drawing/Sketch showing the details of stretch to be cut, highlighting the type of surfaces and its chainage/length (area).
- Stage wise Photographs of the stretch.
- Test Certificates of the Construction materials to be used.
- Routine Test Certificates for construction materials during progress of job.

3.0 RESTORATION OF TRENCHES/PITS

After laying pipeline, backfill material without containing extraneous material or hard lumps of soil or stones shall be filled and watered in layers of 150mm. Warning mats shall be placed as per specification. Earth shall be filled watered and compacted in layers with the help of earth compactor (Jumping jack compactor wherever space is available). After backfilling, the crown of the earth shall be between 50mm and 100mm above road surface and shall be free from sharp-edge stone and boulders.

After consolidation of backfill, the surplus earth shall be removed and disposed at place directed by OWNER (at suitable locations, as per direction of Competent authority)

Further, depending upon the Surface types of following specification shall be adopted:

The specification mentioned above may be modified in line with relevant CPWD/IRC specifications. Contractor has to follow the changes as informed to them time and again.

NOTE:

Wherever the Bituminous portion is cut in small patches or isolated locations where area of Bituminous portion is very less due to constraints like other utilities, the surface shall be restored, same as specified for the cement concrete surface, with prior approval of EIC/TPI.

4.0 TESTING OF CONSTRUCTION MATERIALS

For the different construction materials proposed to be used the following tests are required to be carried out for approval:

Sl. No.	Material	Test	Method of Testing	Frequency of Test
1	Cement	Setting time, soundness, compressive strength and fineness	As per IS: 4031	Once for each consignment or as and when required/directed
2	Bricks	Compressive strength, water absorption and efflorescence	As per IS: 3495	Minimum five samples or as per IS: 5454
3	Coarse Aggregates	Sieve analysis, flakiness index, estimation of deleterious materials, organic impurities, moisture contents and specific gravity	As per IS: 2386	One test per source of supply and routine test regularly as directed
4	Fine Aggregates	Sieve analysis, clay silt and moisture contents and specific gravity	As per IS: 2386	One test per source of supply and routine test regularly as directed

In addition to the above construction materials such as interlocking paver blocks, chequered cement concrete tiles, Pre-cast CC tiles, Kota/Red Stones Flooring samples shall be arranged for approval before use and if required testing shall be arranged.

For Cement concrete works the minimum frequency of sampling of concrete (CC cubes) shall be as follows:

Sl. No.	Quantity of concrete in Cu. M	No. of Samples
1	1 – 5	1
2	6 – 15	2
3	16 – 3	3
4	31 – 50	4
5	51 and above	4 + 1 additional sample for each additional 50 Cu. M and part thereof.

The cement concrete cubes shall be tested for 7 & 28 days as per relevant IS code.

5.0 INSPECTION BY THIRD PARTY INSPECTION AGENCIES (TPIA) NOMINATED BY LAND OWNING AGENCIES

It is the responsibility of the contractor to give inspection call, at least one week in advance to OWNER/PMC, to arrange for inspection by TPI nominated by land owning agencies along with the file containing all documents mentioned in Clause No. 2 of this document. Before inspection by TPI nominated by land owning agencies, contractor has to arrange for the

inspection of the restored area by OWNER/PMC/TPI and get the work certified. Contractor has to arrange for all necessary equipment, tools & tackles, labour for carrying out the inspection of the restored area. It is the responsibility of the contractor to obtain “No Objection Certificate” (NOC) from the TPI nominated by the land owning agencies and further NOC from Land Owning Agencies and to get the securities/Bank Guarantees paid to them, for obtaining the permissions.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

INSTALLATION OF ABOVE GROUND GI PIPING & FITTINGS

TABLE OF CONTENTS

1.0 GENERAL INFORMATION
1.1 INTRODUCTION
2.0 DEFINITIONS
3.0 SCOPE OF WORK
4.0 MATERIAL, MANPOWDER, EQUIPMENT AND MACHINERY
5.0 ISSUE OF WORK INSTRUCTIONS
6.0 EXTRA GI FLOW CHART
7.0 PROGRESS OF WORK
8.0 WORK SHEETS
9.0 CO-ORDINATION /LIAISON
10.0 REFERENCE SPECIFICATION, CODES AND STANDARDS
11.0 RIGHT OF USE SURVEY AND MARKING
12.0 PROTECTION OF STRUCTURES AND UTILITIES
13.0 GI ABOVE GROUND SERVICE PIPE
14.0 TESTING OF GI PIPE INSTALLATION
15.0 INSPECTION
16.0 PURGING & COMMISSIONING
17.0 RESTORATION
18.0 SUBMISSION OF FINAL RECORDS

1.0 GENERAL INFORMATION

1.1 Introduction

CENTRAL U.P. GAS LIMITED (CUGL) plans to augment PNG network. It supplies natural gas to Domestic, Industrial & Commercial consumers in the city Kanpur, Unnao, Bareilly, Jhansi.

The main scope of this contract comprises the installation of above ground pipes from the outlet of 'PE/GI transition fitting' up to the meter regulator as per the Distribution schedule placed in enclosed drawing.

The scope includes installation & procurement of above ground GI pipes and associated fittings for Domestic Customers.

Except Service Regulator/Meter regulator/ Domestic Regulator/Meter/Isolation valve/Appliance valve, Contractor shall procure each material (GI pipe, GI fittings, etc.) which is required from the outlet of PE / GI transition fitting up to the Domestic customers' meter regulator.

This technical specification defines the basic guidelines to develop an acceptable design and suitable construction methodology for carrying out different activities listed out in the schedule of rates of this tender.

Compliance with these specifications and/or approval of any of the Contractor's documents shall in no case relieve the Contractor of his contractual obligations.

2.0 DEFINITIONS

OWNER	CENTRAL U.P. GAS LIMITED (CUGL)
PMC	Resonance Energy Private Ltd.,
TECHNICAL SPECIFICATION	Present <<Technical Specification>>and its entire appendix, if any.
TPIA	Third Party Inspection Agency
EIC	Engineer – in – charge

3.0 SCOPE OF WORK

Generally, the following shall constitute the Contractor's scope of work but not limited to:

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

3.2 Contractor shall submit the QCT/procedure/drawing etc. of all the material to be procured by him for approval before procuring the items. If, QCT/procedure/drawing etc are not approved from client/consultant then owner has the authority to refuse /reject the same lot material.

3.3 Receipt of Regulator/ Meter/ Isolation valve/Appliance valve as a free issue items from Owner's stores, loading, transportation, unloading at project site. Proper storing, stacking, identification, providing security and insurance during and before installation and commissioning of pipelines. Obtaining the approval for optimum route and permission for work from the concerned authority and EIC.

3.4 Selection of route with the EIC / Consultant and marking the same on walls/floors between 'transition fitting' to 'cooking oven/stove/appliance', making openings and making provisions for fixing clamps. Making temporary but stable platforms/scaffolding/rope ladder etc., required for installation of pipes/fittings at all heights/multi storied flats and locations.

3.5 Contractor shall procure all material except free issue items for installation at the outlet of PE/ GI transition fitting upto the Domestic customers "Appliance /stove / oven for satisfactory completion to the owner/PMC.

3.6 Supply and Installation of powder coated GI pipes of ½" , ¾" & 1'' and above dia. between transition fittings to meter regulator including NPT threading of GI pipes, supply of proper seal outs for threads to join fittings such as

elbows, tees, connectors, etc., as per laid procedures and specification including clamping and sealing etc. The scratched powder coated GI pipe and fittings shall be painted after the testing of the GI installation.

3.7 Contractor shall procure the materials such as GI Pipes (1/2", 3/4" & 1''), GI fittings, Brass fitting, Copper Pipe (12mm) etc. for required connections except free issue materials.

3.8 Free issue materials is only Meter, Regulator, Isolation Valve and Appliance Valve.

3.9 Supply of clamps for fixing pipes wherever required, painting of scratched powder coated pipes and fittings. Providing consumables grout material, repair/restoration of walls/floors changes for the pipes including the materials required for conversions and tools and tackles etc. shall be complete as per specification.

3.10 Cleaning, flushing, pneumatic testing and commissioning to the GI pipe & fittings, valves etc as per specification and hand over the same to Owner/Customer to the entire satisfaction of EIC / CONSULTANT.

3.11 Dismantling of scaffolding/temporary structures and cleaning of site & restore the site as per its original condition.

3.12 Restoration of walls, flooring and other damages while executing the above ground installation.

3.13 Any other activities not mentioned/covered explicitly above, but otherwise required for satisfactory completion/operation/safety/statutory/maintenance of the works in new & existing gas charged areas 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 Owner.

4.0 MATERIAL, MANPOWDER, EQUIPMENT AND MACHINERY

4.1 Material to be supplied as a free issue material

Service Regulator/ Meter/ Isolation valve (½" , ¾" & 1'' and above dia.) /Appliance valve shall be supplied as a free issue material to the contractor. The contractor shall not use any other material from any other source of supply other than owner's supplied material without any written approval from EIC.

4.2 Material / Equipment & machinery to be supplied by contractor

Contractor shall procure / purchase powder coated GI Pipe & GI fittings, with other material which is required to satisfactory completion / safety / statutory of the works as per tender at no extra cost to Owner. The OWNER logo shall be marked on the material supplied by contractor. The contractor shall take approval from owner / PMC for marking on the material to be procured by contractor before placement of order.

The Contractor shall provide labour, tools (such as Hammer Drill, Piston Drill, Pipe Cutters, Dies for threading, Pipe wrenches, spanners, conversion kits, solder torch, , tube benders, lacquering, thinner etc.) in specified numbers, all types of clamps, Plant and equipment necessary for the proper execution of the work. This will include but not limited to list of specialised tools and tackles indicated in Annexure # 1.

Special tools shall be required at site for carrying out drilling work in walls other than Brick or RCC (Ex. Granite, Marble, Wooden, Glass Cutting etc.)

The contractor has to ensure the availability of DG sets for continuous powder supply. In case

the powder supply is availed at the site from societies, individual residents, contractor shall settle the claims raised by the electricity providers without any cost implication to OWNER. In case contractor doesn't settle the claims for using the electricity from societies/individual residents, on demand by the providers, OWNER will settle the claims and the same will be deducted from the contractor's bills. The progress of work shall not hamper due to non-availability of powder supply.

The contractor has to submit the valid calibration certificate for Pressure gauges.

Contractor shall submit the manufacturer test certificate / lab test certificate for all items procured by him for approval before commencing the execution.

No hiring of equipments, tools and tackles by the contractors is allowed at the site. In case, any contractor is found not in possession of enlisted required tools and tackles, penalty will be levied as per SCC which shall be deducted from the running bill.

4.2.1 Plant and Equipment

All vehicular type machinery shall be in good working condition 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.

4.2.2 Sealant, Grout

The contractor shall be responsible to arrange the supply of any consumable sealant or ready-mix grout material required for restoration of holes. The sealant/grout supplied by the contractor shall be compatible with the area to be restored / rectified. No separate payment for the supply of sealant and grout shall be made to the contractor.

4.2.3 Clamps, Rawal Plugs, Screws and Nozzles etc.

The Clamps, Rawal Plugs, Screws, Nozzles, etc. shall be approved lot wise by EIC prior to installation. The quality of materials procured will be got approved and will be as directed by EIC.

The indicative sketch of the Regulator Boxes and GI/COPPER/MLC tube Clamps is enclosed with the tender. No separate payment for the supply of Meter Brackets and GI clamps shall be made to the contractor.

4.2.4 Consumables Items

- Special Consumables such as Teflon Tapes, solder wire, flux, lacquer, thinner shall be supplied by the contractor and are included in installation rates.
- These consumables shall be of reputed make companies and required grades/class.

4.2.5 Other Materials

The contractor shall supply & Installation the following items wherever required:

- All materials required for work, NPT threading, testing etc.
- All signs, barricades, lights and protective equipment.
- All material required for working at higher floor levels (i.e., scaffolding, Ladder, Safety Belts, Self-Locking Safety Harness Belts etc.).
- Special consumable such as grease for maintenance of domestic appliances, all paints for painting of scratched portion of powder coated GI Pipes, GI fittings, Regulator Boxes, Consumables such as **Teflon Tapes, loctite 55, Flux, Lacquer, Thinner, Petrol, Diesel, Fuels and Oils** required are to be supplied by the contractor and are included for within the rates.
- 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.

4.3 Acquisition, Receipt and Storage of Materials

The Contractor shall collect Meters, Service Regulator/ Meter regulator / Domestic Regulator, Isolation valve (1/2'',3/4'', 1'' and above) & Appliance valve from Owner's designated stores in between the hours to be advised by the EIC and installation of the same items.

The contractor shall carry out assessment of material required for GI installation in allocated area. After approval from Owner, contractor shall place order for purchasing of GI Pipes & fittings and Isolation Valve (Technical specifications attached in the tender document) to anyone of approved vendors as per the list attached in the tender document. The contractor shall also ensure that the QCT for these materials shall be approved before the start of production activity. Once QCT is approved, contractor shall forward inspection call to the Owner depending upon the material requirement at the site. The inspection of these materials shall be carried out by Owner appointed third party inspection agency. It is contractor's responsibility for document submission, arranging dispatch clearance, handling, loading, transportation and unloading of these materials at their own respective store.

Any other activity not mentioned / covered, explicitly, but otherwise required for satisfactory completion / operation / safety / statutory / maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule at no extra cost to Owner. The Contractor shall carry free issue material in such a manner as to preclude damage during transportation and handling.

The Contractor shall physically examine all materials at the time of acceptance the material in store and notify the EIC immediately of any damage or defect noticed by the Contractor. The EIC shall duly note any damage or defect in a site instruction book and both parties shall countersign the entry.

Any damage not so recorded will be deemed not to have existed at the time of acceptance of material in store by the Contractor and the cost of repair or replacement or rectification shall be borne by the Contractor.

All materials shall be stored in contractor's stores near site in such a manner so as to prevent any damage to the materials from scratching, gouging, indentation, excessive heat or by contact with any sharp objects or chemicals.

The Contractor shall be required to submit inventory details of materials every month.

The Contractor shall maintain logbook at their respective stores stating issue and availability of free issue material at a given day. Further, it is mandatory that the contractor is required to undertake and submit inventory details of free issue and purchased materials on monthly basis to Owner/ PMC as per the approved format of the owner. The inventory details shall be in correlation with the Daily progress chart and material reconciliation sheet.

Material reconciliation indicating issue of material, consumptions and defective material shall be submitted on every three months basis.

5.0 ISSUE OF WORK INSTRUCTIONS

5.1 The contractor will be required to carry out GI installation in the areas where MDPE laying is under progress. However, testing of GI installation shall be done in conjunction with laying of MDPE Service Lines to respective premises.

5.2 The rates to be quoted by contractor shall be inclusive of all preparatory/bye works, platform materials, labour, supervision, tools, taxes, duties, levies, salaries, wages, overheads, profits, escalations, fluctuations in exchange rates and no change in the rates shall be admissible during tenancy of the contract.

5.3 The schedule of items of GI installations have been described in brief and shall be held to be

completed in all respect including safety requirements as per TECHNICAL SPECIFICATION of HSE, tests, inspection, QA/QC works, enabling and sundry works. The payment shall be made against completed and measured works only. No extra works whatsoever shall be considered in execution of these items**.**

6.0 EXTRA GI FLOW CHART

6.1 Extra charges shall be paid by customers in case on installation of GI pipe more than 15 meters.

6.2 Initially, a survey report shall be generated by contractor duly certified by TPI/PMC on the basis of technically feasible route to calculate the approximate measurement of total pipeline as well as extra GI/Cu pipeline along with tentative amount for installation of extra GI/Cu amount as per applicable rate + 18% GST. The same survey report shall be shared with customer and should be signed through customer before start of work.

6.3 After completion of work, Contractor will take actual measurement and the same shall be shared with the customer. Copy of same report shall be signed by customer. Customer has to provide the cheque in favor of respective contractor against the cost incurred for installation of extra GI/Cu pipeline to the contractor.

6.4 Extra GI charges shall be taken by contractor directly from customers. Charges will be taken as per SOR line item of running meter GI installation or fixed by CUGL.

6.5 CUGL will not paid any extra amount to contractor over 15 meters of GI pipe installation.

7.0 PROGRESS OF WORK

The contractor shall proceed with the work under the contract with due expedition and without delay.

Contractor shall assess the material requirement of the allotted area and submit the schedule plan for execution & purchasing before start of actual work.

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. Weekly progress reports shall be submitted in the formats approved by Owner, indicating broadly the laying, testing, RFC, conversions and extra piping.

8.0 WORK SHEETS

8.1 The quantities of GI/Cu pipe and other details will be checked by Owner's site engineer and the same shall be incorporated in RFC cards, signed & dated as certified, on site. The cards will then be approved by the EIC.

8.2 Measurement sheets shall be prepared based on the RFC cards and checked and certified by the site engineers for billing purpose.

8.3 If measurement sheets submitted are illegible, incomplete or incorrectly booked they will be returned to the contractor.

9.0 CO-ORDINATION /LIAISON

9.1 Contractor shall be responsible for co-ordination with society management, KDA, RWA, individual residents and any other concerned authority, if required, for completion of the work. Contractor must take the prior appointment from the residents for carrying out the work.

9.2 The prospective bidder shall work in close consultation/coordination with the EIC.

9.3 The prospective bidder shall not sign/execute any agreement and/or undertaking on any such documents which amounts to be undertaken by P M C / Owner. The same shall only be signed and executed by P M C / Owner; however, the prospective bidder shall also liaison and coordinates for the same.

9.4 The necessary coordination, liaison and arrangements for inspection and approval shall be the

contractor's responsibility. Inspection and acceptance of the work by authority shall not relieve the contractor from any of these responsibilities under this contract. The contractor shall plan the execution of work in such a manner so that all the registered customers are attended in phased manner. However, it is the contractor's responsibility to fix a firm appointment with the consumer for carrying out the work.

A logbook/job card for such appointments with Consumer/any other agencies shall be maintained and the schedule/appointment once taken shall be adhered to by the contractor. PMC/EIC shall review the records every week. The contractor shall submit the detailed list of RFC/Conversions and balance work on Registrations at least once a week as per approved format.

9.5 The contractor is also required to obtain a "Labour License" from the Assistant Labour Commissioner of respective Administration/Central Govt.

9.6 It will be the contractor's responsibility to familiarize himself and comply with, any other local rules, regulations or statutory requirements applicable to the work.

9.7 The contractor has to take responsibility of the actions of supervisors, plumbers and helpers provided by him.

10.0 REFERENCE SPECIFICATION, CODES AND STANDARDS

The contractor shall carry out the work in accordance with this specification, Owner's Engineering Standards: ASME B31.8 – Gas Transmission and Distribution Piping Systems; Oil Indian Safety Directorate Norms (OISD), the American Gas Association Document – Purging Principles and Practice and PNGRB Guidelines.

If the contractor finds any discrepancy, ambiguity or conflict in 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.

11.0 RIGHT-OF-USE SURVEY AND MARKING

The route of the pipeline to be installed shall be decided with consent of the consumer and Site Engineer/EIC. Contractor must ensure that the persons/workers/supervisors/ working at site shall have proper identity cards prior to entering the premises of the consumer.

No temporary or permanent deposit of any kind of material resulting from the work shall be permitted in the approach or any other position, which might hinder the passage and / or natural water drainage, or any area where there is objection from consumer.

The contractor shall obtain necessary permissions from landowners and tenants and shall be responsible for all damages caused by the construction and use of such approaches, pavements, gardens, rooms, walls, roof etc., at no extra cost to Owner.

Owner/Consultant and the contractor at each premises or housing colony to be supplied with gas will conduct a joint survey. The survey record will note Customer details, the potential gas supply points and proposed meter positions and estimates of material quantities. The contractor's representatives will make as sketch of the agreed pipe routes, if necessary.

The contractor will be responsible for contacting the Customer and making the necessary arrangements for access and appointments to carry out the work. Owner will not be responsible for any time lost due to failed appointments or disputes with Customer.

The contractor shall confine its operations within limits of the Right in use. The contractor shall restore any damage to property outside ROU.

The contractor shall also carry out all necessary preparatory work if needed to permit the passage of men and equipment. Lights, Curbs, signs shall be provided wherever and/or required by the Owner necessary to protect the public.

12.0 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 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.

While painting, contractor must take care of the consumer premises while carrying out the job such as spillage on floor, walls, ceilings, such shades etc. If the same does occur, the contractor has to immediately make things to original.

13.0 GI ABOVE GROUND SERVICE PIPE

The GI service pipe installation work includes all work necessary to connect from the PE/GI transition fitting on the down-stream of the PE service, to the Customers appliance, including the installation of regulator, valves, fittings, clamps etc. The contractor shall be required to provide all equipment, tools and materials necessary to execute the work in an efficient and effective manner. Along with ladders, scaffolding pipe, dies, tripods, vices, fittings and Teflon tape, drills for concrete and other masonry, drills for timber, Granite, Marble Stones and laminated surfaces inside Customers property, bending tools, clamps, sleeves to facilitate the pipe passing through floors and walls, paint for marking etc.

All GI risers at the outside of buildings shall be fully supported to carry the weight of piping. A flanged foot or similar device, capable of supporting the total weight of the riser, shall support risers. The riser shall be installed in a vertical line form its point of support to its highest point with a minimum of changes in direction. The threading of GI pipe shall be NPT and conforming to ANSI B1 20.1

Contractor has to supply different types/sizes of approved powder coated clamps (Mild Steel) for fixing GI pipes suiting to the site conditions. The contractor shall get approval from EIC for every fresh lot of the clamps, brackets, regulator boxes and other consumables, prior to start of installation. The detailed cross sectional of Powder coated GI Pipe Clamps/Meter brackets are as per enclosed Drawing in the tender.

All riser and lateral pipe shall be clamped to the building at intervals not exceeding 1.5 mtrs. Maximum distance between clamps shall be 1.0 - 1.5 m when pipe goes to the straight, if any tee or fittings lies in between the pipe then clamp shall be placed 150 mm far away from center line of fittings at every sides. However, the same may be changed as per site conditions/as directed by EIC. Minimum gap between pipe & wall shall be 25 mm. The joints/ fittings of the GI installation shall be painted only after carrying out testing of the installation.

Where pipe passes through the balcony and the surface is slightly elevated around the service pipe or its surrounding sleeve to prevent the accumulation of water at that point. Where a short piece of sleeve is used around the gas pipe, the sleeve should be embedded in the concrete with a mix of mortar and the void between the pipe and sleeve filled with a suitable sealant. The sealant should be beveled such as to prevent an accumulation of water. Supply of clamps for all sizes of the GI pipes is in contractor's scope. Contractor has to take prior approval for design/types of clamps, paintings etc.

Pipe shall preferably be entered into building above ground and remain in a ventilated location. The location for entry shall be such that it can be easily routed to the usage points by the shortest practicable route.

The rates for providing a connection are payable depending upon the length of the GI pipe installed from Transition fittings to meter regulator. It also includes the installation of service regulator with associated inlet connections and outlet connection shall be proper sealed so that foreign particles cannot be entered , on the wall with approved powder coated meter brackets and angles, painting, testing upto meter regulator **The Pipe installation includes all type of Pipe & Fittings (GI Pipe & Fittings, Isolation valve etc.)**

Except Regulator/ Meter/ Isolation valve/Appliance valve , Contractor shall procure all other materials (i.e. Pipe, fittings, clamps, consumable items etc.) as per attached specification for installation and to the entire satisfaction of EIC/consultant.

The contractor shall also ensure that gas supply shall not be provided to the customer in any Concealed Piping.

Powder Coating/ Painting of GI Pipes

The entire lengths of the pipeline along with fittings are to be painted/ powder coated after proper surface preparation as follows:

(a) PAINTING (for scratched powder coated pipes and fittings only)

- One coat of Primer Application (Appropriate Zinc based primer)
- Two coats of synthetic enamel paint – canary yellow of minimum of 30 microns per coat of reputed make like Asian, Berger, Nerolac. (No other make shall be used for painting).

All painting materials including primers and thinners brought to site by contractor for application shall be procured directly from manufacturers/dealers as per specifications and shall be accompanied by manufacturer's test certificates. Paint formulations without certificates are not acceptable. The contractor shall ensure that smooth finish is attained after carrying out painting.

Engineer-in-Charge at his discretion may call for test for paint formulations. Contractor shall arrange to have such tests performed including batch wise test of wet paints for physical and chemical analysis. All costs there shall be borne by the contractor.

The painting work shall be subject to inspection and certification by Engineer-in-Charge at all times. Painting of GI pipe shall be paid with installation of GI pipes.

(b) POWDER COATING

Contractor will be required to install Powder coated GI pipes and shall submit detailed procedure of powder coating for approval to Consultant prior to supply of powder coated GI pipes. After installation of the entire piping system, final touching with paint shall be done to the satisfaction of EIC.

14.0 TESTING OF GI PIPE INSTALLATION

14.1 The installation from PE/GI transition fitting up to regulator shall be tested at the pressure of 6.0 bar (g).

14.2 The testing of GI riser pipes up to meter regulator shall be done on 2 bar for 2 hours with the isolation valve in open condition and open end plugged.

14.3 The testing of LMC part meter regulator/meter isolation valve to appliance valve shall be done on 100Mbar for 15 Minutes.

14.4 The joints shall be painted only after carrying out testing of the installation. Powder coating to GI pipes shall be carried out in factory/shop, and repair / touching shall be carried out at site.

14.5 The contractor shall supply the Calibrated Pressure Gauges / Manometer / Diaphragm Gauges of suitable range for testing of GI/COPPER/MLC Installations ranging from 0-4 bars/0-150 m bar/0-250 m bar respectively. The calibration certificate shall be submitted before the start of the execution work.

14.6 The pressure gauges shall be calibrated from time-to-time as desired by EIC but positively once in every six months.

14.7 The details of testing shall be properly recorded in the GI/COPPER/MLC cards.

15.0 INSPECTION

The contractor to the entire satisfaction of EIC before proceeding further shall rectify any defect noticed during the various stages of inspection. Irrespective of the inspection, repair and approval at intermediate stages of work, contractor shall be responsible for making good any defects found during final inspection/guarantee period/defect liability period as defined in general

condition of contract.

16.0 PURGING & COMMISSIONING

The rate for purging & commissioning shall be included in the GI/Cu installations.

Care shall be taken to ensure that the outlet is so located that vent gas cannot drift into buildings. The commissioning of the GI installation should be performed as follows:

- Ensure the method of purging is such that no pockets of air are left in any part of the Customer's piping.
- Ensure that all appliance connections are gas tight, all appliance gas valves are turned off and there are no open ends.
- Where possible, select an appliance with an open burner at which to commence the purge i.e., a hotplate burner.
- Ensure the area is well ventilated, and free from ignition sources.
- Ensure branches that do not have an appliance connected are fitted with a plug or cap.
- Turn on one burner control valve until the presence of gas is detected. A change in the audible tone and smell is a good indication that gas is at the burner. Let the gas flow for a few seconds longer, then turn off and allow sufficient time for any accumulated gas to disperse.
- Turn on one gas control valve again and keep a continuous flame at the burner until the gas is alight and the flame is stable.
- Continue to purge until gas is available at other appliances.

17.0 RESTORATION

Contractor has to restore the area wherever he has carried out drilling, clamping etc. to its original condition to the satisfaction of the consumer and to ensure no passage to the premises and seepage. If the work was carried out in Govt. Flats (CPWD/ Institutional areas), contractor has to restore the area according to CPWD specifications and obtain a NOC / Clearance certificate from the concerned authorities maintaining the flats, after completion of the work.

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

Wherever any items of the consumer is damaged/broken during working, the same will be made good or replace to the total satisfaction of the consumer.

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. Wherever the required standards are not achieved the contractor will be required to replace the defective reinstatement work.

Note that Payment for GI/COPPER/MLC installation will be released only after satisfactory restoration and clearing of the sites of all surplus materials etc.

18.0 SUBMISSION OF FINAL RECORDS

Contractor shall submit three sets each of the following documents in hard & soft copy:

a) Total material consumption report.

b) Material reconciliation with respect to the materials issued.

c) Test reports & calibration certificates of gauges etc.

d) Any other documents/records required.

e) Extra Piping details

ANNEXURE # 1

TOOLS & EQUIPMENT TO BE PROVIDED BY CONTRACTOR FOR GI/COPPER/MLC WORK FOR BUILDING OF HEIGHT BELOW 20 METERS

S. No.	HAND TOOLS DESCRIPTION	PER TECHNICIAN	PER TEAM
1	Pipe wrench 250 mm	1	4
2	Pipe wrench 350 mm	1	4
3	Pipe wrench 450 mm	-	2
4	Adjustable spanner 50 mm	-	4
5	Adjustable spanner 150 mm	1	2
6	Adjustable spanner 250 mm	1	2
7	Set of combination spanner 3/16”-11/4” AF	1	1
8	Set of combination spanners 5mm - 30mm	1	1
9	Large toolboxes	1	2
10	Set flat-headed screw drivers	1	2
11	Set Philips screw drivers	1	2
12	Small hammer	1	2
13	Combination pliers/mole grips	1	2
14	Set of files	1	2
15	Drill bits for 1” pipe	-	2
16	Stocks and dies for NPT threading ½”, ¾”, GI Pipe	-	3
17	Blowtorch	-	1
18	Soldering iron	-	2
19	Copper tube Bending Machine	-	2
20	Hand drill 3/8” chuck	-	2
21	Portable electric drill 240V, heavy duty	-	2
22	Spare blades	4	4
23	Battery powdered torches	2	2
24	Measuring tape 30 m	1	2
25	Wire brush	1	2
26	Portable pipe vice & tripod	-	2
27	Set steel twist drills 0.5-2.0 mm (for appliance conversion)	-	1
28	Set steel twist drills 1mm-10mm	-	2
29	Set masonry drills 1mm-10mm	1	2
30	Graphite based grease	As required	As required

31	Lubricating oil	As required	As required
32	Hand cleaner	As required	As required
33	Copper tube Cutter 12mm	-	4
34	GI Pipe Cutters ½" Gas Detection Equipment Powder Generator 2.5 KVA Pressure Gauge (0-10 bar) Pressure Gauge (0-4 bar) Diaphragm Gauge (0-400 m bar) Manometer (0-150 m bar)	- As required 1 2 2 1 1	2 - - 4 8 2 1
35	Automatic Thread cutting machine	-	2
36	GI Pipe Cutter	-	2

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

ELECTROFUSION FOR PE PIPES & FITTINGS

TABLE OF CONTENTS

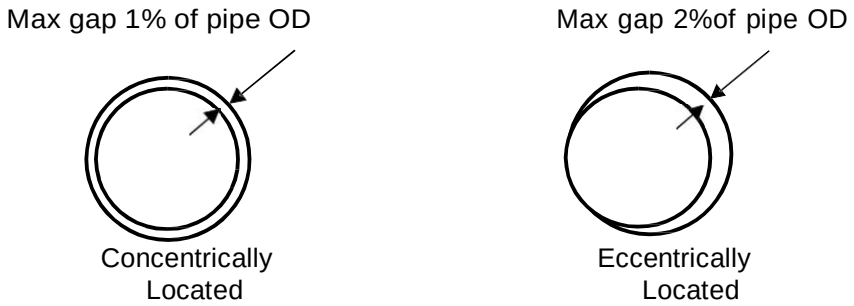
1.0 ELECTRO FUSION FOR PE PIPE

1.0 ELECTRO FUSION FOR PE PIPE

1.1 Electro Fusion Fitting Jointing

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

1.1.2 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 surfaces area clean. Also, the pipe should be checked for ovality. If ovality causes a gap between concentrically located pipe and the fitting to exceed 1% of the pipe OD, the pipe must be re-rounded 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.



1.1.3 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.

1.1.4 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.

1.1.5 The equipment and procedures following relate to fittings with center stops. If fittings without center stops are used, the maximum insertion depth must be clearly marked on the pipe ends prior to jointing (felt tip pen).

Equipment

a. 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 boxes are to include safety devices to prevent excessive voltages being present at the control box output. The safety device 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 into the trench.

b. A mechanical pipe surface preparation tool is to be used before fusion is attempted. The tool is to be 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 from the outer surface of the pipe preferably in a continuous strip of swarf over that length and round of the pipe.

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

d. Pipe cutters with saw and saw guide.

e. Protection against adverse weather conditions.

1.2 Electro Fusion Jointing Method / Procedure

Preparation

a. Ensure there is sufficient space to permit access to the jointing area. In a trench, a minimum clearance of 150 mm is required.

b. Check that the pipe ends to be jointed are cut square to the axis of the pipe and any burrs removed.

c. Wipe pipe ends using clean lint-free material to remove traces of dirt or mud, etc…

d. Mark the area over which the oxidized pipe surface is to be removed, i.e. In excess of the insertion depth, on each pipe to be jointed by placing the socket of the bagged fitting alongside 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.

e. Connect the electro fusion control box input leads to the generator.

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

g. 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 the 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.

h. Remove the fitting from its packing and clean the scraped 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 Regulations.

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

j. Insert the pipe ends into the fitting so that they are in contact with the center stop.

k. Using the pipe clamps, secure the pipes so that they cannot move during the fusion cycle. Check that the pipe ends and the fitting are correctly aligned.

l. Check that there is sufficient fuel for the generator to finish the joint. Start the generator and check that it is functioning correctly.

m. Switch on the control box.

n. Connect the control box output leads to the fitting terminals 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 is shown on the control box display.

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

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

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

p. On completion of the heating cycle, the melt indicators should have risen. If there is no apparent move in the melt indicators, the joint should be cut out and a fresh joint made (See note 3 below).

q. If a satisfactory joint has been made, the joint is to be left in the clamps for the cooling time specified on the fitting or 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 generator. DO NOT attempt a second fusion cycle within one hour / cooling of joint at Ambient Temperature of the first attempt.

1.3 Records

Records of appropriate servicing and calibration shall be kept.

1.4 Training

It is necessary that operators, inspection and supervisory personnel acquire the skills of electro fusion fitting fusion. The necessary training should be carried out by a 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 fitting joints from pipes and fittings of different sizes.
- Inspect for and identify joints of acceptable quality.

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.

1.5 Electro Fusion Saddle Jointing

a. With electro fusion saddle jointing, an electrical resistance element is incorporated in the base of the saddle which, when connected to the appropriate power supply, melts and fuses the material of the fitting and the pipe together.

b. The success of the technique depends on effective preparation of the jointing surfaces, in particular the removal of the oxidized surface of the pipe over the area equivalent to the area of the saddle base, and cleaning of the pipe surfaces.

c. Methods of holding the tapping tee saddle during the fusion cycle are used namely, top loading and under clamping. The general parameters are similar. In some cases, if the manufacturer's procedure for holding the fitting is provided, then the same should be followed during the fusion cycle.

1.6 Electro Fusion Saddle Jointing Method / Procedure

Preparation

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

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

c. Without removing the fitting from its packaging, place it 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.

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

e. Connect the electro fusion control box input leads to the generator.

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

g. Remove the two halves of fitting from its packing and clean the scraped 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 again that while Iso-propanol is a suitable cleaner, its use is subject to local Health and Safety Regulations.

h. 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 the scraped pipe.

i. Check that there is sufficient fuel for the generator to complete the joint. Start the generator and check that it is functioning correctly.

j. Switch on the control box if applicable.

k. Connect the control box output leads to the fitting terminals and check that they have been fully inserted.

l. 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 is shown on the control box display.

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

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

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

n. 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 joint from its base.

o. 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 by 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 generator. DO NOT attempt a second fusion **cycle within one hour of the first attempt.**

Note 4: 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.

Note 5: DO NOT attempt to tap the main with the integral cutter for at least 10 minutes after completion of the cooling cycle.

1.7 Records

Records of appropriate servicing and calibration of Electro Fusion machines/ joints shall be kept.

1.8 Training

AS PER 1.6

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.

1.9 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 fittings 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.

1.10 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 the outside of the pipe. The 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 shall after squeezing but there will be some reduction in the 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 then a second squeeze can be used, with an intermediate vent to remove the gas which passes the first squeeze from say the trench area. A second squeeze-off procedure should be a minimum of three pipe diameters and right angles to the initial 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 a squeezing operation.

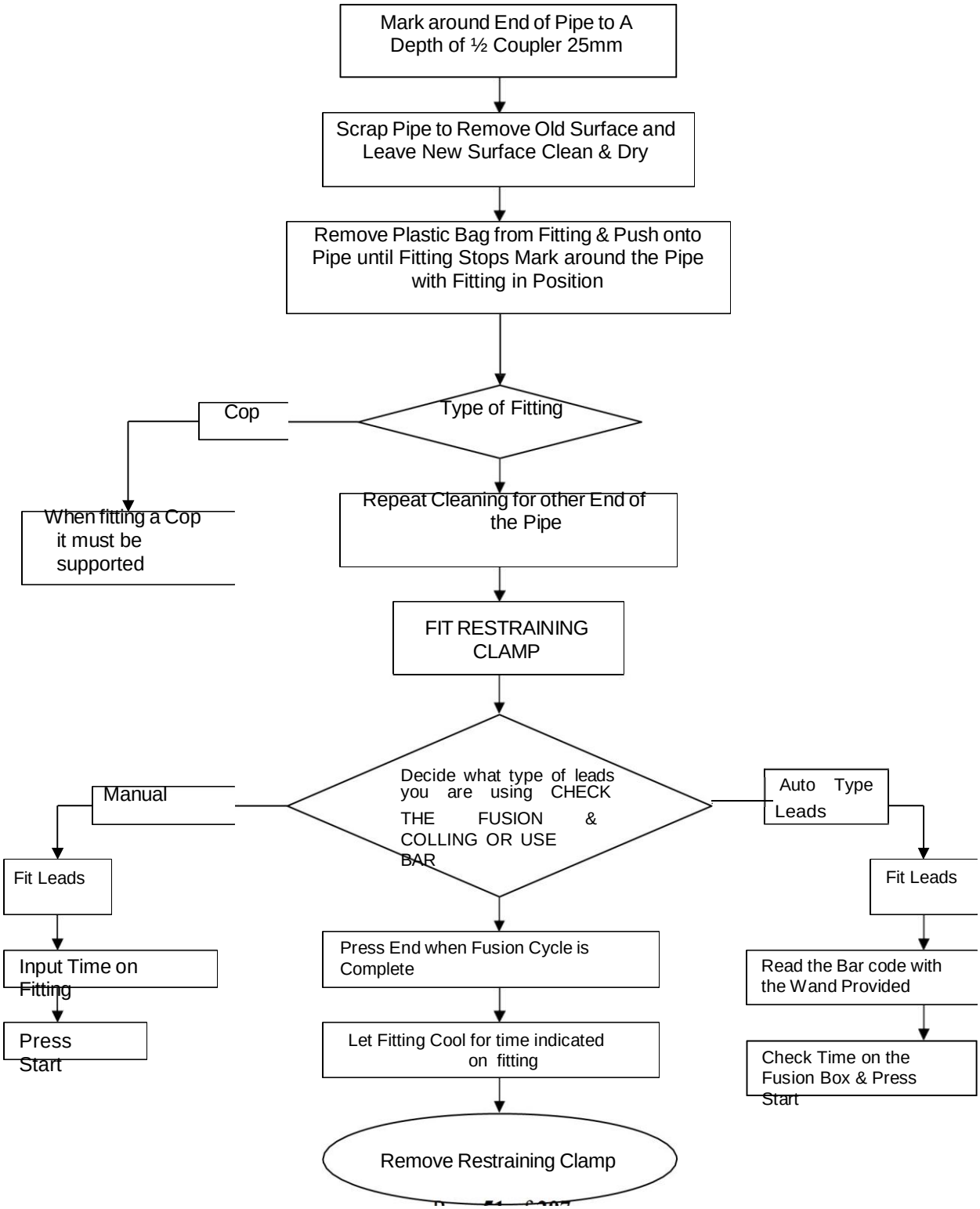
1.11 Bending-Back

Bending back of the pipe may be performed where the pipe has been severed damaged and stopping the gas flow is imperative. Its application is of a temporary nature, and will provide relief until a permanent repair can be affected. The section of pipe, which has been bent back, will have to be replaced because of the damage caused by the severe ness of the bend back operation. The need for 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 a service may be achieved by opening up on an installed saddle tee and winding down the internal tapping tool to shut off the flow into the service pipe.

ATTACHMENT # 1

FUSION COUPLERS FROM 20 MM TO 180 MM



CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

HEALTH, SAFETY & ENVIRONMENT

TABLE OF CONTENTS

1.0 SCOPE

2.0 REFERENCES

3.0 RESPONSIBILITY & ORGANISATION

4.0 GENERAL REQUIREMENT

5.0 ACCIDENT, INCIDENT AND NEAR-MISS REPORTING

6.0 HSE REQUIREMENTS AT SITE

ANNEXURE – A

ANNEXURE – B

□ □ □

1.0 SCOPE

This specification establishes the Health, safety and Environment (HSE) aspects to be complied with by the contractor during construction at site.

2.0 REFERENCES

This document should be read in conjunction with following.

- General Condition of Contract (GCC)
- Special Condition of Contract (SCC)
- Job Specifications
- Relevant IS codes
- Reporting Formats

3.0 RESPONSIBILITY & ORGANISATION

Safety activities at site shall be under control of contractor's RCM. He shall be responsible for implementation of HSE provisions. The nominated or designated safety engineer/ officer shall assist and perform day to day HSE work as per his advice.

4.0 GENERAL REQUIREMENT

4.1. The contractor should follow HSE policy of owner as applicable to construction site.

4.2. The contractor shall deploy a full time HSE engineer / officer to coordinate the site.

The HSE officer shall be duly qualified in Industrial Health & Safety management with an experience of 4
-5 years.

4.3. The contractor shall ensure that HSE requirements are clearly understood & faithfully implemented at all level, at each site.

4.4. The contractor shall organize safety awareness programs regularly.

4.5. The contractor shall ensure his participation in the every HSE meeting called by owner/PMC.

4.6. The contractors shall conduct daily tool box talk.

4.7. The contractor shall submit Monthly HSE reports (Form attached in ANNEXURES).

4.8. The contractor shall provide all help and support to the injured person got injury at site during construction work and arrange compensation as per insurance policy / Act.

4.9. The contractor shall adhere consistently to all provisions of HSE.In case of non-compliance or continuous failure the owner/ PMC may impose stoppage of work without any cost time implication to owner. A penalty amount of Rs 1000/-shall be imposed on the contractor for the serious HSE violation.

4.10. Three times of this penalty may count as a serious violation of contractor in line with HSE. This may affect to new work assignment/award of contractor.

5.0 ACCIDENT, INCIDENT AND NEAR-MISS REPORTING

Accident

Unintended occurrence arising out of and in the course of employment of a person, which results in to injury with or without damage to plant/equipment/materials.

Incident

means an unplanned and uncontrolled event which results in damage to plant or equipment or loss of material without causing any injury to persons, like fire, spill, leak, property damage etc.

Near-miss

An unexpected, unwanted event not causing loss, injury or illness but which under slightly altered conditions can lead to an accident.

can be defined as “Any event which under slightly unfavorable circumstances, may have resulted in any of the following:

- Injury, fatal or otherwise or ill health to people
- Loss of property, damage to plant or materials
- Damage to the environment
- A business interruption”

Accident, Incident and Near miss reporting form listed in ANNEXURES

6.0 HSE REQUIREMENTS AT SITE

6.1 Personnel Protective Equipments

The contractors shall provide sufficient numbers of following personal protective equipment’s (PPEs) to workmen and supervisors/engineers to use them properly at work site.

Following five numbers of Personnel protective equipments are identified as MANDATORY for all.

- Safety Helmet
- Coverall
- Safety shoes/footwear
- Safety Glasses
- Hand Gloves (as per job requirement)

  Other PPEs are depending upon

  nature of job like Arc Welding –

  Welding face shield

  Grinding – Grinding face shield

Height work – Full Body harness (above 2 meters)

Ask site supervisor for proper use and selection of protective clothing / equipment for specialised jobs

6.2 Welding

- Ensure that welding machine is in order and approved by site engineer.
- Ensure that welding cables are in order.
- Ensure that welding machine is properly earthed.
- Remove all combustible material from welding area to avoid fire
- Place a fire extinguisher near by welding premises.
- Ensure welding holder, cable and its lugs in good condition and use only industrial power socket and plugs (3 Pin) to avoid electricity risk.
- Make sure that welding machine is provided with ON/OFF switch and is earthed/grounding.
- Do not overload electrical appliances and cable, Shocked pin etc,
- Ground the work piece separately from the welding return connection only.

6.3 Gas Cutting

- Check the cylinder and its valve or leakage and move out any leaking cylinder immediately.
- Ensure that flash back arresters are installed with torch and NRV (Non return valve) on the gas cylinders side.
- Ensure cylinders in vertical position (Cylinder trolley) and far away from fall of sparks and hot metal.
- Check the regulator and torches that they are inspected prior to every use.
- Check for leaks around regulators, hoses/fittings & nozzle with soap solution.
- Check the entire hose length if it is cracked or worn out cut that length of hose or replace the hose.
- Check that flash back arrester used for the purpose is of approved make/specification only.
- Place a fire extinguisher near by welding premises.

6.4 Grinding Operation

- Grinding wheels should be stored in dry place.
- After expiry date, grinding wheel must be condemned, broken in to pieces.
- Power supply cable of adequate current carrying capacity shall be used and it should be in good workable condition without abrasions, cuts or puncture in outer insulation.
- Socket pin provided at supply end and On/off switch in working condition.
- Proper earthing of the body in case of metallic body.
- Wheel guard properly fitted in position.

- Machine body without any damage like crack etc.
- Moving part (wheel) must be properly fixed to the machine with the help of spanner.
- Grinding wheel must be of suitable size as per the speed of grinding machine.
- Grinding wheel without manufacturer's sticker showing size, speed and expiry date must be condemned.
- Don't use portable grinding machine as bench grinder.
- Don't fit over size wheel than recommended size by machine/wheel manufacturer.
- Don't grind small, unstable object without fixing it in the vice.
- Don't over press the grinding wheel against the job for fast removal of metal.
- Put OFF the main switch, while machine is not in use (tea break etc.)
- Don't chip off grinding/cutting wheel for achieving fast cutting rate.

PPEs:

- Use of helmet, face shield or safety goggles (where face shield is not possible.) and hand gloves.

6.5 Use of Power Tools and Cables

- All electrical equipment and tools used by the contractors and their employees shall be properly checked by contractor's supervisor before use.
- All power tools must have proper guard at all time.
- Leads /cables must be placed so that they do not create a tripping hazard.

6.6 Material Handling and Storage

The Contractor will only use crane/Hydra and lifting equipment that has been tested and certified as fit for purpose by 3rd Party. All crane operators and riggers will be adequately trained and certified. The Contractor will keep records of tests and certification of all lifting equipment crane employed on the Works.

Maintenance records shall be routinely inspected by the Contractor and made available for Safety audits.

LIFTING GEAR: Lifting machine, chains, ropes and lifting tackles used at site shall conform to the following:

- All parts shall be good construction, sound material and adequate strength and free from defects.
- Shall be properly maintained, thoroughly examined, load tested by competent person.
- No lifting machine and no chain, rope or lifting tackle shall except for purpose of test be loaded beyond safe working load and this safe working load must be plainly marked on the gear concerned.
- All material must be properly stacked and secured to prevent sliding, falling or collapse.

- Stairs and passageways must be kept clear at all time.

6.7 Trenches and Excavation

Before commencing any excavation work the Site in charge will ensure that the proposed works have been adequately assessed and planned to ensure that they are executed safely and without risks to Health and safety. The factors to be assessed and planned will include: -

- The nature and stability of the material being excavated and the need for any support of walls.
- The effect of excavation on nearby area.
- The foreseeable presence of hazardous contaminants.
- The proximity of mobile plant.
- The provision of edge protection (fall prevention of people and materials)
- Access and egress

6.8 Pipe Transportation and lowering

- All drivers shall hold a valid driving license for the class of vehicle.
- Securing of the load shall be according to established and approved methods.
- All overhangs shall be made clearly visible and restricted to acceptable limits.
- Load shall be checked before moving off and after traveling a suitable distance.
- All vehicles used by Contractors shall be in worthy condition and in conformance to the Land Transport requirement.
- Use of certified side booms after 3rd Party inspection.
- Effective communication should be done among all involved personals.
- Signaling shall be done by authorized foreman only.
- Ensure appropriate measures are taken for overhead hazards.
- Persons are not allowed towards trench side / under the boom at the time of lowering.
- Co-ordination of lowering in by a single man only.
- Inspection of equipment before use.
- All personnel should stay clear of moving equipment.
- Use of certified lifting tools and tackles.

6.9 Pressure / Leak Testing

Hydraulic and Pneumatic Test

Access to the test area shall be limited to essential personnel only before the test commences compliance is required with the following points:

- Persons supervising pressure or leak tests must have sufficient knowledge and experience of testing to fully understand the hazards of the activity and the precaution, which must be taken.
- Effective communication, including formal procedures, must be established between sites whenever the test envelope extends beyond one site, for example, pipelines.
- The area shall be cordoned off (using tape, shields or barriers, etc) at an adequate distance from the equipment to be tested, as specified on the Permit to Work
- Warning signs shall be posted at access ways, at other strategic positions, and on the equipment to be tested (including the doors of test workshops or other designated areas
- Pressuring equipment shall be provided with suitably calibrated pressure control / regulator devices.
- Pressuring equipment shall not be left unattended at any time during the test.
- Pressuring equipment shall be isolated from the equipment under test and where practicable disconnected, when the test pressure has been reached.
- Care must be taken to ensure that materials of construction have the required ductility at the test temperature to prevent brittle fracture.
- A safety valve should be fitted to the equipment/system being tested, set to relieve at a pressure that will prevent over pressurization
- Sufficient venting / draining points shall be provided in order to prevent trapping of pressurizing medium behind non-return valves, check valves, between isolation valves, or within dead legs of the pressure envelope
- The equipment/plant to be pressure tested must be subjected to thorough examination prior to testing. It may be necessary to 100% inspect all welds using visual, radiographic or other NDT techniques
- The gas supply must be isolated when test pressure has been achieved
- The pressure envelope must contain sufficient vents, to a safe location.
- De-pressurization after pneumatic testing must be gradual

6.10 Scaffolding and Ladder

- All working platform must be constructed with the specific requirement of job.
- All portable ladders must be in good condition as per the site norms.
- If the working platform is not permanent, then safety belt must be used.
- There shall be firm foundation for all scaffoldings. All scaffolding shall be made of sound material.
- Scaffolding material shall be inspected and used, only if found in good condition.
- Provide metal base plate is used under all upright or standard scaffoldings. Correct type of couplers shall be used for all connections.

- Plumb and level scaffoldings as erection proceeds, so that braces will fit without forcing. Fasten all braces securely.
- Working platforms shall be provided with guards. This should consist of top rail, mid rail, and toe board. The toe board shall be of minimum height 100 mm, while the mid rail and top rail shall be at heights of 600 mm and 1200 mm respectively.
- Do not use ladders or makeshift devices on top of scaffoldings to increase the height.
- Shall be placed at least 75 deg. to the floor.
- Ladder shall extend 3' to 4' above the point of Landing and topmost 3 rungs shall not be used.
- Ladder is checked visually for defects before every use.
- Ladders shall not be used in a horizontal position as runways or scaffoldings.
- Ladders shall not be placed in front of a door that opens toward the ladder unless the door is locked, blocked or guarded.
- Fall arrestor to be used wherever applicable.

6.11 Work Permit Procedure

- For working at more than 10' height the permission must be obtained from site in-charge.
- For doing any Hot work in the fire risk areas the permission must be obtained from site in charge or safety officer.
- For any Excavation work it must be ensured that there are no underground utilities like cables, Water pipeline etc.
- For any work inside confined space, entry permit must be obtained from site engineer.

6.12 Barricades and Warning Signs

- Area where work is being carried out above man height or below 1' ground depth must be barricaded.
- Follow the instruction of all types of warning signs like "NO SMOKING" "NO ENTRY" "DANGER" "Work at height"

6.13 Emergency Plan and Procedures

- All Contractor's employees should be aware of site Emergency control plan
- Periodic drill to train employees for their awareness & information should be followed.

6.14 Road Safety Norms

- For roadside working site to be barricaded as per approved barricading norms given in drg. No. 7452- L-15-0107. Penalty clause for road safety & barricading shall be applicable as per relevant clause of commercial part of tender.
- Only eligible driver can drive required vehicle inside site
- Speed limit norms of site must be followed
- No riding or travelling on the back of open-end vehicle, fork lift or trailers should be done.

6.15 Labour Welfare & Legal Requirement

- All mandatory provisions with regard to safety as prescribed under contract Labour (Abolition & Regulation) Act 1970 and Rules made there under are applicable.
- Workmen compensation insurance and registration under ESI should be maintained.
- Time to time, all rules and regulations suggested by safety committee of site must be followed and implemented.

6.16 Compliance to Health, Safety & Environment (HSE) High Rise:

Scope includes use of fall arrestor, Ascenders / descended, PPE, Barricades/ Warning Boards
(03 No's) connected with warning board/Caution tapes in areas where piping work is in progress, Use of Safety shoes, Wacky talky, Hand gloves, Reflective jackets, Hard hats (helmets), eye and ear safety equipment, Fire extinguishers and as per the detailed scope of work in tender specifications. Contractor shall also prepare and submit duly certified Safety check list signed by TPIA/PMC. In case of non-compliance, penalty shall be applicable as per SCC clause. This set-up is applicable for more than 4th (G+4) and above including high rise. Safety harness & accessories of PETZL make or equivalent is compulsory for Work at height.

Contractor may conduct survey to assess the requirement of GI riser for high rise building.

For Work at Height: Contractor shall provide PETZL or equivalent system/metallic scaffolding as a working platform and full body harness with self-locking arrangement. Full
body harness with self-locking arrangement shall be used for ascending/descending/work rest. PETZL system or equivalent system/metallic scaffold should comply with relevant IS/EN/BS standard.
Only certified trained plumber undergone practical training on work at height shall be deployed.

ANNEXURES

ANNEXURE – A

ANNEXURES

RELEVANT IS-CODES FOR PERSONNEL PROTECTION

IS : 2925 – 1984 Helmets.	:	Industrial Safety
IS : 4770 – 1968	:	Rubber gloves for electrical purposes
IS : 6994 – 1973 (Part – I)	:	Industrial Safety Gloves
(Leather & Cotton) IS : 1989 – 1986 (Part – I & III) and shoes	:	Leather safety boots
IS : 3738 – 1975	:	Rubber knee boots
IS : 5557 – 1969	:	Industrial and Safety rubber knee boots
IS : 6519 – 1971	:	Code of practice for selection, care and repair of Safety footwear
IS : 11226 – 1985 moulding sole	:	Leather Safety footwear having direct
IS : 5983 – 1978	:	Eye protectors
IS : 9167 – 1979	:	Ear protectors.

CUGL Central U.P. Gas Limited	**TECHNICAL SPECIFICATION** **LAYING OF MDPE MAIN PIPELINE AND SERVICE PIPELINE**	Resonance Energy

HSE PLAN

Project :- ---------- Contractor:----------

ANNEXURE – B

FORMAT - 1.0

Date : ---------- Owner (To be prepared & submitted by each Construction Agency)

Activity Description	Procedure / W.I./ Guidelines	Code of Conformance	Performing Function			Audit Function
			Performance	Checker	Approver	Customer Review/ Audit Requirements

PREPARED BY REVIEWED APPROVED BY

2.0 : MONTHLY CHECKLIST CUM COMPLIANCE REPORT REGARDING HSE (1/6)

Project: _____ Contractor :_____

Date: _____ Owner :_____

Inspection By : _____

Note: write 'NC' (Not Concern) wherever any of the items are not applicable

Item	Yes	No	Remarks	Action
HOUSEKEEPING				
Waste containers provided and used				
Sanitary facilities adequate and Clean				
Passageways and Walkways Clear				
General neatness of working areas				
Proper Material Storage				
Wooden Boards properly stacked and nails removed				
Cords, leads out of walk and traffic ways				
Scraps removed from the work site				
Other				
PERSONNEL PROTECTIVE EQUIPMENT				
Goggles: Shields				
Face protection				
Hearing protection				
Safety Shoes provided				
Hand protection				
Respiratory Masks etc.				
Safety Belts				
Safety Helmets				
Other				
EXCAVATIONS / OPENINGS				
Excavation permit				
Excavated earth kept away from edge				
Dewatering pump kept away from edge				
Safe access into excavated area				
Opening properly covered or barricaded				
Excavations shored				
Excavations barricaded				
Overnight lighting provided				
Other				

MONTHLY CHECKLIST CUM COMPLIANCE REPORT REGARDING HSE (2/6)

Item	Yes	No	Remark	Action
Welding Cutting				
Valid not work permit				
Flashback arrester provided for cylinders				
Power cable not crossing the welding cable				
Adequate earthing provided				
No combustible materials kept near welding & cutting works				
Gas cylinder chained upright & kept in trolleys				
Cables and hoses not obstructing				
Screens or shields used				
Flammable materials protected				
Fire extinguisher (s) accessible				
Other				
SCAFFOLDING				
Fully decked platform				
Guard and intermediate rails in place				
Toe boards in place & tied properly				
Adequate shoring				
Adequate access				
Other				
LADDERS				
Extension side rails I m above				
Top of landing				
Properly secured at top & bottom				
Angle $\pm$ 70° from horizontal				
Other				

MONTHLY CHECKLIST CUM COMPLIANCE REPORT REGARDING HSE (3/6)

Item	Yes	No	Remark	Action
HOISTS, CRANES AND DERRICKS				
Condition of cables and sheaves OK				
Condition of slings, chains, hooks and eyes OK				
Inspection and maintenance logs maintained				
Outriggers used				
Singh/ barricades provided				
Signals observed and understood				
Qualified operators				
Other				
MACHINERY, TOOLS AND EQUIPMENT				
Proper instruction				
Safety devices				
Proper cords				
Inspections and maintenance				
Other				
VEHICLE AND TRAFFIC				
Rules and regulations observed				
Inspection and maintenance				
Licensed drivers				
Others				

MONTHLY CHECKLIST CUM COMPLIANCE REPORT REGARDING HSE (4/6)

Item	Yes	No	Remark	Action
TEMPORARY FACILITIES				
Emergency instruction posted				
Fire extinguishers provided				
Fire-aid equipment				
Secured against storm damage				
General nemeses				
In accordance with electrical requirements				
Other				
Fire Prevention				
Personnel instructed				
Fire extinguishers checked				
No smoking in prohibited areas				
Hydrants clear				
Other				
ELECTRICAL				
Proper wiring & earthing				
ELCB's provided				
Ground fault circuit interrupters				
Protection against damage				
Prevention of tripping hazards				
Proper electrical cable joints				
Light poles secured				
Clear way to power distribution board				
Proper rating of fuses				

MONTHLY CHECKLIST CUM COMPLIANCE REPORT REGARDING HSE (5/6)

Item	Yes	No	Remark	Action
HANDLING AND STORAGE OF MATERIALS				
Properly stored or stacked				
Passageways clear				
Other				
FLAMMABLE GASES AND LIQUIDS				
Containers clearly identified				
Proper storage				
Fire extinguishers nearby				
Other				
WORKING AT HEIGHT				
Erection plan				
Safety nets				
Safety belts tied properly				
Illumination				
No loose material at height				
No body under working area				
All openings covered				
Other				
ENVIRONMENT				
Chemical and other Effluents properly disposed				
Cleaning liquid of pipes disposed off properly				
Seawater used for hydrotesting disposed off as per agreed proceeding				
Lubricant Waste/ Engine oils properly disposed				
Waster from Canteen office, sanitation etc. disposed properly				
Disposal of surplus earth stripping materials, Oily rags and combustible materials done properly				
Green belt protection.				

MONTHLY CHECKLIST CUM COMPLIANCE REPORT REGARDING HSE (6/6)

Item	Yes	No	Remark	Action
HEALTH CHECK				
Hygienic conditions at labour camps OL				
Availability of First Aid facilities				
Proper sanitation at site, office and labour camps				
Arrangements of medical facility				
Measures for dealing with illness				
Availability of potable drinking waters for workmen & staff				
Provision of cretches for children				
ERECTION				
Slings/ D'shakle checked				
Signal Man				
Tag line for guiding the load				
Protecting the slings from sharp edges				
No loose materials at height				
Ladder & platform welding inspected				
No one under the suspended load				
Stay rope				
SWL				

Signature
of Resident
Engineer with
Seal

Monthly Health, Safety & Environmental (HSE) Report (To be submitted by each Contractor)

Actual work start date: _____ For the month of: _____

Project:_____ Report No.:_____

Name of the Contractor: _____ Status as on: _____

Name of Work: _____ Name of Safety officer: _____

Item	This Month	Cumulative
Total strength (Staff – Workmen)		
Number of HSE meeting organised at site		
Number of HSE awareness programmes conducted at site		
Whether workmen compensation policy taken	Y/N	
Whether workmen compensation policy valid	Y/N	
Whether workmen registered under ESI Act	Y/N	
Number of Fatal Accident		
Number of Loss Time Accident (Other than Fatal)		
Other accident (non loss time)		
Total No. of accident		
Total man-hours worked		
Man-hour loss due to fire and accident		
Compensation cases raised with insurance		
Compensation cases resolved and paid to workmen		

Remark

Date: ____/____/____

Safety Officer/RCM
(Signature and name)

To: OWNER.....
COPY RCM/SITE-IN-CHARGE
COPY

SUPPLEMENTARY ACCIDENT, INCIDENT & NEAR MISS REPORT

Project: _____ Supplementary to Report No.: _____

(Copy enclosed)

Site: _____ Date: _____

Contractor: _____

NAME OF THE INJURED .....FATHER'S NAME.....SUB-CONTRACTOR M/S.....
DATE & TIME OF ACCIDENT.....
LOCATION.....
.....

BRIEF DESCRIPTION & CAUSE OF A ACCIDENT

NATURE OF INJURY / DAMAGE

COMMENTS FROM MEDICAL PRACTITIONER WHO ATTENDED THE VICITIM/INJURED

SUGGESTED IMPROVEMENT IN THE WORKING CONDITION IF ANY

LOSS OF MANHOURS AND IMPACT ON SITE WORKS

ANY OTHER COMMENT BY SAFETY OFFICER

Date: ____/____/_____/ SIGNATURE OF CONTRACTOR WITH SEAL

To : OWNER.....1 COPY
: RCM/SITE-IN-CHARGE 1 COPY

ACCIDENT REPORT

(To be submitted by Contractor after every accident within 2 hours of accident)

Name of Site:_____COTRACTOR_____

Report No._____Date:___

NAME OF THE INJURED
…..... FATHER'S
NAME.....SUB-
CONTRACTOR
M/S……...

DATE & TIME OF
ACCIDENT……
LOCATION……
…… BRIEF DESCRIPTION OF ACCIDENT

CAUSE OF ACCIDENT

NATURE OF INJURY / DAMAGE

MEDICAL AID PROVIDED / ACTIONS TAKEN

INTIMATION TO LOCAL AUTHORITIES

Date : ____/____/_____/ SIGNATURE OF CONTRACTOR WITH SEAL

To : OWNER.....1 COPY
: RCM/SITE-IN-CHARGE 1 COPY

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION –

SUPPLY OF MDPE FITTINGS, VALVES AND TRANSITION FITTINGS

TABLE OF CONTENTS

1.0 INTRODUCTION & SCOPE
2.0 DEFINITIONS
3.0 MATERIAL GRADE
4.0 APPROVED MANUFACTURER FOR RAW MATERIAL
5.0 TRANSITION FITTINGS
6.0 MDPE PIPE MATERIAL
7.0 MATERIAL REQUISITION
8.0 QUALITY ASSURANCE (QA)
9.0 DEFECT LIABILITY PERIOD
10.0 PACKAGING

1.0 INTRODUCTION & SCOPE

Owner plans to augment the PE Network. The present document covers the technical specifications for the procurement of PE Fittings, Valves & Transition Fittings.

2.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the PE Fitting, Valves and Transition Fitting
TECHNICAL SPECIFICATION	Means the present <<Technical Specification<< and all its appendix, if any.
Third Party Inspection Agency	Means the Inspection Agency.
GTS	Means the present <<General Technical Specification<< and all its appendix, if any.

3.0 MATERIAL GRADE

The material grade of polyethylene PE Fittings shall be PE100. The bidder shall submit the details by clearly indicating the make, country of origin, part nos. /Product codes and catalogue number along with catalogues written in English for the Items quoted, in the Unpriced Bid.

The bidder shall provide approvals of internationally recognized authorities for their products along with their un-priced bids.

4.0 APPROVED MANUFACTURER FOR RAW MATERIAL

1. INEOS (Formerly SOLVAY)
2. BOROUGE
3. TOTAL PETROCHEMICALS
4. DOW
5. ELENAC
6. BOREALIS
7. LYONDELLBASELL

5.0 TRANSITION FITTINGS

Transition fittings shall be supplied in accordance with “Plastic piping systems for supply of gases fuels – Part 3: Fitting” EN 1555-3.

Bidder shall provide catalogue for all the fittings including transition fittings.

The material grade (SS-304 as per ASTM A-479) and end connection (in built EF Ends with integral pipe fixation device) shall be as per MR. Steel and MDPE pipe should be so joined in factory so as to have a monolithic joint, which is leak free and should be mechanically stronger than the PE pipe. On placement of order, the bidder shall submit the drawing with dimensions for approval of Owner before starting production.

6.0 MDPE PIPE MATERIAL

The raw material of MDPE pipe shall be PE100, thick as per SDR11. The MDPE pipe shall confirm standards for polyethylene pipes for supply of gaseous fuels IS 14885 (latest edition).

7.0 MATERIAL REQUISITION

As per SOR/Contract

8.0 QUALITY ASSURANCE (QA)

Manufacturer to submit their Inspection and Test Procedure (ITP) for the approval of Owner/PMC.

9.0 DEFECT LIABILITY PERIOD

Defect liability period shall be as per the GCC, of commercial volume I of II.

10.0 MARKING

Following information shall be embossed upto height of 0.15 mm onto the fitting and

also in the Form of bar code:

a) Owner name as CUGL.

b) Manufacturer's name and/or trademark

c) Material and Designation

d) Design application series

e) The size of the fitting in mm

f) Fusion time in seconds

g) Cooling time in minutes

h) Fusion parameters in BAR code

i) Traceability code (fittings) as per standard ISO 12176-4.

j) Number of the system standard. This information can be printed/formed directly on the fitting or on a label associated with the fitting or on an individual bag

k) Production period, year and month

The marking shall stay legible during normal manipulation, storage and installation.

The marking shall not adversely influence the performance of the fitting and prevent the nonconformity of the fitting.

11.0 PACKAGING

All the MDPE fittings of more than one piece shall be kept in single box/packets according to type and size during packaging.

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Bidder shall submit the packaging details during offer and also complied with at the time of delivery. The material for each SOR Item is essentially required to be packed in one case/packet/box.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

GI PIPES

TABLE OF CONTENTS

1.0 INTRODUCTION AND SCOPE.

2.0 DEFINITIONS

3.0 MATERIAL

4.0 DIMENSIONS, THICKNESS & DIMENSIONAL TOLERANCES

5.0 END CONNECTION OF PIPE

6.0 FREEDOM FROM DEFECTS

7.0 GALVANIZING

8.0 PRESSURE TEST

9.0 MARKING

10.0 INSPECTION / DOCUMENTS

11.0 PACKAGING

1.0 INTRODUCTION AND SCOPE

Owner plans to augment PNG network. It supplies natural gas to Domestic & Commercial & Industrial consumers.

This present document covers the technical specification for the procurement of GI Pipes used in high pressure natural gas transportation and distribution systems. It describes the general requirements, controls, tests, QA/QC examination and final acceptance criteria which needs to be fulfilled.

This specification covers the requirements for GI pipes of heavy steel tube. Unless modified by this specification, requirements of IS 1239 (Part-I): 2004 (Latest edition) shall be valid.

2.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the GI pipe.
TECHNICAL SPECIFICATION	Means the present <<Technical Specification>>and all its appendix, if any.
TPIA	Means the Third-Party Inspection Agency.
GTS	Means the present <<General Technical Specification>> and its entire appendix, if any.

3.0 MATERIAL

The material used for the manufacturing of GI pipes confirming to IS 1239 (Part -1): 2004 (Latest edition).

4.0 DIMENSIONS, THICKNESS & DIMENSIONAL TOLERANCES

The dimensions & nominal mass of tubes shall be in accordance with Table 5 subject to the tolerances permitted in CL.8.1 & 9 of IS 1239 (Part-I): 2004 (Latest edition). Length of each pipe shall be 6 mtrs with.
+ 6, - 0 mm tolerance. However, pipe length shall be considered 6 m. only for measurement / payment purpose.

Nominal Diameter DN	15 mm	20 mm
Grade	Heavy	Heavy
Outer Dia. (Max. / Min.)	21.8 mm / 21.0 mm	27.3 mm / 26.5 mm
Thicknes s (mm)	3.2	3.2
Nominal weight (Kg / m)	1.44	1.87

5.0 END CONNECTION OF PIPE

GI Pipes shall be supplied with plain end.

6.0 FREEDOM FROM DEFECTS

On visual examination the outside & inside surfaces of pipes shall be smooth & free from defects such as cracks etc.

7.0 GALVANIZING

i. Pipes shall be galvanized to meet the requirement of IS: 4736 – 1986 with latest amendment.

ii. Zinc conforming to any grade specified in IS: 13229- 1991 with latest amendment shall be used for the purpose of galvanizing.

iii. Galvanizing bath: The molten metal in the galvanizing bath shall contain not less than 98.5% by mass of zinc.

iv. Mass of zinc coating: Minimum mass of zinc coating determined as per IS: 6745 shall be 360 gms/m^2.

v. Uniformity of galvanized coating: The galvanized coating when determined on a 100 mm long test piece in accordance with IS 2633: 1986 with latest amendment shall withstand 5 one – minute dips.

vi. Freedom from defect: The zinc coating on internal & external surfaces shall be uniform adhered, reasonably smooth & free from such imperfections as flux, ash & drop inclusions, bare patches, black spots, pimples, lumpiness runs, rust stains, bulky white deposits & blisters. Rejection & acceptance for these defects shall be as per Appendix - A of IS 2629: 1985 with latest amendments.

vii. Samplings

a) All materials of the same type in coating bath having uniform coating characteristics shall be grouped together to continue a lot. Each lot shall be tested separately for the various requirements of the specification. The number of units to be selected from each lot for this purpose shall be IS: 4711 1995 with latest amendment.

b) The sample selected according to Clause 6.1 & 6.2 of IS: 4736 – latest edition.

c) The sample found conforming to above requirements shall then be tested for mass of zinc coating in accordance with Clause 5.1 of IS: 4736 – 1986 with latest amendment.

d) Criteria for conformity: As per IS: 4736 – 1986 with latest amendments.

8.0 PRESSURE TEST

Hydrostatic pressure test shall be carried out at a pressure of 5 Mpa for the duration of at least 3 second and shall not show any leakage in the pipe. Vendor to submit the internal pressure test certificate for the same. PMCor Third-party Inspection Agency appointed by Owner shall witness finish goods testing as per the sample procedure specified in IS: 1239 (Part-1) – latest edition.

9.0 MARKING

Each pipe shall be embossed with Owner's logo, manufacturer's name or trademark, size designation, class of pipe at the interval of not more than 1 meters.

Each packing containing pipes shall carry the following embossed, stamped or written by indelible ink.

a) Manufacturers name or trademark.

b) Class of pipe – Heavy

c) Indian standard mark (ISI)

d) Lot number / Batch no. of production

Each pipe conforming to this standard shall also be marked with BIS standard mark.

10.0 INSPECTION / DOCUMENTS

Inspection shall be carried out as per Owner Technical Specification.

PMCor Third-Party Inspection Agency appointed by Owner shall carry out stage wise inspection during manufacturing / final inspection.

The manufacturer shall have a valid licence to use ISI monogram for manufacturing of pipe in accordance with the requirement of IS:1239.

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 Tech. Spec. & specified code for 100% material, at the time of final inspection of each supply lot of material.

For any control, test or examination required under the supervision of TPIA/Owner/PMC, latter shall be informed in writing one (1) week in advance by vendor about inspection date and place along with production schedule.

Even after third party inspection, Owner reserves the right to select a sample of pipes randomly from each manufacturing batch & have these independently tested. Should the results of these tests fall outside the limits specified in Owner technical specification, then Owner reserves the right to reject all production supplied from the batch.

11.0 PACKAGING

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

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

GI FITTINGS

TABLE OF CONTENTS

1.0 INTRODUCTION AND SCOPE.

2.0 DEFINITIONS

3.0 MATERIAL

4.0 DIMENSIONS & DIMENSIONAL TOLERANCES

5.0 WEIGHT

6.0 THREADS

7.0 FREEDOM FROM DEFECTS

8.0 GALVANIZING

9.0 PRESSURE TEST

10.0 COMPRESSION TEST

11.0 SAMPLING

12.0 MARKING

13.0 PACKAGING

14.0 INSPECTION / DOCUMENTS

1.0 INTRODUCTION AND SCOPE

Owner plans to augment PNG network. It supplies natural gas to domestic & commercial consumers.

This present document covers the technical specification for the procurement of GI fittings used in high pressure natural gas transportation and distribution systems. It describes the general requirements, controls, tests, QA/QC examination and final acceptance criteria which need to be fulfilled.

This specification covers the requirements for Malleable Cast Iron Fittings unless modified by this specification, requirements of IS 1879 – latest edition shall be valid.

2.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the GI fittings.
TECHNICAL SPECIFICATION	Means the present <<Technical Specification>>and its appendix, if any.
TPIA	Means the Third-Party Inspection Agency.
GTS	Means the present <<General Technical Specification>> and its entire appendix, if any.

3.0 MATERIAL

The material used for the manufacturing of GI fittings shall conform to ISI 14329 – 1995 with latest amendments Grade BM 300.

4.0 DIMENSIONS & DIMENSIONAL TOLERANCES

i. Dimensions of various types of fittings shall be as specified in sections 2 to 10 of IS 1879 – 1987 with latest amendments, as applicable.

ii. Wall thickness of fittings and tolerances on them shall be as given in Table 1.2 of S 1879 – 1987 with latest amendments,

iii. In case of reducing fittings, the dimensions at each outlet shall be those appropriate to the nominal size of the outlet.

iv. Elbows, Tees, Sockets and caps shall be of reinforced type.

5.0 WEIGHT

Weights of various types of fittings shall be as specified in sections 2 to 10 of S 1879 – 1987 with latest amendments, as applicable.

6.0 THREADS

i. Threads shall be NPT type and conforming to ASME B1.20.1.

ii. Outlets of fittings shall be threaded to dimensions & the tolerances as specified in ASME B1.20.1.

iii. All internal & external threads shall be tapered.

iv. For checking conformity of threads gauging practice in accordance with ASME B1.20.1 shall be followed.

v. Chamfering: The outlet of fittings shall have chamfer.

7.0 FREEDOM FROM DEFECTS

On visual examination, the outside & inside surfaces of fittings shall be smooth & free from any defects such as cracks, injurious flaws, fine sand depth etc.

8.0 GALVANIZING

i. Fittings shall be galvanized to meet the requirement of IS: 4759 – 1996 with latest amendments.

ii. Zinc conforming to any grade specified in IS: 13229-1991 with latest amendments shall be used for the purpose of galvanizing.

iii. Galvanizing bath: The molten metal in the galvanizing bath shall contain not less than 98.5% by mass of zinc.

iv. Coating requirements: Mass of coating shall be 610 - 700 gms/m^2.

v. Freedom from defect: The zinc coating shall be uniform adhered, reasonably smooth & free from such imperfections as flux, ash bare patches, black spots, pimples, lumpiness runs, rust stains, bulky white deposits & blisters.

vi. Samplings

a) All materials of the same type in coating bath having uniform coating characteristics shall be grouped together to continue a lot. Each lot shall be tested separately for the various requirements of the specification. The number of units to be selected from each lot for this purpose shall be given in Table 2 of IS 4759 – latest edition.

b) The sample selected according to Column 1 & 2 of Table 2, IS: 4759 – latest edition shall be tested for visual requirements as per Clause 6.2 of IS:4759 – latest edition

c) The sample found conforming to above requirements shall then be tested for mass of zinc coating in accordance with Clause 9.2 of IS: 4759 – latest edition.

d) Criteria for conformity: As per Clause 8.3 of IS: 4759-latest edition.

e) Test procedure shall be as per Clause 9 of IS: 4759-latest edition.

9.0 PRESSURE TEST

Vendor shall carry out pneumatic pressure test as per Clause 11.1b of 1879 – 1987 with latest amendments on each & every fittings. Vendor to submit the Internal Quality control certificate for the same. Owner shall witness pneumatic testing as per the sampling procedure specified in 1879 – 1987 with latest amendments.

10.0 COMPRESSION TEST

This test shall be conducted to judge the malleability of the pipe fittings & shall be carried out as per Clause 12 of 1879 – 1987 with latest amendments.

11.0 SAMPLING

Owners Representative or Third-Party Inspection Agency appointed by Owner shall witness the tests as per clause 14 of 1879 – 1987 with latest amendments. However, vendor to perform 100% inspection of visual, dimensional & pressure test. Vendor shall furnish Internal test certificates at the time of final inspection to the Owner.

12.0 MARKING

Each fitting shall be embossed with OWNER's logo, manufacturer's name or trademark and the size designation.

Each packing containing fittings shall carry the following embossed, stamped or written by indelible ink.

a. Manufacturer's name or trademark.

b. Designation of fittings.

c. Lot number.

Each fitting conforming to this standard shall also be marked with BIS standard mark.

13.0 PACKAGING

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Packing size shall be approved by Client/PMC before packing the material. The vendor shall submit the packaging details during QAP and also complied with at the time of delivery.

14.0 INSPECTION / DOCUMENTS

i. Inspection shall be carried out as per Owner Technical Specification.

ii. PMCor Third-Party Inspection Agency shall carry out stage wise inspection during manufacturing / final inspection.

iii. 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 Tech Spec. & specified code for 100% material, at the time of final inspection of each supply lot of material.

iv. Even after third party inspection, Owner reserves the rights to select a sample of fittings randomly from each manufacturing batch & have these independently tested. Should the results of these tests fall outside the limits specified in Owner technical specification, then Owner reserves the rights to reject all production supplied from the batch.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

WARNING MAT

TABLE OF CONTENTS

1.0 INTRODUCTION & SCOPE

2.0 DEFINITIONS

3.0 REFERENCE CODE

4.0 FEATURES

5.0 QUALITY ASSURANCE (QA)

6.0 DEFECT LIABILITY

7.0 RECOMMENDED MANUFACTURER FOR RAW MATERIAL

1.0 INTRODUCTION & SCOPE

Owner plans to augment the PNG Network. It supplies natural gas to Domestic, Industrial & Commercial Consumers.

The present document covers the technical specifications for the procurement of Warning Mat. Warning Mats shall be laid in the ground above the gas main line in order to indicate their presence.

2.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the Warning Mat / Warning Grid / Warning Net / Warning Tape.
TECHNICAL SPECIFICATION	Means the present <<Technical Specification>> and its entire appendix, if any.
TPIA	Means the Third-Party Inspection

3.0 REFERENCE CODE

EN 12613 – Plastics warning devices for underground cables and pipelines with visual characteristics

4.0 FEATURES

4.1. Material

Warning Tape, Type 1 as per EN 12613 shall be used for the present project.

The material grade of Warning Mat shall be Virgin Low-density polyethylene (PE) material with warning sticker / stamp. The material shall be having the density between 0.913 to 0.923 g/cc at 27 deg. Celsius as per IS 2508.

The tape shall be uniform in colour, texture and finish and shall be free from holes and foreign materials. Rodent repellent chemicals to be added to the plastic master batch for protection against rodents.

The material and colour, if used, for printing shall have no detrimental effects on the environment.

4.2. Mechanical properties

Mechanical properties of the Warning Mat (Type I) shall be in accordance with the code EN 12613.

Minimum tensile withstand load in longitudinal direction shall not be less than 200 N. The test piece shall not exhibit a reduction of more than 20% of its width after removal of the specified load.

4.3. Colour

The Warning Mat shall be of bright golden yellow colour. This colour must not take any alteration in the course of time.

4.4. Dimensions

Warning Mat shall have following dimensions:

Width	300 ± 2 mm
Thickness	1.0 mm (Minimum)

Negative tolerance on the thickness is not

allowed.

4.5. Marking

4.5.1. The warning mat shall be marked at intervals not exceeding 1 meter. Marking on the mat shall be approved by owner. The marking shall be legible and durable. The warning mat must be printed with "Caution: High Pressure Gas Pipeline Below" in both English and Hindi, Chainage marking along with OWNER's logo and OWNER's 24 Hours Emergency Number ----------, at a frequency of every meter. In addition, name or trademark of the manufacturer, year of manufacture and reference of code of manufacture of warning mat shall be included in the marking.

4.5.2. Vendor shall submit proposed Artwork to be marked on the Warning Mat for approval from Client/PMC.

4.5.3. Vendor shall submit 02 Metres sample of Warning Mat meeting the tender requirements along with the Bid.

4.6. Tests

All the tests and test procedures for Warning Mats shall be as per EN 12613 or as per required National/ International standards mentioned in EN 12613. In addition, all requirements pertaining to statutory requirements, if any, as specified from time to time shall be complied.

The required tests are briefed as below:

4.6.1. Colouring

Three separate tests shall be carried out in accordance with:

- As per normative annexure B of EN 12613, using 20% ammonium sulphide.
- As per EN ISO 175, using 10% nitric acid & 20% sodium carbonate solution.

The tests shall be repeated for each colour (if any).

There shall be no discolouration or change of the initial colour of the warning tape after the tests.

4.6.2. Tensile Withstand Strength

The test sample shall be selected as per mentioned in EN 12613. The test samples shall be preconditioned for not less than 12 h at 23±2 ^{o}C. Static loads shall be carried out to the samples over a period of 10 s.

After the test, the test piece shall withstand without starting to separate at weak points (if any) for

not less than 5 minutes. Also it should no exhibit a reduction of more than 20% of its width after removal of specified load.

The minimum tensile withstand load for the warning mat in the longitudinal direction shall be not less than 200 N.

4.6.3. Visual Warning Characteristics

The test shall be carried out in accordance with normative annexure A of EN 12613.

4.6.4. Permanence of Printing

The test shall be performed as per CL 9.3 of IEC 60898:1995.
The test is made by rubbing the marking by hand for 15 sec with a piece of cotton soaked with water and again for 15 sec with a piece of cotton soaked with aliphatic solvent hexane with a content of aromatics of max. 0.1% by volume, a kauributanol value of 29, an initial boiling point value of approx. 65 ^{o}C, a dry point of approx. 69 ^{o}C and a density of approx 0.68 gm/cm^{3}.

After the test, the marking shall be easily legible.

4.6.5. Test of laying Characteristics

The test is for the assessment of transverse rigidity of the warning

mats. The test shall be performed as per EN 12613.

4.6.6. Warning Mat Virginity Test

Differential Scanning Calorimeter (DSC) Scan test along with the temperature of melting (T_m) shall be performed for the Warning Mat and its raw polymer i.e. virgin low-density polyethylene (LDPE).

The Differential Scanning Calorimeter (DSC) Scan curve of the Warning Mat obtained from its DSC Scan test along with its Temperature of Melting (T_m) shall then be compared with the DSC Scan curve and the Temperature of Melting (T_m) of its raw polymer (i.e. virgin LDPE).

To ensure the virginity of the Warning mat, the DSC Scan curve and T_m of the Warning Mat (finished product manufactured from the raw polymer) shall match on overlapping with its corresponding raw polymer's DSC Scan curve and T_m.

4.7. Packing

The warning mat shall be delivered in rolls of minimum 50 meters. Packing size to be mentioned to ensure uniformity in delivery conditions of the materials being procured. Bidder shall submit the packing details during offer and also compiled with at the time of delivery. Packaging of the Warning Mat shall be such that there won't be any deterioration due to Ultraviolet (UV) effect during transportation and storage of the Warning Taps prior to use.

5.0 QUALITY ASSURANCE (QA)

Manufacturer shall prepare detailed QAP and submit for the approval from Client/PMC.

6.0 DEFECT LIABILITY

Defect liability period shall be as per the commercial volume I of II.

7.0 RECOMMENDED MANUFACTURER FOR RAW MATERIAL

1. SOLVAY
2. BOREALIS
3. TOTAL PETROCHEMICALS
4. DOW
5. ELENAC
6. RELIANCE
7. GAIL
8. HALDIA

However, any other reputed national or international Manufacturer may also be considered for supply of Raw material with approval of Client/PMC.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

ISOLATION BALL VALVE

TABLE OF CONTENTS

1.0 INTENT OF SPECIFICATION

2.0 SCOPE OF WORKS

3.0 DEFINITIONS

4.0 MATERIAL SPECIFICATION FOR ISOLATION VALVES

5.0 INSPECTION

ANNEXURE - I

1.0 INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacture and supply of Isolation Ball Valves used for supply of domestic natural gas.

2.0 SCOPE OF WORKS

2.1. The scope of the tender will include manufacture/ supply, inspection/ testing/ marking/ packaging/ handling and despatch of Isolation Ball Valves, as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in manufacturing standard ANSI B16.33 / EN 331.

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

2.3. Owner/ PMC reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

3.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the isolation ball valves
TECHNICAL SPECIFICATION	Means the present<<TechnicalSpecification>>and its entire appendix, if any.
Third Party Inspection Agency	Means the Inspection Agency

4.0 MATERIAL SPECIFICATION FOR ISOLATION VALVES

As given in Annexure 1 (Data Sheet)

4.1.1. Markings

Markings shall be provided & shall include:

i) Manufacturer's name or trademark Model designation

ii) Rate working pressure in Bar.

4.1.2. Packaging

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Packing size shall be approved by Client/PMC before despatching the material. Bidder shall submit the packaging details during offer and also complied with at the time of delivery.

4.1.3. Leak Tightness

All Valves shall be leak tightness tested at 1.5x 4 bars for a period of 15 seconds and no leakage is permitted. This test shall be performed as per clause no. 4.2 of ASME 16.33.

4.1.4. Temperature resistance test

This test shall be carried out as per 4.3 clause of ASME B 16.33.

4.1.5. Mechanical Strength

i) The body of the valves shall be capable of withstanding without deformation or leakage as per ASME B16.33 with a Min. torque of 90 Nm, as applied to a pipe being connected to the valve.

ii) Valve shall be capable of withstanding without deformation or leakage, when bending

moment as per Table 3 of ASME B 16.33, if applied to a pipe connected to the valve.

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

iv) Vendor shall submit Model Number along with catalogues in English along with un-priced bids.

v) Maximum turning torque to operate the valve as per table 5 of ASME B 16.33

5.0 INSPECTION

- SUPPLIER shall submit ITP to CLIENT/CLIENT's representative for approval and also provide required certification as mentioned in MR.
- Inspection shall be carried out as per Technical Specifications and approved Inspection Test Plan.
- SUPPLIER shall furnish all the material test certificates, proof of approval/license from specified authority as per specified standard, at the time of final inspection of each supply lot of material. Also, all above mentioned certificates to be furnished in soft copy to Owner.
- Even after third party inspection, owner reserves the right to select a sample randomly from each manufacturing batch and have these independently tested .should the results of these tests fall outside the limits specified in Owner technical specifications, then Owner reserves the right to reject all production supplied from the batch.

5.1. Testing

The Isolation valves shall be tested as per EN331/ASME B 16.33 only. Supplier shall submit detailed datasheet and QCT for approval by owner/PMC before commencing the production. Testing shall be carried out as per approved QCT.

ANNEXURE - I

S.NO	DESCRIPTION	DATA SHEET
1.00	**PROCESS DATA**	
1.01	Fluid	Natural gas
2.00	**Operating condition**	
2.01	Pressure	4 bar (g)
2.02	Temperature (^{0}C)	0-48
3.00	**Design condition**	
3.01	pressure	-
3.02	Temperature (^{0}C)	0-60
4.00	**VALVE DATA**	
4.01	Size	As per SOR/Contract
4.02	Type	Isolation Ball Valve with Full Bore, NPT Female (Confirming to ANSI B1.20.1) ends for natural gas application. With operating knob, and locking arrangement with provision for sealing wire and lead seal (without Key). Valve full open/close position shall be at 90^0.
4.03	Rating	125 #
4.04	End connection	End connection should be NPT Female (conforming to ANSI B1.20.1).
4.05	Body material	Forged Brass (ASTM B 283, Alloy UNSC37700) with Nickel/ Chrome Plated.
4.06	Ball material	Forged Brass (ASTM B 283, Alloy UNSC37700) with Hard Chrome/Nickel Plated with Teflon Seat
4.07	Stem	-
4.08	Seat & seal	-
4.09	Fire safe	-
4.10	Anti blow out	-
4.11	Antistatic	-
4.12	Extension stem	-
4.13	Operator	Butterfly arrangement
5.00	**PAINTING**	-
5.01	Surface preparation	-
5.02	Primer	-
5.03	finish	-
5.04	insulation	-
6.00	**TEST**	
6.01	Hydrostatic shell test	
6.02	Test pressure	6.0 bar(g)
6.03	Test medium	-
6.04	Hydrostatic seat test	6.0 bar(g)
6.05	Test pressure	-
6.06	Test medium	-
6.07	Functional test	-
6.08	Test pressure	-
6.09	Leak test	-
6.10	Impact test	AS per TECHNICAL SPECIFICATION
6.12	Bending Test	AS per ASME B 16.33 / TECHNICAL SPECIFICATION
6.13	Torque test	AS per TECHNICAL SPECIFICATION
6.14	Turning torque test	As per ASME B 16.33
6.15	Antistatic test	-
6.16	Fire test	-
6.17	Visual and dimensional examination	-
Note	Unless otherwise stated all tests will be witnessed by the purchaser	

7.0	**QUALITY CONTROL**	-
7.01	Material certificates	EN 10204, 3.2 Certificate
7.02	All testing certificates	-

NOTE:

1. Lever type handle are not acceptable.
2. Minimum Nickel/ Chrome Plated on the ball & body of appliance ball valve shall be 25 Micron.
3. The above specified tests in TECHNICAL SPECIFICATION/Data sheet are minimum However, the other Remaining/specified tests shall be done as per ASME B 16.33

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

APPLIANCE BALL VALVE

TABLE OF CONTENTS

1.0 INTENT OF SPECIFICATION

2.0 SCOPE OF WORKS

3.0 DEFINITIONS

4.0 MATERIAL SPECIFICATION

5.0 INSPECTION

DATA SHEET

1.0 INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacture and supply of Appliance Ball Valves used for supply of domestic natural gas.

2.0 SCOPE OF WORKS

2.1. The scope of the tender will include manufacture/ supply, inspection/ testing/ marking/ packaging/ handling and despatch of Appliance Ball Valves, as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in manufacturing standard EN 331.

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

2.3. Owner/ PMC reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

3.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the isolation ball valves TECHNICAL SPECIFICATION Means the present <<Technical Specification>> and all its appendix, if any.
Third Party Inspection Agency	Means the Inspection Agency

4.0 MATERIAL SPECIFICATION

Please refer Data sheet.

4.1.1. Markings

Markings shall be provided & shall include:

i) Manufacturer's name or trademark Model designation

ii) Rate working pressure in Bar.

4.1.2. Packaging

Packaging size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Packaging size shall be approved by owner / PMC before packing the material. Bidder shall submit the packaging details during offer and also complied with at the time of delivery.

4.1.3. Leak Tightness

All Valves shall be leak tightness tested at 6.0 bar for a period of 10 min. and no leakage is permitted. This test shall be performed as per clause no. 7.2 of EN331.

4.1.4. Temperature resistance test

This test shall be carried out as per Annex C of EN 331.

4.1.5. Mechanical Strength

i) The body of the valves shall be capable of withstanding without deformation or leakage as per Table 5 of EN 331, as applied to a pipe being connected to the valve.

ii) Valve shall be capable of withstanding without deformation or leakage, when bending moment as per Table 5 of EN 331, if applied to a pipe connected to the valve.

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

iv) Vendor shall submit Model Number along with catalogues in English along with un-priced bids.
v) Maximum Operating torque of the valve shall be as per table 4 of EN 331

5.0 INSPECTION

- SUPPLIER shall submit ITP to CLIENT/CLIENT's representative for approval and also provide required certification as mentioned in MR.
- Inspection shall be carried out as per Technical Specifications and approved Inspection Test Plan.
- SUPPLIER shall furnish all the material test certificates, proof of approval/license from specified authority as per specified standard, at the time of final inspection of each supply lot of material. Also, all above mentioned certificates to be furnished in soft copy to Owner.
- Even after third party inspection, owner reserves the right to select a sample randomly from each manufacturing batch and have these independently tested .should the results of these tests fall outside the limits specified in Owner technical specifications, then Owner reserves the right to reject all production supplied from the batch.

5.1 Testing

The Appliance valves shall be tested as per EN331 only. Supplier shall submit detailed datasheet and QCT for approval by owner/PMC before commencing the production. Testing shall be carried out as per approved QCT.

DATA SHEET

S.NO	DESCRIPTION	DATA SHEET
1.00	**PROCESS DATA**	
1.01	Fluid	Natural gas
2.00	**Operating condition**	
2.01	Pressure	4 bar (g)
2.02	Temperature (^{0}C)	0-48
3.00	**Design condition**	
3.01	pressure	-
3.02	Temperature (^{0}C)	0-60
4.00	**VALVE DATA**	
4.01	Size	1/4"
4.02	Type	Appliance Ball Valve of Bore with ¼' NPT (Confirming to ANSI B1.20.1) Female as an inlet and the outlet shall be having Ni/Cr plated brass nozzle (Serrated to suit ¼" rubber tubing/ hose connection) and the material is required for Domestic Natural Gas Service. With a metallic operating/ knob for full open/close at 90^0 position.
4.03	Rating	125 #
4.04	End connection	Female as an inlet and the outlet shall be having Ni/Cr plated brass nozzle
4.05	Body material	Total body including the nozzle shall be of Forged Brass (ASTM B 283, Alloy UNSC37700) with Nickel/ Chrome Plated. UTS – Min. 345 Mpa & Elongation 25 %
4.06	Ball material	Hard Chrome/ Nickel Plated, Forged Brass Bar (ASTM B 283, Alloy UNSC37700) with Teflon Seat UTS – Min. 345 Mpa & elongation 25 %
4.07	Stem	-
4.08	Seat & seal	-
4.09	Fire safe	-
4.10	Anti-blow out Stem	-
4.11	Antistatic	-
4.12	Extension stem	-
4.13	Operator	Knob and locking arrangement
5.00	**PAINTING**	-
5.01	Surface preparation	-
5.02	Primer	-
5.03	finish	-
5.04	insulation	-
6.00	**TEST**	
6.01	Hydrostatic body test	
6.02	Test pressure	6.0 bar (g)
6.03	Test medium	-
6.04	Hydrostatic seat test	6.0 bar (g)
6.05	Test pressure	-
6.06	Test medium	-
6.09	Leak test	-
6.10	Impact test	AS per TECHNICAL SPECIFICATION
6.12	Bending Test	AS per EN331
6.13	Torqe test	AS per EN331
6.14	Turning torque test	AS per EN331

6.15	Antistatic test	-
6.16	Fire test	-
6.17	Visual and dimensional examination	-
Note	Unless otherwise stated all tests will be witnessed by the purchaser	
7.0	**QUALITY CONTROL**	-
7.01	Material certificates	EN 10204, 3.2 Certificate
7.02	All testing certificates	-

Note: -
1. Minimum Nickel/ Chrome Plated on the ball & body of appliance ball valve shall be 25 Micron.
2. The above specified tests in TECHNICAL SPECIFICATION/Data sheet are minimum. However, the other Remaining/specified tests shall be done as per AS per EN331

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

POWDER COATING

TABLE OF CONTENTS

1.0 INTRODUCTION

2.0 SPECIFICATION

3.0 TESTING

4.0 INSPECTION

1.0 INTRODUCTION

Owner plans to augment PNG network. It supplies natural gas to Domestic, Industrial & Commercial consumers.

This present document covers the technical specification for the Powder coating of GI Pipes used in high pressure natural gas transportation and distribution systems. It describes the general requirements, controls, tests, QA/QC examination and final acceptance criteria which needs to be fulfilled.

This specification covers the requirements of powder coatings for GI pipes of heavy steel tube. Unless modified by this specification, requirements of IS 13871: 1993 (Latest edition) shall be valid.

2.0 SPECIFICATION

Powder Material : Pure Polyester

Application : Electrostatic Spraying (40-90 KV Manual /

Automatic) Backing Schedule : 180 C to 200 C for 10 MM (Metal

Temp.)

Coating Thickness : 60- 70 Microns

3.0 TESTING

Film Type	Glossy / Satin
Gloss 60 º (ASTM D-523-60)	86 – 95%
Cross Hatch Adhesion (ASTM D-5870)	GT = 0/100
Cylindrical bending Test (ASTM D 522) 5 mm Rod dia	Passes
Enrichen Cupping (min)	8 Passes
Pencil Hardness (min)	2H
Scratch Resistance (Kg Min)	3
Impact Resistance	Direct 150
Kg. Min (ASTM D-2794)	Indirect 150
Salt Spray Resistance ASTM B-117)	1000 hrs (min)
Porosity (DIN-53161)	Passes
Humidity Resistance (ASTM D-2247)	1000 Hrs (min)
Weathering Gloss retention after 1000 Hrs (sun test with water immersion, Xenon 150 K.lux)	60 – 70%
Color	Canary Yellow

4.0 INSPECTION

Inspection shall be carried out as per Owner Technical Specification.

PMC or Third-Party Inspection Agency appointed by shall carry out stage wise inspection during manufacturing / final inspection.

The manufacturer shall have a valid license for Powder coatings of pipe in accordance with the requirement of IS:13871.

Vendor shall furnish all the material test certificates, proof of approval / license from specified authority as per specified standard, if relevant, internal test / inspection reports as per Owner Tech. Spec. & specified code for 100% material, at the time of final inspection of each supply lot of material.

For any control, test or examination required under the supervision of TPIA/Owner/PMC, latter shall be informed in writing one (1) week in advance by vendor about inspection date and place along with production schedule.

Even after third party inspection, Owner reserves the right to select a sample of pipes randomly from each manufacturing batch & have these independently tested. Should the results of these tests fall outside the limits specified in Owner technical specification, then Owner reserves the right to reject all production supplied from the batch.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

INSTALLATION OF ABOVE GROUND GI/COPPER/MLC/MLC PIPING & FITTINGS

TABLE OF CONTENTS

1.0 GENERAL INFORMATION
2.0 DEFINITIONS
3.0 SCOPE OF WORK
4.0 MATERIAL, MANPOWDER, EQUIPMENT AND MACHINERY
5.0 ISSUE OF WORK INSTRUCTIONS
6.0 PROGRESS OF WORK
7.0 WORK SHEETS
8.0 CO-ORDINATION /LIAISON
9.0 REFERENCE SPECIFICATION, CODES AND STANDARDS
10.0 RIGHT-OF-USE SURVEY AND MARKING
11.0 PROTECTION OF STRUCTURES AND UTILITIES.
12.0 GI AND COPPER ABOVE GROUND SERVICE PIPE
13.0 TESTING OF GI/COPPER/MLC INSTALLATION
14.0 INSPECTION
15.0 PURGING & COMMISSIONING
16.0 CONVERSION OF DOMESTIC APPLIANCES
17.0 RESTORATION
18.0 SUBMISSION OF FINAL RECORDS

1.0 GENERAL INFORMATION

1.1 Introduction

Owner plans to augment PNG network. It supplies natural gas to Domestic, Commercial & Industrial consumers in the GA i.e. District of Kanpur, Unnao, Bareilly & Jhansi GA in U.P.

The main scope of this contract comprises the installation of above ground pipes from the outlet of 'PE/GI transition fitting' up to the domestic Customers 'Appliance/stove/oven valve' as per the Distribution schedule placed in enclosed drawing.

Except MRS/Metering Skid, meter & hs/service regulator, Contractor shall procure the each material (GI pipe, GI fittings, Cu pipe, Cu/Brass fittings, Corrugated Flexible metal Hose (Anaconda) Steel Reinforced Rubber Hose, etc.) which is required from the outlet of PE / GI transition fitting up to the Domestic customers "Appliance / stove / oven valve.

This technical specification defines the basic guidelines to develop an acceptable design and suitable construction methodology for carrying out different activities listed out in the schedule of rates of this tender.

Compliance with these specifications and/or approval of any of the Contractor's documents shall in no case relieve the Contractor of his contractual obligations.

2.0 DEFINITIONS

OWNER	Central U.P. Gas Limited (CUGL)
PMC	Resonance Energy Private Ltd.,
TECHNICAL SPECIFICATION	Present <<Technical Specification>>and its entire appendix, if any.
EIC	Engineer – in – charge

3.0 SCOPE OF WORK

Generally, the following shall constitute the Contractor's scope of work but not limited to:

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

3.2 Contractor shall submit the QCT/procedure/drawing etc. of all the material to be procured by him for approval before procuring the items. If, QCT/procedure/drawing etc are not approved from client/consultant then owner has the authority to refuse /reject the same lot material.

3.3 Receipt of regulator / Service Regulator / meters / MRS/Metering Skid as a free issue items from Owner's stores, loading, transportation, unloading at project site. Proper storing, stacking, identification, providing security and insurance during and before installation and commissioning of pipelines. Obtaining the approval for optimum route and permission for work from the concerned authority and EIC.

3.4 Selection of route with the EIC / Consultant and marking the same on walls/floors between 'transition fitting' to 'cooking oven/stove/appliance', making openings and making provisions for fixing clamps. Making temporary but stable platforms/scaffolding/rope ladder etc., required for installation of pipes/fittings at all heights/multi storied flats and locations.

3.5 Contractor shall procure all material except free issue items for installation at the outlet of PE/ GI

transition fitting upto the Domestic customers "Appliance /stove / oven for satisfactory completion to the owner/PMC.

3.6 Supply and Installation of powder coated GI pipes of ½", ¾", 1" & 1.5" dia. between transition fittings to customer's kitchen appliances including NPT threading of GI pipes, supply of proper seal outs for threads to join fittings such as elbows, tees, connectors, regulators, meters, appliance & isolation valves etc., as per laid procedures and specification including clamping and sealing etc. The scratched powder coated GI pipe and fittings shall be painted after the testing of the GI installation.

3.7 Supply & Installation of 12 mm Copper tube including supply of solder wire and flux to join fittings such as elbows, tees, connectors, meters, valves etc., complete as per procedures and specifications including clamping and sealing etc.

3.8 Supply of clamps for fixing pipes, Meters wherever required, painting of scratched powder coated pipes and fittings. Providing consumables grout material, repair/restoration of walls/floors changes for the pipes including the materials required for conversions and tools and tackles etc. shall be complete as per specification.

3.9 Conversion of all types of LPG kitchen appliances to NG based appliances & to take Sign on RFC card & Joint Meter Records (JMRs) of customer.

3.10 To demonstrate the Customer regarding use, safety and maintenance related aspects of NG based appliances and installations.

3.11 Cleaning, flushing, pneumatic testing and commissioning to the GI / Cu tube & fittings, meters, valves etc as per specification and hand over the same to Owner/Customer to the entire satisfaction of EIC / CONSULTANT.

3.12 Dismantling of scaffolding/temporary structures and cleaning of site & restore the site as per its original condition.

3.13 Restoration of walls, flooring and other damages while executing the above ground installation.

3.14 Preparation and submission of above ground installation card for each house indicating the laid GI/Cu tube including fittings, mentioned the reasons, if connection is not provided to the customers and deviation statements on completion /commissioning of work.

3.15 Any other activities not mentioned/covered explicitly above, but otherwise required for satisfactory completion/operation/safety/statutory/maintenance of the works in new & existing gas charged areas 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 Owner.

3.16 All printable materials are in the scope of contractors like RFC book, Sticker, Safety Guideline, Feasibility Report, consent reports etc printable documents as per Owner requirements.

3.17 All size of GI pipes shall be powder coated before installations and it is in the scope of contractors. Contractors shall submit powder coating procedure to EIC/Consultants before powder coating of pipes.

4.0 Consumable Items

Special Consumables such as Teflon Tapes with make **Loctite 55, Champion** etc., solder wire, flux, lacquer, thinner shall be supplied by the contractor and are included in installation rates.

5.0 MATERIAL, MANPOWDER, EQUIPMENT AND MACHINERY

5.1 Material to be supplied as a free issue material

Meter, Regulator, service regulator, Isolation valve, appliance valve MRS/Metering Skid shall be supplied as a free issue material to the contractor. The contractor shall not use any other material from any other source of supply other than owner's supplied material without any written approval from EIC.

5.2 Material / Equipment & machinery to be supplied by contractor

Contractor shall procure / purchase powder coated GI Pipe & GI fittings, Brass fittings, Cu tube & fittings, Corrugated Flexible metal Hose (Anaconda), Isolation & Appliance Valve and Reinforced rubber hose with other material which is required to satisfactory completion / safety / statutory of the works as per tender at no extra cost to Owner. The OWNER logo shall be marked on the material supplied by contractor. The contractor shall take approval from owner / PMC for marking on the material to be procured by contractor before placement of order.

The Contractor shall provide labour, tools (such as Hammer Drill, Piston Drill, Pipe Cutters, Dies for threading, Pipe wrenches, spanners, conversion kits, solder torch, copper tube Cutters, tube benders, lacquering, thinner etc.) in specified numbers, all types of clamps, Plant and equipment necessary for the proper execution of the work. This will include but not limited to list of specialised tools and tackles indicated in Annexure # 1.

Special tools shall be required at site for carrying out drilling work in walls other than Brick or RCC (Ex. Granite, Marble, Wooden, Glass Cutting etc.)

The contractor has to ensure the availability of DG sets for continuous powder supply. In case the powder supply is availed at the site from societies, individual residents, contractor shall settle the claims raised by the electricity providers without any cost implication to OWNER. In case contractor doesn't settle the claims for using the electricity from societies/individual residents, on demand by the providers, OWNER will settle the claims and the same will be deducted from the contractor's bills. The progress of work shall not hamper due to non-availability of powder supply.

The contractor has to submit the valid calibration certificate for Pressure gauges.

Contractor shall submit the manufacturer test certificate / lab test certificate for all items procured by him for approval before commencing the execution.

No hiring of equipments, tools and tackles by the contractors is allowed at the site. In case, any contractor is found not in possession of enlisted required tools and tackles, penalty will be levied as per SCC which shall be deducted from the running bill.

5.2.1 Plant and Equipment

All vehicular type machinery shall be in good working condition 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.

5.2.2 Sealant, Grout

The contractor shall be responsible to arrange the supply of any consumable sealant or ready-mix grout material required for restoration of holes. The sealant/grout supplied by the contractor shall be compatible with the area to be restored / rectified. No separate payment for the supply of sealant and grout shall be made to the contractor.

5.2.3 Clamps, Rawal Plugs, Screws and Nozzles etc.

The Clamps, Brackets for meter, Rawal Plugs, Screws, Nozzles, etc. shall be approved lot wise by EIC prior to installation. Re-drilling of existing appliance (burners) nozzles is strictly not permitted. The quality of materials procured will be got approved and will be as directed by EIC.

The indicative sketch of the Brackets for Meter, Regulator Boxes and GI/COPPER/MLC tube Clamps is enclosed with the tender. No separate payment for the supply of Meter Brackets and GI/COPPER/MLC clamps shall be made to the contractor.

5.2.4 Consumables Items

- Special Consumables such as Teflon Tapes, solder wire, flux, lacquer, thinner shall be supplied by the contractor and are included in installation rates.These

consumables shall be of reputed make companies and required grades/class.

5.2.5 Other Materials

The contractor shall supply & Installation the following items wherever required:

- All materials required for work, NPT threading, Copper tube jointing, testing etc.
- All signs, barricades, lights and protective equipment.
- All material required for working at higher floor levels (i.e., scaffolding, Ladder, Safety Belts, Self Locking Safety Harness Belts etc.).
- Special consumable such as grease for maintenance of domestic appliances, all paints for painting of scratched portion of powder coated GI Pipes, GI fittings, Regulator Boxes, Consumables such as Teflon Tapes, Solder-wire, Flux, Lacquer, Thinner, Petrol, Diesel, Fuels and Oils required are to be supplied by the contractor and are included for within the rates.
- 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.

5.3 **Acquisition, Receipt and Storage of Materials**

The Contractor shall collect Meter, Regulator, service regulator, Isolation valve, appliance valve MRS/Metering Skid from Owner's designated stores in between the hours to be advised by the EIC and installation of the same items.

The contractor shall carry out assessment of material required for GI/COPPER/MLC installation in allocated area. After approval from Owner, contractor shall place order for purchasing of GI Pipes & fittings, Copper tubes & fittings, Brass Fittings, Corrugated Flexible metal Hose (Anaconda), Isolation & Appliance Valve and Reinforced Rubber hose (Technical specifications attached in the tender document) to anyone of approved vendors as per the list attached in the tender document. The contractor shall also ensure that the QCT for these materials shall be approved before the start of production activity. Once QCT is approved, contractor shall forward inspection call to the Owner depending upon the material requirement at the site. The inspection of these materials shall be carried out by Owner appointed third party inspection agency. It is contractor's responsibility for document submission, arranging dispatch clearance, handling, loading, transportation and unloading of these materials at their own respective store.

Any other activity not mentioned / covered, explicitly, but otherwise required for satisfactory completion / operation / safety / statutory / maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule at no extra cost to Owner. The Contractor shall carry free issue material in such a manner as to preclude damage during transportation and handling.

The Contractor shall physically examine all materials at the time of acceptance the material in store and notify the EIC immediately of any damage or defect noticed by the Contractor. The EIC shall duly note any damage or defect in a site instruction book and both parties shall countersign the entry.

Any damage not so recorded will be deemed not to have existed at the time of acceptance of material in store by the Contractor and the cost of repair or replacement or rectification shall be borne by the Contractor.

All materials shall be stored in contractor's stores near site in such a manner so as to prevent any damage to the materials from scratching, gouging, indentation, excessive heat or by contact with any sharp objects or chemicals.

The Contractor shall be required to submit inventory details of materials every month.

The Contractor shall maintain logbook at their respective stores stating issue and availability of free issue material at a given day. Further, it is mandatory that the contractor is required to undertake and submit inventory details of free issue and purchased materials on monthly basis to Owner/ PMC as per the approved format of the owner. The inventory details shall be in correlation with the Daily progress chart and material reconciliation sheet.

Material reconciliation indicating issue of material, consumptions and defective material shall be submitted on every three months basis.

6.0 ISSUE OF WORK INSTRUCTIONS

6.1 The contractor will be required to carry out GI installation in the areas where MDPE laying is under progress. However, testing of GI installation shall be done in conjunction with laying of MDPE Service Lines to respective premises. A general scheme of distribution to domestic consumer is indicated in enclosed drawing for reference. It may vary in case of individual and multi storied flats.

6.2 All skilled personnel like jointers, conversion technicians will be approved and certified by EIC. The technicians who will carry out joining of copper material and conversions will undergo a test by Owner. Those who clear the test will be issued identity cards duly signed by EIC. These technicians shall be only authorized to take up respective jobs. **In case it is found that contractor personnel other than authorized are carrying out these works, applicable penalty will be levied to the contractor as per contract.**

6.3 The rates to be quoted by contractor shall be inclusive of all preparatory/bye works, platform materials, labour, , supervision, tools, taxes, duties, levies, salaries, wages, overheads, profits, escalations, fluctuations in exchange rates and no change in the rates shall be admissible during tenancy of the contract.

6.4 The schedule of items of GI/Cu installations have been described in brief and shall be held to be completed in all respect including safety requirements as per TECHNICAL SPECIFICATION of HSE, tests, inspection, QA/QC works, enabling and sundry works. The payment shall be made against completed and measured works only. No extra works whatsoever shall be considered in execution of these items**.**

6.0 PROGRESS OF WORK

The contractor shall proceed with the work under the contract with due expedition and without delay.

Contractor shall assess the material requirement of the allotted area and submit the schedule plan for execution & purchasing before start of actual work.

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. Weekly progress reports shall be submitted in the formats approved by Owner, indicating broadly the laying, testing, RFC, conversions and extra piping.

7.0 WORK SHEETS

7.1 The quantities of GI/Cu pipe and other details will be checked by Owner's site engineer and the same shall be incorporated in RFC cards, signed & dated as certified, on site. The cards will then be approved by the EIC.

7.2 Measurement sheets shall be prepared based on the RFC cards and checked and certified by the site engineers for billing purpose.

7.3 If measurement sheets submitted are illegible, incomplete or incorrectly booked they will be returned to the contractor.

8.0 CO-ORDINATION /LIAISON

8.1 Contractor shall be responsible for co-ordination with society management, RWA, individual residents and any other concerned authority, if required, for completion of the work. Contractor must take the prior appointment from the residents for carrying out the work.

8.2 The prospective bidder shall work in close consultation/coordination with the EIC.

8.3 The prospective bidder shall not sign/execute any agreement and/or undertaking on any such documents which amounts to be undertaken by Owner. The same shall only be signed and executed by Owner; however, the prospective bidder shall also liaison and coordinates for the same.

8.4 The necessary coordination, liaison and arrangements for inspection and approval shall be the contractor's responsibility. Inspection and acceptance of the work by authority shall not relieve the contractor from any of these responsibilities under this contract. The contractor shall plan the execution of work in such a manner so that all the registered customers are attended in phased manner. However, it is the contractor's responsibility to fix a firm appointment with the consumer for carrying out the work.

A logbook/job card for such appointments with Consumer/any other agencies shall be maintained and the schedule/appointment once taken shall be adhered to by the contractor. PMC/EIC shall review the records every week. The contractor shall submit the detailed list of RFC/Conversions and balance work on Registrations at least once a week as per approved format.

8.5 The contractor is also required to obtain a "Labour License" from the Assistant Labour Commissioner of respective Administration/Central Govt.

8.6 It will be the contractor's responsibility to familiarise himself and comply with, any other local rules, regulations or statutory requirements applicable to the work.

8.7 The contractor has to take responsibility of the actions of supervisors, plumbers and helpers provided by him.

9.0 REFERENCE SPECIFICATION, CODES AND STANDARDS

The contractor shall carry out the work in accordance with this specification, Owner's Engineering Standards: ASME B31.8 – Gas Transmission and Distribution Piping Systems; Oil Indian Safety Directorate Norms (OISD), the American Gas Association Document – Purging Principles and Practice and PNGRB Guidelines.

If the contractor find any discrepancy, ambiguity or conflict in 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.

10.0 RIGHT-OF-USE SURVEY AND MARKING

The route of the pipeline to be installed shall be decided with consent of the consumer and Site Engineer/EIC. Contractor must ensure that the persons/workers/supervisors/ working at site shall have proper identity cards prior to entering the premises of the consumer.

No temporary or permanent deposit of any kind of material resulting from the work shall be permitted in the approach or any other position, which might hinder the passage and / or natural water drainage, or any area where there is objection from consumer.

The contractor shall obtain necessary permissions from landowners and tenants and shall be responsible for all damages caused by the construction and use of such approaches, pavements, gardens, rooms, walls, roof etc., at no extra cost to Owner.

Owner/Consultant and the contractor at each premises or housing colony to be supplied with gas will conduct a joint survey. The survey record will note Customer details, the potential gas supply points and proposed meter positions and estimates of material quantities. The contractor's representatives will make as sketch of the agreed pipe routes, if necessary.

The contractor will be responsible for contacting the Customer and making the necessary arrangements for access and appointments to carry out the work. Owner will not be responsible for any time lost due to failed appointments or disputes with Customer.

The contractor shall confine its operations within limits of the Right in use. The contractor shall restore any damage to property outside ROU.

The contractor shall also carryout all necessary preparatory work if needed to permit the passage of men and equipment. Lights, Curbs, signs shall be provided wherever and/or required by the Owner necessary to protect the public.

11.0 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 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.

While painting, contractor must take care of the consumer premises while carrying out the job such as spillage on floor, walls, ceilings, such shades etc. If the same does occur, the contractor has to immediately make things to original.

12.0 GI AND COPPER ABOVE GROUND SERVICE PIPE

The GI service pipe installation work includes all work necessary to connect from the PE/GI transition fitting on the down-stream of the PE service, to the Customers appliance, including the installation of regulator, valves, fittings, meters, clamps etc. The contractor shall be required to provide all equipment, tools and materials necessary to execute the work in an efficient and effective manner. Along with ladders, scaffolding pipe, dies, tripods, vices, fittings and Teflon tape, drills for concrete and other masonry, drills for timber, Granite, Marble Stones and laminated surfaces inside Customers property, bending tools, clamps, sleeves to facilitate the pipe passing through floors and walls, paint for marking etc.

All GI risers at the outside of buildings shall be fully supported to carry the weight of piping. A flanged foot or similar device, capable of supporting the total weight of the riser, shall support risers. The riser shall be installed in a vertical line form its point of support to its highest point with a minimum of changes in direction. The threading of GI pipe shall be NPT and conforming to ANSI B1 20.1

Contractor has to supply different types/sizes of approved powder coated clamps (Mild Steel) for fixing GI pipes suiting to the site conditions. The contractor shall get approval from EIC for every fresh lot of the clamps, brackets, regulator boxes and other consumables, prior to start of installation. The detailed cross sectional of Powder coated GI Pipe Clamps/Meter brackets are as per enclosed drawing.

All riser and lateral pipe shall be clamped to the building at intervals not exceeding 1.5 mtrs. Maximum distance between clamps shall be 1.0 - 1.5 m when pipe goes to the straight, if any tee or fittings lies in between the pipe then clamp shall be placed 150 mm far away from centre line of fittings at every sides. However, the same may be changed as per site conditions/as directed by EIC. Minimum gap between pipe & wall shall be 25 mm. The joints/ fittings of the GI installation shall be painted only after carrying out testing of the installation.

Where pipe passes through the balcony and the surface is slightly elevated around the service pipe or its surrounding sleeve to prevent the accumulation of water at that point. Where a short piece of sleeve is used around the gas pipe, the sleeve should be embedded in the concrete with a mix of mortar and the void between the pipe and sleeve filled with a suitable sealant. The sealant should be bevelled such as to prevent an accumulation of water. Supply of clamps for all sizes of the GI pipes is in contractor's scope. Contractor has to take prior approval for design/types of clamps, paintings etc.

Pipe shall preferably be entered into building above ground and remain in a ventilated location. The location for entry shall be such that it can be easily routed to the usage points by the shortest practicable route.

The rates for providing a connection are payable depending upon the length of the GI and Copper tube installed. It also includes the installation of meters, meter regulator with associated inlet and outlet connections (GI/Brass fittings, Corrugated Flexible metal Hose (Anaconda)), on the wall with approved powder coated meter brackets and angles, painting, testing upto Appliance valve **The Pipe installation includes all type of Pipe & Fittings (GI/COPPER/MLC and Corrugated Flexible metal Hose (Anaconda),etc**

Except Meter, Regulator, Isolation valve, appliance valve Contractor shall procure all other materials (i.e. Pipe, fittings, clamps etc.) as per attached specification for installation and to the entire satisfaction of EIC/consultant.

The contractor shall also ensure that gas supply shall not be provided to the customer in any Concealed Piping.

The Copper service pipe installation work includes all work necessary to connect downstream of the meter to the Customers appliances. The contractor shall be required to provide all equipment, tools and materials necessary to execute the work in an efficient and effective manner. Along with these, he will be required to provide ladders, scaffolding pipe, drills for concrete and other masonry, special drills for timber, Granite, Marble Stones and laminated surfaces inside Customers property, bending tools, sleeves to facilitate the pipe passing through floors and walls, etc. Copper tubes & fittings shall be provided by Contractor.

During installation the Copper tube is to be cut to proper length with tube Cutter, the burrs removed with a file, cleaning of outside surface of pipe & inside surface of fitting, applying flux to the tube and fitting around the outer/inner ends, inserting the tube in to the fitting, applying heat to the assembled joints using conventional blow torch to melt solder wire. Contractor shall submit the joining procedure of Cu tube & Fitting to the approval or as per the instructions of EIC.

Contractor has to supply different types/sizes of approved clamps (PE 80/PVC) for fixing Copper tubes suiting to the site conditions Contractor has to take prior approval of EIC for quality of the clamps, solder, flux, lacquer, thinner etc. The approval shall be taken for every fresh lot of clamps from EIC before installation at site.

All copper piping shall be clamped to the walls at intervals not exceeding 500 mm. The solder wire shall be of reputed company of diameter size 3.25mm, Lead free as per BS 29453:1994 (Soft solder alloys) and supplied in coils. The detail specification is attached in tender for reference. Solders for use with copper

tube & fittings generally melt within the temperature range 180°C - 250°C. The contractor has to furnish the certificate of confirmation of standards before start of work.

During installation, the MLC pipe is to be cut to proper length with pipe Cutter, correct the ovality of pipe end with a plastic reamer, cleaning of inside surface of pipe & outside surface of fitting, put the fitting nut over the pipe and slide the compression ring over the pipe. Make sure that the mouth of the nut and pipe face in same direction. Push the fitting insert into the pipe up to shoulder and use the spanner to tighten it up completely. Contractor shall ensure that jointing of

MLC pipe & Fittings shall be done by skilled manpower.

Contractor has to supply different types/sizes of approved clamps (PE 80/PVC) for fixing Copper/MLC pipes suiting to the site conditions Contractor has to take prior approval of EIC for quality of the clamps, solder, flux, lacquer, thinner etc.The approval shall be taken for every fresh lot of clamps from EIC before installation at site.

All copper/MLC piping shall be clamped to the walls at intervals not exceeding 500 mm. For copper pipe the solder wire shall be of reputed company of diameter size 3.25mm, lead free as per BS 29453:1994 (Soft solder alloys) and supplied in coils.

The detail specification is attached in tender for reference. Solders for use with copper tube & fittings generally melt within the temperature range 180°C- 250°C. The contractor has to furnish the certificate of confirmation of standards before start of work.

CUGL reserves the right of the release of payment against the RFC services on the basis of completion of NG conversion or submission of the NG consent not attributable to vendor.

Installation of Meter

Installation of meters with associated inlet and outlet connections (GI/Brass fittings), on the wall with approved powder coated meter brackets and angles in new & existing gas charged areas.

The contractor shall supply approved powder coated meter brackets and angle brackets. A sketch of the brackets is referred from the enclosed drawing for reference. It is required that one sample of each type of bracket is approved before the work is started.

Firmly secure the meters on the wall with good quality Rawal Plugs, screws etc. In case the Rawal Plugs are not holding then wooden blocks or other fixing arrangements like cement etc. to be used for proper grouting.

The Meter installation will be preferred in open/ventilated space so as to prevent Gas accumulation and easy dispensation of gas to atmosphere in case of any smell/leakage of gas. The Meter installations will not be provided in any fixed enclosures, cabinets (below or above the slab) or confined space in the customer premises.

The contractor shall ensure that GI installations and steel reinforced rubber hoses shall not be exposed to direct heat of Gas burners. The installation should have minimum clearance of about 1 meter from electric point mains & switches. Minimum distance between Appliance Valve & Gas Burners shall be 0.3 Meters. The isolation valves shall be installed after entering the customer premises/kitchen but before the meter installation.

The above activities along with restoration of the area to original shall be carried out to the complete satisfaction of consumer and EIC.

Powder Coating/ Painting of GI Pipes

The entire lengths of the pipeline along with fittings are to be painted/ powder coated after proper surface preparation as follows:

(a) PAINTING (for scratched powder coated pipes and fittings only)

- One coat of Primer Application (Appropriate Zinc based primer)
- Two coats of synthetic enamel paint – canary yellow of minimum of 30 microns per coat of reputed make like Asian, Berger, Nerolac. (No other make shall be used for painting).

All painting materials including primers and thinners brought to site by contractor for application shall be procured directly from manufacturers/dealers as per specifications and shall be accompanied by manufacturer's test certificates. Paint formulations without certificates are not

acceptable. The contractor shall ensure that smooth finish is attained after carrying out painting.

Engineer-in-Charge at his discretion may call for test for paint formulations. Contractor shall arrange to have such tests performed including batch wise test of wet paints for physical and chemical analysis. All costs there shall be borne by the contractor.

The painting work shall be subject to inspection and certification by Engineer-in-Charge at all times. Painting of GI pipe shall be paid with installation of GI pipes.

(b) POWDER COATING (REFER ATTACHED TECHNICAL SPECIFICATION FOR POWDER COATING)

Contractor will be required to install Powder coated GI pipes and shall submit detailed procedure of powder coating for approval to Consultant prior to supply of powder coated GI pipes. After installation of the entire piping system, final touching with paint shall be done to the satisfaction of EIC.

13.0 TESTING OF GI/COPPER/MLC INSTALLATION

13.1 The installation from PE/GI transition fitting up to regulator shall be tested at the pressure of 6.0 bar (g).

13.2 The testing of GI riser pipe up to regulator shall be done with the isolation valve in open condition and open end plugged.

13.3 The joints shall be painted only after carrying out testing of the installation. Powder coating to GI pipes shall be carried out in factory/shop, and repair / touching shall be carried out at site.

13.4 The GI/COPPER/MLC installation from regulator outlet to appliance valve (except meter) shall be tested at a pressure of 2.0 bar (g) for a holding period of 2 hour with no pressure drop. All the joints in the installation shall be checked with soap solution.

13.5 The meter shall be removed while carrying out the testing at 2 bar (g) and joints of the meter shall be tested online with soap solution after completion of the work. For testing proper test ends shall be made along with gauges and subsequently approved by EIC. For the installation to be tested by manometer or diaphragm gauge the meter shall not be dismantled/removed and testing shall be carried out at 100 Mbar with holding period of 15 min with no pressure drop.

13.6 The contractor shall supply the Calibrated Pressure Gauges / Manometer / Diaphragm Gauges of suitable range for testing of GI/COPPER/MLC Installations ranging from 0-4 bars/0-150 m bar/0-250 m bar respectively. The calibration certificate shall be submitted before the start of the execution work.

13.7 The pressure gauges shall be calibrated from time-to-time as desired by EIC but positively once in every six months.

13.8 The details of testing shall be properly recorded in the GI/COPPER/MLC cards.

14.0 INSPECTION

The contractor to the entire satisfaction of EIC before proceeding further shall rectify any defect noticed during the various stages of inspection. Irrespective of the inspection, repair and approval at intermediate stages of work, contractor shall be responsible for making good any defects found during final inspection/guarantee period/defect liability period as defined in general condition of contract.

15.0 PURGING & COMMISSIONING

The rate for purging & commissioning shall be included in the GI/Cu installations.

Care shall be taken to ensure that the outlet is so located that vent gas cannot drift

into buildings. The commissioning of the GI installation should be performed as follows:

- Ensure the method of purging is such that no pockets of air are left in any part of the Customer's piping.
- Ensure that all appliance connections are gas tight, all appliance gas valves are turned off and there are no open ends.
- Where possible, select an appliance with an open burner at which to commence the purge i.e., a hotplate burner.
- Ensure the area is well ventilated, and free from ignition sources.
- Ensure branches that do not have an appliance connected are fitted with a plug or cap.
- Turn on one burner control valve until the presence of gas is detected. A change in the audible tone and smell is a good indication that gas is at the burner. Let the gas flow for a few seconds longer, then turn off and allow sufficient time for any accumulated gas to disperse.
- Turn on one gas control valve again and keep a continuous flame at the burner until the gas is a light and the flame is stable.
- Continue to purge until gas is available at other appliances.

16.0 CONVERSION OF DOMESTIC APPLIANCES

The work in this section includes:

- The changing of nozzles and associated controls in accordance with manufactures instructions for both domestic and imported burners/ovens/grills/hotplate.
- The changing of old appliance connection Reinforced rubber hoses and nozzles and re-greasing taps as necessary.
- The contractor shall supply the Reinforced rubber hoses at the time of conversions.
- The contractor has to supply all types of nozzles/jets required for all types of appliances including imported burners, Grills, Ovens.
- Cleaning and performing minor maintenance of appliances.
- Testing for gas escapes, soundness and performance of appliances.
- Instructing the Customer for safe use of natural gas and for fixing of safety and conversion labels.
- Contractor must attend the complaints regarding appliances, leakage, fire etc. till the total area is handed over to Owner's operation and maintenance.
- All consumables (Nozzles, greases etc.) are in contractor's scope.
- Changing or repairing of any items damaged during conversion.

It may be noted that the rates as per applicable SOR item will apply to conversion of all type of domestic appliances under the rates, the contractor will have to provide both Pin gauges and standard sized nozzles. The payment shall be released only after submission of necessary documents i.e. RFC & JMR Card of the individual house to Owner.

17.0 RESTORATION

Contractor has to restore the area wherever he has carried out drilling, clamping etc. to its

original condition to the satisfaction of the consumer and to ensure no passage to the premises and seepage. If the work was carried out in Govt. Flats (CPWD/ Institutional areas), contractor has to restore the area according to CPWD specifications and obtain a NOC / Clearance certificate from the concerned authorities maintaining the flats, after completion of the work.

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

Wherever any items of the consumer is damaged/broken during working, the same will be made good or replace to the total satisfaction of the consumer.

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. Wherever the required standards are not achieved the contractor will be required to replace the defective reinstatement work.

Note that Payment for GI/COPPER/MLC installation will be released only after satisfactory restoration and clearing of the sites of all surplus materials etc.

18.0 SUBMISSION OF FINAL RECORDS

Contractor shall submit three sets each of the following documents in hard & soft copy:

a) Total list of houses in the area allotted to him giving details of connections provided & reasons where connection could not be given / completed.

b) The details recorded in RFC cards of every domestic house.

c) Details of houses where piping done along with materials used.

d) Total material consumption report.

e) Material reconciliation with respect to the materials issued.

f) Test reports & calibration certificates of gauges etc.

g) Any other documents/records required.

h) Extra Piping details

ANNEXURE # 1

TOOLS & EQUIPMENT TO BE PROVIDED BY CONTRACTOR FOR GI/COPPER/MLC WORK

S.N0.	HAND TOOLS DESCRIPTION	PER TECHNICIAN	PER TEAM
1	Pipe wrench 250 mm	1	4
2	Pipe wrench 350 mm	1	4
3	Pipe wrench 450 mm	-	2
4	Adjustable spanner 50 mm	-	4
5	Adjustable spanner 150 mm	1	2
6	Adjustable spanner 250 mm	1	2
7	Set of combination spanner 3/16”-11/4” AF	1	1
8	Set of combination spanners 5mm - 30mm	1	1
9	Large toolboxes	1	2
10	Set flat-headed screw drivers	1	2
11	Set Philips screw drivers	1	2
12	Small hammer	1	2
13	Combination pliers/mole grips	1	2
14	Set of files	1	2
15	Drill bits for 1” pipe	-	2
16	Stocks and dies for NPT threading ½”, ¾”, GI Pipe	-	3
17	Blowtorch	-	1
18	Soldering iron	-	2
19	Copper tube Bending Machine	-	2
20	Hand drill 3/8” chuck	-	2
21	Portable electric drill 240V, heavy duty	-	2
22	Spare blades	4	4
23	Battery powdered torches	2	2
24	Measuring tape 30 m	1	2
25	Wire brush	1	2
26	Portable pipe vice & tripod	-	2
27	Set steel twist drills 0.5-2.0 mm (for appliance conversion)	-	1
28	Set steel twist drills 1mm-10mm	-	2
29	Set masonry drills 1mm-10mm	1	2
30	Graphite based grease	As required	As required

31	Lubricating oil	As required	As required
32	Hand cleaner	As required	As required
33	Copper tube Cutter 12mm	-	4
34	GI Pipe Cutters ½" Gas Detection Equipment Powder Generator 2.5 KVA Pressure Gauge (0-10 bar) Pressure Gauge (0-4 bar) Diaphragm Gauge (0-400 m bar) Manometer (0-150 m bar)	- As required 1 2 2 1 1	2 - - 4 8 2 1
35	Automatic Thread cutting machine	-	2
36	GI Pipe Cutter	-	2

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

COPPER FITTINGS

TABLE OF CONTENTS

1.0 SCOPE

2.0 MATERIAL

3.0 DIMENSIONAL TOLERANCES

4.0 END CONNECTION

5.0 CARBON IN BORE

6.0 CHEMICAL PROPERTIES

7.0 STRESS CORROSION RESISTANCE TEST

8.0 FREEDOM FROM DEFECT

9.0 HYDROSTATIC PRESSURE TEST

10.0 PNEUMATIC PRESSURE TEST

11.0 MARKING

12.0 PACKAGING

13.0 INSPECTION / DOCUMENTS

1.0 SCOPE

This specification covers the requirements for Copper Capillary fittings (End feed fittings) unless modified by this specification, requirement of EN 1254 Part I shall be valid.

2.0 MATERIAL

The material used for the manufacturer of Copper Capillary Fittings shall conform to BS EN 1254-1(latest), Half Hard

3.0 DIMENSIONAL TOLERANCES

Dimensions tolerances of various types of copper capillary fittings shall be as per EN 1254 part I (Open tolerances on dimensions shall be +/- 0.1 mm).

The tolerances as specified in EN 1254 Part I in nominal diameter are as follows (Ref Table 2).

Nominal Diameter	Tolerance on the mean diameter with respect to the nominal diameter		Resulting Diametrical difference	
D	Outside Dia of male end (mm)	Inside Dia of socket (mm)	Max (mm)	Min (mm)
12 mm	+.0.04 -.0.05	+ 0.15 +0.06	0.20	0.02

The minimum wall thickness of a fitting shall be in accordance as given below (Ref Table 5 of EN 1254 Part I)

Nominal Dia mm, D	Minimum wall thickness (mm) Coppers
12	0.6

4.0 END CONNECTION

End connection of the fitting must be capable of end feeding. Internal solder ring type fitting is not acceptable.

5.0 CARBON IN BORE

The internal surface of copper capillary fittings for soldering or brazing shall not contain any detrimental film nor present a carbon level high enough to allow the formation of such a film during installation. The maximum total carbon level on internal surfaces shall not exceed 1.0 mg/dm^2 when tested in accordance with the specification.

7.0 CHEMICAL PROPERTIES

The composition shall confirm to the following

requirement Cu + Ag min. 99.90%

$0.015\% \leq P \leq 0.040\%$.

This copper grade is designated either Cu - DHP or CW024A.

8.0 STRESS CORROSION RESISTANCE TEST

A stress corrosion resistance is to be carried out as per method defined in ISO 6957 using test solution of pH 9.5 but without pickling.

9.0 FREEDOM FROM DEFECT

The fittings shall be free from internal fins, blow holes, skin defects etc. or other irregularities which might restrict the free flow of fluid and shall be designed that resistance to the flow of fluid through the fittings is minimized.

10.0 HYDROSTATIC PRESSURE TEST

All fittings shall be leak tightness tested at 1.5x25 bars for a period of 15 minutes and no leakage is permitted. This test shall be performed on each size of the fittings.

11.0 PNEUMATIC PRESSURE TEST

All fittings shall be leak tested at 6 bars for a period of 10 seconds and no leakage is permitted.

12.0 MARKING

Each tube shall be embossed with OWNER's logo, manufacturers name or trademark EN 1254 Part I and designation of fittings.

Each packing containing fittings shall carry the following stamped or written in indelible ink.

a) Manufacturer's name or trademark.

b) Designation of fittings.

c) Lots no.

d) Month and year of manufacture

13.0 PACKAGING

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

14.0 INSPECTION / DOCUMENTS

i) Inspect shall be carried out as per OWNER Technical Specification, relevant codes/standards and Inspection Plan/ Vendor's detailed QAP duly approved by owner/PMC.

ii) PMCor third-party inspection agency shall carry out stage wise inspection during manufacturing/ final inspection.

iii) Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports as per OWNER Technical Specification, at the time of final inspection of each supply lot of material.

iv) Even after third party inspection, OWNER reserves the right to select a sample of tube randomly from each manufacturing batch and have these independently tested. Should the results of these tests fall outside the limits specified in OWNER Technical specification, ten OWNER reserves the rights to reject all production supplied from the batch.

v) Vendor shall prepare and submit the detail drawings of required copper fittings for approval by OWNER /TECPL before starting production

vi) For any control test or examination required under the supervision of TPIA/owner/PMC, latter shall be informed in writing one (1) week in advance by vendor about inspection date & place along with production schedule.

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CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

BRASS FITTINGS

TABLE OF CONTENTS

1.0	SCOPE
2.0	MATERIAL
3.0	DIMENSIONAL TOLERANCES
4.0	END CONNECTION
5.0	CHEMICAL PROPERTIES
6.0	CARBON IN BORE
7.0	RESISTANCE TO DEZINCIFICATION
8.0	STRESS CORROSION RESISTANCE TEST.
9.0	FREEDOM FROM DEFECT
10.0	HYDROSTATIC PRESSURE TEST
11.0	PNEUMATIC PRESSURE TEST
12.0	MARKING
13.0	PACKAGING
15.0	INSPECTION / DOCUMENTS
16.0	DRAWING FOR BRASS FITTINGS

1.0 SCOPE

This specification covers the requirements for Brass Capillary fittings (End feed fittings). Unless modified by this specification, requirement of BS 864 / EN 1254 Part 1 shall be valid.

2.0 MATERIAL

i. The material used for the manufacturer of Brass Capillary Fittings shall conform to EN 1254-1 (latest), Half Hard.

ii Material used for the solder should conform to BS EN 29453 and should be lead free. Solder material shall be generally melting within the temperature range 180 ° C to 250 ° C.

iii Threading on the Brass fittings shall be done as per BS 21.

3.0 DIMENSIONAL TOLERANCES

Dimensions tolerances of various types of brass capillary fittings (End feed fittings). shall be as per EN 1254 Part 1 .
The tolerances at the end shall be as per EN 1254 Part I in nominal diameter which are as follows (Ref. table 2)

Nominal Diameter	Tolerance on the mean diameter with respect to the nominal diameter		Resulting Diametrical difference	
D	Outside Dia of male end (mm)	Inside Dia of socket (mm)	Max (mm)	Min (mm)
12 mm	+.0.04 -.0.05	+ 0.15 +0.06	0.20	0.02

The minimum wall thickness of a fitting shall be in accordance as given below (Ref Table 3 of EN 1254 Part 1)

Nominal Dia mm, D	Minimum wall thickness (mm) Brass
12	1.1

4.0 END CONNECTION

End connection of the fitting must be capable of end feeding to the NPT x 12 mm. Internal solder ring type fitting is not acceptable.

5.0 CHEMICAL PROPERTIES

Chemical composition of Brass shall be as mentioned in EN 1254 PART I. Dezincification-resistant brass material CuZn36Pb2As or CW602N.

Cu	61.0-63.0 %
Pb	01.7-02.8 %
As	0.02 -0.15%

Remaining is zinc.

6.0 CARBON IN BORE

The internal surface of brass capillary fittings for soldering or brazing shall not contain any detrimental film nor present a carbon level high enough to allow the formation of such a film during installation. The
maximum total carbon level on internal surfaces shall not exceed 1.0 mg/dm^2 when tested in accordance with the specification. This test shall be carried out as per clause no. 5.4 of EN 1254 - 1.

7.0 RESISTANCE TO DEZINCIFICATION

The fittings shall be manufactured from alloys containing more than 10% Zinc. So, fittings shall be required to be resistant to dezincification. It shall be carried out as per Cl. 5.5 of EN 1254 -1.

8.0 STRESS CORROSION RESISTANCE TEST

A stress corrosion resistance is to be carried out as per method defined in ISO 6957 using test solution of pH
9.5 but without pickling.

9.0 FREEDOM FROM DEFECT

The fittings shall be free from internal fins, blow holes, skin defects etc. or other irregularities which might restrict the free flow of fluid and shall be designed that resistance to the flow of fluid through the fittings is minimized.

10.0 HYDROSTATIC PRESSURE TEST

All fittings shall be leak tightness tested at 1.5x25 bars for a period of 15 minutes and no leakage is permitted. This test shall be performed on each size of the fittings.

11.0 PNEUMATIC PRESSURE TEST

All fittings shall be leak tested at 6 bars for a period of 10 seconds and no leakage is permitted.

12.0 MARKING

Each fitting shall be embossed with OWNER' s logo, manufacturers name and trademark BS 864 / EN 1254 Part – I and designation of fittings.

Each packing containing fittings shall carry the following stamped or written in indelible ink.

a) Manufacturer's name or trademark.

b) Designation of fittings.

c) Month and year of manufacturing

13.0 PACKAGING

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

14.0 INSPECTION / DOCUMENTS

i. Inspection shall be carried out as per design codes/standards, OWNER Technical Specification and Inspection Plan/ Vendor's detailed QAP duly approved by owner/PMC.

ii. PMCor third-party inspection agency shall carry out random inspection during manufacturing/ final inspection.

iii. Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports as per OWNER Technical Specification, at the time of final inspection of each supply lot of material.

iv. Even after third party inspection, OWNER reserves the right to select a sample of tube randomly from each manufacturing batch and have these independently tested. If the results of these tests fall outside the limits specified in OWNER Technical specification, then OWNER reserves the rights to reject all production supplied from the batch.

v. Vendor shall prepare and submit the detail drawings of required brass fitting for approval by OWNER
/TECPL before starting production.

vi. For any control test or examination required under the supervision of TPIA/owner/PMC, latter shall be informed in writing one (1) week in advance by vender about inspection date & place along with production schedule.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

MLC PIPE

TABLE OF CONTENTS

1.0 INTENT OF SPECIFICATION
2.0 SCOPE OF WORKS
3.0 DEFINITIONS
4.0 MATERIAL SPECIFICATION FOR MLC PIPE
5.0 MECHANICAL PROPERTIES
6.0 FITTING
7.0 MARKING

1.0 INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacture and supply of anti-rodent Multi-Layer Composite (MLC) Pipe used for supply of natural gas.

2.0 SCOPE OF WORKS

The scope will include manufacture/ supply, inspection/ testing/ marking/ packaging/ handling and dispatch of anti-rodent MLC pipe, as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in manufacturing standard ISO 17484-1 (latest edition).

2.1 All codes and standard for manufacture, testing, inspection etc. shall be of latest edition.

3.0 DEFINITIONS

Owner Shall mean Central UP Gas Ltd. (CUGL) Manufacturer Means the Manufacturer of the MLC pipe
SS Means the present <<Standard Specification>> and all its appendix, if any.

Third Party Inspection Agency Means the Inspection Agency to be Approved by CUGL & appointed by vendor.

4.0 MATERIAL SPECIFICATION FOR MLC PIPE

4.1.1.1 General

Materials intended for the stress-bearing layers and inner layers shall conform to the material requirements of the reference product standard(s) specified in Annex A of ISO 17484 -1. The pipe manufacturer shall declare the reference material standard applicable to his product, as listed in Annex. A of ISO 17484-1.
Adhesives are not considered as stress-bearing layers.

4.1.1.2 Metallic materials
Aluminium materials used shall be in accordance with EN 573-3.

4.1.1.3 Color of pipes
The outer layer of pipes shall be yellow.

5.0 MECHANICAL PROPERTIES

5.1.1.1 Long-term pressure strength
The test shall be carried out in accordance with clause 5.4.1 of the ISO 17484-1.

5.1.1.2 Strength of the joint of the M- pipe

When the outside diameter of the pipe is increased by 10 %, no failures relative to the joint line of the metal layer shall occur. The test shall be carried out in accordance with Annex B of ISO 17484-1.

5.1.1.3 Resistance to slow crack growth of the outer layer (cone test) for M-pipes

When tested in accordance with ISO 13480, the crack growth rat e of the outer layer shall be less than 10 mm/day. The test shall be carried out on pipe produced from material used for the outer layer. This test shall be performed as per EN331 (latest edition).

5.1.2 Physical properties

Pipes shall fulfil the requirements for physical properties as given in the table below.

Characteristic	Requirements	Tests		
		Parameter	Value	Reference
Resistance to gas constituents	≥ 20 h No delamination	Conditioning	1 500 h/(23 ± 2) °C	Annex C of ISO 17484-1
		Temperature	80 °C	
		Pressure	0.4 p_D	
	No delamination	Conditioning	1 500 h/(23 ± 2) °C	
		Temperature	(23 ± 2) °C	
		Cone test	10 % expansion	
Thermal durability of theouter layer of M-pipes	No visual cracks in outer layer	PE or PE-X		Annex D of ISO 17484-1
		At 100° or	0.5 year	
		at 110°C	0.25 year	
		Strain	3 %	
Oxidation induction time(OIT)	≥ 20 min	Temperature	(200 ± 2) °C[a]	ISO 11357-6
Delamination: P-pipes	No cracks or delamination	Expansion	10 % (by cone with 15°angle)	Annex B of ISO 17484-1
		Temperature	(23 ± 2) °C	
Delamination: M-pipes	Peel strength ≥ 15 N/ cm	Temperature	(23 ± 2)°C	Annex E of ISO 17484-1
		Cycling test	(−20 ± 2) °C/ (+60 ± 2) °C	
		Number of cycles	10	
Odorant permeability	No perception of THT smell by experienced observer	Odorant Exposure timeTemperature	THT 60 days (23 ± 2) °C	Annex F of ISO 17484-1

[a] Test may be carried out at 210 °C providing that there is clear correlation with the results at (200 ± 2) °C. In case of dispute, the reference temperature shall be (200 ± 2) °C.

6.0 FITTINGS

6.1.1 General

Fittings shall comply with the requirements of clause 6 of ISO 17484-1.

The reference in ISO 17484-1 clause 6 to ISO 10838 (all parts) and ISO 14531-3 should be replaced by ISO 17885, Plastic piping systems Mechanical fittings for pressure piping systems Specification, except clause 9.3, Fitting assemblies

6.1.2 Construction

The fittings for multilayer pipes shall be able to make a mechanical connection with the multilayer pipe

by pressing or clamping.

6.1.3 Fitness for purpose

Fittings shall comply with the requirements given in Table 3 of ISO 17484-1.

6.1.4 MARKINGS

Markings Legend shall be repeated at intervals of 1M and should be of different color from that of external pipe surface & shall include:

i) Manufacture name or trade mark.

ii) Owner name as CUGL to be marked on each pipe

iii) Design pressure (Pd) in Bar(g).

iv) Material designation: Layer construction and type of material required; description from outside to inside e.g. PEX-Al-PEX or PE80-PEX.

v) Standard reference number "ISO 17484"

7.0 Packaging

MLC pipe	**200 mtrs. coil**	Wrapping with polythene & Gunny sheet & tied with plastic strips

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

CORRUGATED FLEXIBLE METAL HOSE

TABLE OF CONTENTS

1.0 INTENT OF SPECIFICATION

2.0 SCOPE OF WORKS

3.0 DEFINITIONS

4.0 TECHNICAL SPECIFICATIONS

5.0 TESTING, CLEANING & PACKAGING

6.0 MARKING

7.0 PACKAGING

8.0 INSPECTION / DOCUMENTS

1.0 INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacture and supply of corrugated flexible metal hose used for supply of domestic natural gas.

2.0 SCOPE OF WORKS

The scope of the tender will include manufacture/ supply, inspection, testing, marking, packaging handling and dispatch of corrugated flexible metal hose assembly, as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in manufacturing standard BS: 6501 Part 1(latest).

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

Owner/ PMC reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

3.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the corrugated flexible metal hose assembly.
TECHNICAL SPECIFICATION	Means the present <<Technical Specification>> and all its appendix, if any.
TPIA	Means the Third-Party Inspection Agency.

4.0 TECHNICAL SPECIFICATIONS

Item	:	Corrugated Flexible metal Hose Assembly (Type-A flexibility) for Natural Gas Service
Applicable Code	:	BS: 6501 Part-I: (latest) Specification for Corrugated Hose Assemblies
Nominal Size	:	DN 12
Total Length of Hose Assembly	:	350mm end to end
Movement Required	:	Static
Medium Flowing through Hose assembly	:	Natural gas (PNG)
Nominal Pressure/Design Pressure	:	0.25 bar (g) at 20°C
Temperature Range	:	0–65°C
Cyclic Life	:	30 Bends minimum when tested in accordance with Cl.14.2 Of BS: 6501 Part-I (latest).

Static Bend Radius : 25mm

Type & Material of End Fitting : ¾" NPT SS Female Swivel Nut with Flat Seat Nipple with Rubber Gasket / `O' Ring (and second end shall be SS Male ½' NPT and threads shall be conforming to ANSI B 1.20.1. Fittings shall be conforming to SS316.

Note: TIG welding shall be carried out for welding SS fittings to corrugated hose.

Material of rubber gasket : Polymer NBR / nitrile with thickness 3-4 mm

Material of Hose : SS316 conforming to BS: 1449 Part-2 (latest) & 0.3 mm thickness

Braiding : Not required

Product to be conveyed : Natural Gas

Heat Treatment Requirement : Parent sheet or the finished hose must undergo annealing. The purpose of this is to relieve stress due to cold working.

Surface Coating : No zinc plating is required on SS hose, SS fittings & welded portion. At the welded portion suitable anti rusting provision shall be made. .

5.0 TESTING, CLEANING & PACKAGING

Tests : Pneumatic Test at a pressure of 1.5 kg/cm^2(g) & Type testing as per Cl.Nos. 14.1, 14.2, 14.5 & 14.6 of BS: 6501 Part-I (latest)

Cleaning & Packaging : As per Cl.No. 17.0 Of BS: 6501 Part-I (latest)

Test Certificate : As per Cl.No. 18.0 Of BS: 6501 Part-I (latest)

6.0 MARKING

Each corrugated flexible metal hose and SS316 fittings shall be embossed with OWNER's logo, manufacturers name or trademark BS: 6501 part I (latest) and designation of fittings.

Each packing containing corrugated flexible metal hose shall carry the following stamped or written in indelible ink.

- Indication of the source of manufacture/Trademark/Type
- Designation of fittings
- Maximum working pressure

- Nominal bore
- Month and year of manufacture

7.0 PACKAGING

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Bidder shall submit the packaging details like numbering of pieces per package, along with QAP and also
complied with at the time of delivery. One package will consist of one corrugated flexible metal hose assembly (metal hose + end fitting on both sides) & two gaskets for each end.

8.0 INSPECTION / DOCUMENTS

a) Inspection shall be carried out as per design code/standard, OWNER Technical Specification and Inspection Plan/ Vendor's detailed QAP duly approved by Owner/PMC.

b) PMCor third-party inspection agency shall carry out random inspection during manufacturing/ final inspection.

c) Vendor shall furnish all the material test certificates, proof of approval/ license 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.

d) Even after third party inspection, OWNER reserves the right to select a sample of flexible metal hose randomly from each manufacturing batch and have these independently tested. If the results of these tests fall outside the limits specified in OWNER Technical specification, then OWNER reserves the rights to reject all production supplied from the batch.

e) For any control test or examination required under the supervision of TPIA/owner/PMC, latter shall be informed in writing one (1) week in advance by vender about inspection date & place along with production schedule.

f) Vendor shall submit the dimensional drawing for Hose, end fittings and Rubber Gasket along with the technical bid.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

STEEL REINFORCED RUBBER HOSE

TABLE OF CONTENTS

1.0 INTRODUCTION AND SCOPE
2.0 DEFINITIONS
3.0 MATERIAL
4.0 DIMENSIONS & TOLERANCES
5.0 FEATURES
6.0 MARKING
7.0 PACKAGING
8.0 INSPECTION / DOCUMENTS

1.0 INTRODUCTION AND SCOPE

Owner plans to augment PNG network. It supplies natural gas to domestic & commercial consumers in GA.

This present document covers the technical specification for the procurement of steel reinforced rubber hose, Type 4 used in distribution systems. It describes the general requirements, controls, tests, QA/QC examination and final acceptance criteria which need to be fulfilled.

This specification covers the requirements for steel reinforced rubber hose unless modified by this specification, requirements of IS: 9573 shall be valid.

2.0 DEFINITIONS

Manufacturer	Means the Manufacturer of the Steel Reinforced Rubber Hose.
TECHNICAL SPECIFICATION	Means the present <<Technical Specification>>and its appendix, if any.
Third Party Inspection Agency	Means the Inspection Agency to be appointed by OWNER.
Type 4	Wire Reinforced hose for domestic / commercial installations

3.0 MATERIAL

i. Lining: - It shall be nitrile – butadiene rubber (NBR) or chloroprene rubber (CR) compound. It shall be smooth in bore, uniform in thickness and free from air blisters, porosity and splits.

ii Reinforcement material: - It shall have wire reinforcement in braided form in between the lining & cover.

iii Cover: - It shall be manufactured out of synthetic rubber compound resistant to abrasion, weather and natural gas. The cover color shall be orange.

iv. The whole shall be consolidated by wrapping or any other suitable method and uniformly vulcanized to give good adhesion between reinforcement plies and the rubber lining of the cover.

4.0 DIMENSIONS & TOLERANCES

i. Bore size

Nominal size (mm)	Minimum base diameter (mm)	Minimum bend radius (mm)
8 mm	7.9	95

The Nominal bore size of the hose shall be accordance to table # 1 of IS 9573: 1998 shall be as given above table. It shall be tested/ checked as method defined in IS 4143

ii. The Minimum thickness of lining & cover shall be 2 mm & 1 mm respectively.
iii. Length of hose shall be as defined in M.R. & the tolerances on length shall be permitted ± 1%.

5.0 FEATURES

5.1 Mechanical properties

Tensile strength (Lining & cover) at break - 10 MPa (minimum)

Elongation (Lining & cover) in at break (%) - 200 & 250 respectively (minimum)

5.2 Resistance of Lining to n-pentane

The n-pentane absorbed and the n-pentane extractable matter as determined Clause no. 5.4.3.2 of IS 9573: 1998 shall not exceed 10% & 5% respectively to the initial mass of lining.

5.3 Adhesion

The minimum adhesion between rubber lining & reinforcement, between layers of reinforcement and between reinforcement & cover shall be 2KN/m.

5.4 Low temperature flexibility

Flexible hose is conditioned at -40 ° C for at least 5 hrs. and then bent at 180° around a mandrel with a diameter 12 times the nominal bore diameter of the hose, no cracks or breaks shall be shown.

5.5 Flexibility of Hose

The hose shall be capable of being bent empty to the radius 95 mm without flattening and suffering structural damages.

5.6 Ozone resistance

It shall be carried out as per clause no. 5.5. of IS 9573: 1978

5.7 Hydrostatic test

All hoses shall be leak tightness tested at 2 Mpa for a period of 1 minutes and no leakage is permitted. This test shall be performed on each size of the hoses as per clause no. 5.5.5.1 of IS 9573: 1978.

5.8 Bursting pressure

It shall be carried out as per Clause 5.5.2 of IS 9573. The minimum burst pressure shall be 5 Mpa.

5.9 Grip strength test

The hose shall comply to the requirement of Clause no. 5.5.7 of IS 9573.

5.10 Burning behaviour

The burning test shall be carried out on hose as per clause no. 5.5.8 of IS 9573. The hose at least shall not burn till 45 second.

6.0 MARKING

Each hose shall be indelibly marked as follows:

a) Manufacturer's name or trademark., if any

b) Nominal bore

c) Batch no. / Lot no.

d) Month and year of manufacturer

e) Type of hose i.e Type 4
f) BIS marking

7.0 PACKAGING

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

8.0 INSPECTION / DOCUMENTS

i. Inspection shall be carried out as per design codes/standards, OWNER Technical Specification and Inspection Plan/ Vendor's detailed QAP duly approved by owner/PMC.

ii. For all test's purposes, the minimum time between vulcanization & testing shall be 16 h.

iii. PMCor third-party inspection agency shall carry out random inspection during manufacturing/ final inspection.

iv. Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports as per OWNER Technical Specification, at the time of final inspection of each supply lot of material.

v. Even after third party inspection, OWNER reserves the right to select a sample of hose randomly from each manufacturing batch and have these independently tested. If the results of these tests fall outside the limits specified in OWNER Technical specification, then OWNER reserves the rights to reject all production supplied from the batch.

vi. Vendor shall prepare and submit the detail drawings of required steel reinforced rubber hose for approval by OWNER /REPL before starting production.

vii. For any control test or examination required under the supervision of TPIA/owner/PMC, latter shall be informed in writing one (1) week in advance by vender about inspection date & place along with production schedule.

CENTRAL U.P. GAS LIMITED (CUGL)

LAYING OF MDPE NETWORK AND GI / MLC /Cu INSTALLATION WORK FOR DOMESTIC CONSUMERS AT CUGL GA's IN KANPUR, UNNAO, BAREILLY & JHANSI IN THE STATE OF U.P.

TECHNICAL SPECIFICATION

COPPER TUBE

TABLE OF CONTENTS

1.0 SCOPE.

2.0 MATERIAL

3.0 DIMENSIONAL TOLERANCES

4.0 MANUFACTURE.

5.0 FREEDOM FROM DEFECTS

6.0 HYDROSTATIC TEST

7.0 DRIFT EXPANDING TEST

8.0 CARBON FILM TEST

9.0 CARBON CONTENT TEST

10.0 MARKING

11.0 PACKAGING

12.0 INSPECTION / DOCUMENTS

1.0 SCOPE

This specification covers the requirements for 12 mm OD X 0.6 mm wall thickness Copper tube, Half Hard. Unless modified by this specification, requirement of BS EN 1057 (latest), Half Hard, shall be valid, with the recommended changes in physical properties to suit wrinkle free bend ability.

2.0 MATERIAL

The material used for the manufacturer of Copper tube shall confirm to BS EN 1057(latest), Grade Cu - DHP or CW024A.

a. Mechanical Properties:

i. Ultimate Tensile Strength – 250 N/ sq.mm (min)

ii. Elongation – 30% (min)

iii. Hardness - 75 to 100 on HV scale.

b. Chemical Properties:

In Each heat one no. of the copper tube will be tested for chemical properties to confirm to non- arsenical Cu - DHP / CW024A as per BS EN 1057 to have the following chemical composition:

Copper Percentage including silver : Min 99.9% Phosphorus Percentage : 0.015 to 0.040%

3.0 DIMENSIONAL TOLERANCES

The mean outside Diameter of the tube shall not vary from the specified outside diameter by more than the amount of tolerances specified in table 4 of BS EN 1057. The tolerance on the wall thickness shall be as specified in table 5 of BS EN 1057.

The length of the tube shall be 3 m. Allowable tolerance shall be (-0, +0.5 mm).

4.0 MANUFACTURE

The tubes shall be solid drawn by the process of melting, extrusion and thereafter Bright annealing. The ends shall be cut clean & square with the axis of the tube in no case shall tubes be redrawn from old or used tubes.

5.0 FREEDOM FROM DEFECTS

a. The tubes shall be free from internal & external fins, flaws, skin defects, blow holes etc. or other irregularities which might restrict the free flow of fluid and shall be so designed that resistance to the flow of fluid through the tubes is minimized.

b. All tubes will be supplied 100% Eddy Current tested as per ASTM E243 and BS EN 1057. Eddy Current testing is a computer aided test, wherein the tube passes through a probe & an electro magnetic field is created around the peripheral of the tube to detect any flaw or blow hole which may not be visible to the naked eye.

The manufacturer must have in-house Eddy Current testing facilities to supply to OWNER. OWNER reserves the right to witness the Eddy Current facility at the manufacturer's factory premises.

6.0 HYDROSTATIC TEST

Hydrostatic test shall be carried out minimum 35 bar pressure for a period of 10 second as per EN 1057 (latest).

7.0 DRIFT EXPANDING TEST

Drift expanding test shall be carried out as per EN 1057. The O.D. of the tube end shall be expanded by 30% using a conical mandrel (at angle 45º) with no wrinkles, cracks, break or any form of defect should occur on the tube during & after the test.

8.0 CARBON FILM TEST

Copper tubes to be tested for carbon film test & the manufacturer will certify that the tubes meet the requirement of clause 8.5 of BS EN 1057

9.0 CARBON CONTENT TEST

Copper tubes to be tested for carbon content test to ensure a carbon level to avoid the formation of carbon film during installation. Max. Carbon level shall be permitted as per clause 6.5 of BS EN 1057.

10.0 MARKING

Each tube shall be permanently marked every meter with Owner's Logo, manufactures name & size and specification of the tube.
Each packing containing tubes shall carry the following, stamped or written in indelible ink.

a) Manufacturers name or trademark
b) Designation of tubes (OD x wall thk)
c) Lot number.
d) No. of the standard (EN 1057)

11.0 PACKAGING

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Packing size shall be approved by Client/PMC before packing the material. The vendor shall submit the packaging details during QAP and also complied with at the time of delivery.

12.0 INSPECTION / DOCUMENTS

i. Inspection shall be carried out as per Owner Technical Specifications, relevant codes/standard and Inspection Plan/ QAP. Vendor to prepare detailed QAP and submit the same for approval of Owner / Owner's Authorized Representative.

ii. Inspection agency shall carry out stage wise inspection during manufacturing/ final inspection.

iii. Vendor shall furnish all the material test certificates, proof of approval/ license 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.

iv. Even after third party inspection, OWNER reserves the right to select a sample of tube randomly from each manufacturing batch and have these independently tested. Should the results of these tests fall outside the limits specified in OWNER Technical specification, then OWNER reserves the rights to reject all production supplied from the batch.

v. For any control test or examination required under the supervision of TPIA/owner/PMC, latter shall be informed in writing one (1) week in advance by vendor about inspection date & place along with production schedule.

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PE ACCESSORIES
For Underground Networks For Natural Gas Distribution

TABLE OF CONTENTS

1. SUBJECT AND AREA OF APPLICATION.

2. REFERENCE STANDARDS AND SPECIFICATIONS

3. DEFINITIONS

3.1. ELECTROFUSION ACCESSORY

3.2. ELECTROFUSION SADDLE

3.3. END TO END WELDING ACCESSORIES

4. GENERAL SPECIFICATIONS

5. MATERIALS

5.1. GENERAL INFORMATION

5.2. RAW MATERIAL SPECIFICATIONS

5.3. SPECIFICATIONS FOR COMPONENTS MADE OF MATERIALS OTHER THAN POLYETHYLENE

6. GENERAL ACCESSORY CHARACTERISTICS

6.1. TECHNICAL INFORMATION

6.2. APPEARANCE AND FINISH

6.3. COLOUR

6.4. JOIN APPEARANCE

6.5. ELECTROFUSION ACCESSORY ELECTRICAL CHARACTERISTICS

6.6. SUPPORT DRILLING EQUIPMENT

6.7. BRANCHING SUPPORT AND SADDLE LOAD LOSS UNDER LOW PRESSURE

6.8. ELECTROFUSION SLEEVE B LOCK

7. GEOMETRICAL CHARACTERISTICS

7.1. SIZE OF ELECTROFUSION SLEEVES

7.2. ELECTROFUSION SADDLE MEASUREMENTS

7.3. MEASUREMENTS OF ACCESSORY ENDS TO BE WELDED

8. ACCESSORY MECHANICAL CHARACTERISTICS

9. PHYSICAL CHARACTERISTICS

10. PRODUCT APPROVAL

11. MARKING

11.1. ACCESSORY MARKING

11.2. COMPLEMENTARY INFORMATION

12. PACKAGING AND DELIVERY

13. QUALITY CONTROL

13.1. GENERAL RULINGS

13.2. CONTROLS

13.3. ACCEPTANCE OR REFUSAL

ANNEX 1

1. SUBJECT AND AREA OF APPLICATION

This specification has been established to define the requirements that must be met by injected moulded polyethylene accessories (PE) destined for the construction or the maintenance of underground networks for natural gas distribution where the maximum operating pressure (MOP) is equal to 5 bars.

It also defines some of the more general characteristics of materials used for accessory manufacturing and includes the appropriate classification model.

The specification also includes testing method parameters for the material in

question. All accessories included in these specifications are listed as follows :

- Electrofusion welded accessories
- Electrofusion welded saddles
- Accessories equipped with insertion connection for end to end welding and assembly using electrofusion-welded sleeve coupling.

This specification is limited to accessories with a nominal diameter of 225 mm and a working temperature between -20°C and +40°C.

PE and steel accessories with a tapered section and front section connections are not included in these specifications.

2. REFERENCE STANDARDS AND SPECIFICATIONS

EN 682	Air-tight rubber seals - specification for air-tight seal materials for gas and hydrocarbon fluid transfer piping
EN 1555-1	Plastic piping systems for combustible gas distribution. Polyethylene (PE). Part 1. General information
EN 1555-3	Plastic piping systems for combustible gas distribution. Polyethylene (PE). Part 3 . Accessories
EN 1555-7	Plastic piping systems for combustible gas distribution. Polyethylene (PE). Part 7. Conformity evaluation.
ISO DIS 11413	Preparation of test assemblies between a polyethylene (PE) pipe and an electrofusion fitting.

ISO DIS 11414	Preparation of test assemblies between a pipe/pipe or pipe/fitting polyethylene (PE) by butt fusion
ISO DIS 12093	Format for a technical brochure for electrofusion joint characteristics
ISO TR 13950	Electrofusion identification methods
CEI 60335-1	Safety standards for household appliances and similar equipment.
CEI 364	Electrical installations on buildings (including building sites and other temporary installations)
CEI 449	Voltage domains for building electrical installations.

3. DEFINITIONS

3.1 ELECTROFUSION ACCESSORY

This term covers all injected moulded polyethylene accessories equipped with a heated element designed to transform electrical energy into heat to create self-welding.

In certain exceptional cases, an accessory can present one or more smooth ends. In this case the accessory will provide for the requirements of each connection end as regards shape, measurement, and technical characteristics.

3.2 ELECTROFUSION SADDLE

This term covers a saddle shaped injection moulded PE accessory that is equipped with one or several heating elements that convert electrical energy into heat. The released heat provides a fusion surface sufficiently large to ensure correct saddle-pipe assembly.

Electrofusion saddles can be subdivided into two categories:

Wrap around Electrofusion saddle whose upper shell is brought against the pipe during welding using a fastening stirrup located on the lower part of the accessory to guarantee that the welding pressure is sufficient. Generally the stirrup is left in place after welding.

Top load Electrofusion saddle where the welding pressure is obtained by pressing down on the saddle head using a fixing system (clamp) that is removed after welding is completed.

There are four different saddle types:

Support This is an accessory designed for joining branch pipes and is equipped with a drill bit made to pierce the wall of the pipe; this bit remains in the saddle body after installation.

Branch piping saddle

This accessory is designed for joining branch piping where an additional bit is necessary to pierce the wall of the main pipe next to the branch.

Ballooning saddle

This accessory provides the positioning of a sealing (or blocking) balloon and that can be filled again after work completion. **Repair saddle.**

This accessory will seal/block any leaks on the pipe or will reinforce piping in the case of localised deterioration.

According to their leakage flow, the supports are divided into two model categories:

Model 1	Supports whose maximum immediate external leak flow is practically equal to zero at 5 bar pressure in the piping.
Model 2	Supports whose maximum immediate external leak flow never exceed 200 litres an hour at 5 bar pressure in the piping.

3.3 END TO END WELDING ACCESSORIES

This term describes injection moulded polyethylene accessories with smooth ends but not equipped with integrated heating elements. These are connected to the network by end-to-end welding using electrofusion sleeves.

In certain exceptional cases, an accessory can also present one or more electrofusion ends. In this case the accessory will provide for the requirements of each connection end in shape, measurement, and technical characteristics.

4. GENERAL SPECIFICATIONS

This specification is based on the series of EN 1555 standards, which standardise all the gas distribution network plastic piping systems.

The accessories described in this document comply with all prescriptions included in EN standard 1555-3, as well as all complementary.

5. MATERIALS

5.1. GENERAL INFORMATION

The materials used for the manufacturing of the accessories must conform to the requirements demanded for components used in gas fuel distribution networks.

The accessory material that is in contact with the PE piping must not be composed of any material that will provoke a reduction in pipe performance, nor must it provoke cracking under stress.

All equipment will marked with inscription/description and specification in English language.

5.2. RAW MATERIAL SPECIFICATIONS

The raw material PE, used for accessory production, is in compliance with all prescriptions in EN 1555-1 standards.

The raw material belongs to class PE100.

The following are strictly forbidden:

- use of recycled raw materials
- mixing of different raw materials
- The addition of supplementary additives to the raw material.

5.3. SPECIFICATIONS FOR COMPONENTS MADE OF MATERIALS OTHER THAN POLYETHYLENE

5.3.1. Metal parts

All metal parts subject to corrosion must be protected in an adequate manner

Metal parts must conform to prescribed standards of that particular material for gas distribution, for quality levels, size/gauge and measurements.

Cast iron, aluminium and its alloys are not authorised for use.

5.3.2. Elastomers

Elastomer air and watertight seals, like all other elements manufactured in this material, must comply with the prescriptions of EN 682 standards.

5.3.3. Other materials

All other materials used are in compliance with the prescriptions described in paragraph.

The accessories included in the paragraph comply with the requirements of this specification and are adapted for all general use for natural gas distribution.

6. GENERAL ACCESSORY CHARACTERISTICS

6.1. TECHNICAL INFORMATION

The manufacturer must supply a technical information dossier composed and including the same material and presented in the same manner, in compliance with the prescriptions of the ISO DIS standard12093.

This dossier must mention all of the following information for each accessory:

- PE raw material used
- Measurements and tolerances
- Domain of application (temperature and pressure limits, SDR and ovalisation)
- Assembly instructions
- Welding instructions (welding parameters and limits)
- Test results attesting to the accessory conformity standard: c.f. EN standard 1555-3 for test descriptions.

For electrofusion accessories, the manufacturer must also supply the SDR series for the pipes, which will be used together with their accessory, according to their thickness.

In addition, for the saddles:

- The attaching method (tools necessary and/or lower shell)
- saddle category (refer to 3.2)
- Maximum saddle height (H in figure 2)
- the height of the branch pipe for supports (h in figure 2)

For all smooth ended accessories, the manufacturer must also supply the SDR series of connections; the accessory must be guaranteed for use on piping of the same class.

In the case of welding parameter modification, size or raw material changes, the manufacturer must include a new technical dossier providing proof that the accessory in question is still compliant with the specification prescriptions.

Testing assemblies will take into consideration manufacturing tolerance, assembly tolerance and the variations in environmental temperature corresponding with the conditions where the accessories will be in use. The manufacturer must observe all methods recommended for polyethylene accessory installation as shown in the specifications.
The accessories will be tested exclusively using piping in compliance with Technical Specifications.

The assembly of piping and accessories manufactured and used in the tests must be in compliance with the manufacturer's technical instructions and the limits of use conditions. When the test assemblies are carried out, the manufacturing and assembly tolerances must be taken into consideration. Samples destined for assembly testing with electrofusion accessories must be prepared according to standard ISO DIS 11413. End-to-end welded samples must be prepared according to standard ISO DIS 11414.

6.2. APPEARANCE AND FINISH

The internal and external surfaces of the accessories must be smooth, clean and free of all scratching, pitting and other surface faults that can possibly reduce accessory and assembly performance.

No element of any accessory must show any signs of damage: scratching, scraping, piercing, blisters, bloating, denting, holes, cracks or other faults that can reduce required performance.

It must be possible to place the accessory on the pipe or on another accessory without moving the electric winding or the air/water tight seals etc. and this must respect the tolerance permitted for piping and accessories.

6.3. COLOUR

All accessories will be black. If agreed previously, they can also be coloured yellow or orange.

6.4. JOIN APPEARANCE

After welding, when examined visually without a magnifying glass, the internal and external surfaces of the pipes and accessories must appear free of welding exudation outside the accessory limits (unless identified by the accessory manufacturer as normal, or carried out deliberately as a welding test, but on condition that there is no wiring position change inside the electrofusion accessories that could provoke a short-circuit). Internal surfaces of all adjacent piping must remain identical to the previous condition before welding.

6.5. ELECTROFUSION ACCESSORY ELECTRICAL CHARACTERISTICS

6.5.1. General information

The accessories include an electrical system as described in the standards CENELEC 60335-1, CEI 364 and CEI 449.

This system is equipped with an appropriate electrical protection for the voltage and intensity of the current in use, and adapted to the characteristics of the electrical supply line.

For voltage over 24 V protection is essential against direct contact with the active parts (conductors on line). The type of protection in question depends on the local site conditions.

6.5.2. **Classification**

Electrofusion accessories are divided into three classes according to the voltage and/or current characteristics.

Class A Electrical supply based on voltage set between 8V and 42 V

Class B Electrical supply based on voltage set between 42 V and 220

V **Class C** Electrical supply based on power supply settings.

All supplies, unless otherwise stipulated in the order, concern Class A accessories.

The power required for electrofusion accessory welding must not exceed 3kW during welding operations.

Unless stipulated otherwise in the order, only “wrap-around” saddles can be supplied (refer to par. 3.2.)

Unless otherwise agreed between REPL and the supplier, all electrofusion accessories must be “single wire“ type.

6.5.3. **Connectors**

Electrical connectors installed on electrofusion accessories must comply with the diagram included in Annex 1 with these specifications, also including constant current supply where this is the case. The state of the connector terminal surface must offer the minimum possible contact resistance during voltage cable joining.

6.5.4. **Protection against overheating**

Electrofusion accessories that can only be welded once are equipped with a lock system which prevents re-welding.

Electrofusion accessories that cannot be re-welded immediately after initial welding are equipped with an incorporated security system in their welding program: that is they cannot weld while the wire is still hot.

If the welding program does not possess this lock system, the electrofusion accessory must absolutely be protected against a second or several welding cycles whatever the temperature of the winding wire.

6.6. **SUPPORT DRILLING EQUIPMENT**

The support drilling equipment has been designed so that during drilling the maximum immediate leak flow will never exceed 200 litres per hour at 5 bar pressure, in the main pipe. According to this flow rate, the supports are divided into two categories:- models 1 and 2 (refer to par. 3.2.) The required model will be specified when ordered.

The bell drill is equipped with a manoeuvring opening for the insertion of a 17 mm hexagonal spanner.

The bell drill path is limited at the top and bottom by a limit block.

The drill mechanism is designed so that no additional tools (except the hexagonal spanner described above) are necessary for carrying out drilling operations.

6.7. BRANCHING SUPPORT AND SADDLE LOAD LOSS UNDER LOW PRESSURE

The maximum load loss measured with natural gas at an inlet pressure of 20 mbar must not exceed the values listed below.

Flow m^3 /hr	Saddle Type	Maximum load loss Mbar
10	63 x 32	1.0
10	110 x 32	1.0
10	160 x 32	1.0
10	200 x 32	1.0
40	63 x 63	2.0
40	110 x 63	1.0
40	160 x 63	1.0
40	200 x 63	1.0

6.8. ELECTROFUSION SLEEVE B LOCK

All electrofusion sleeves are equipped with an immovable block in the centre of the sleeve.

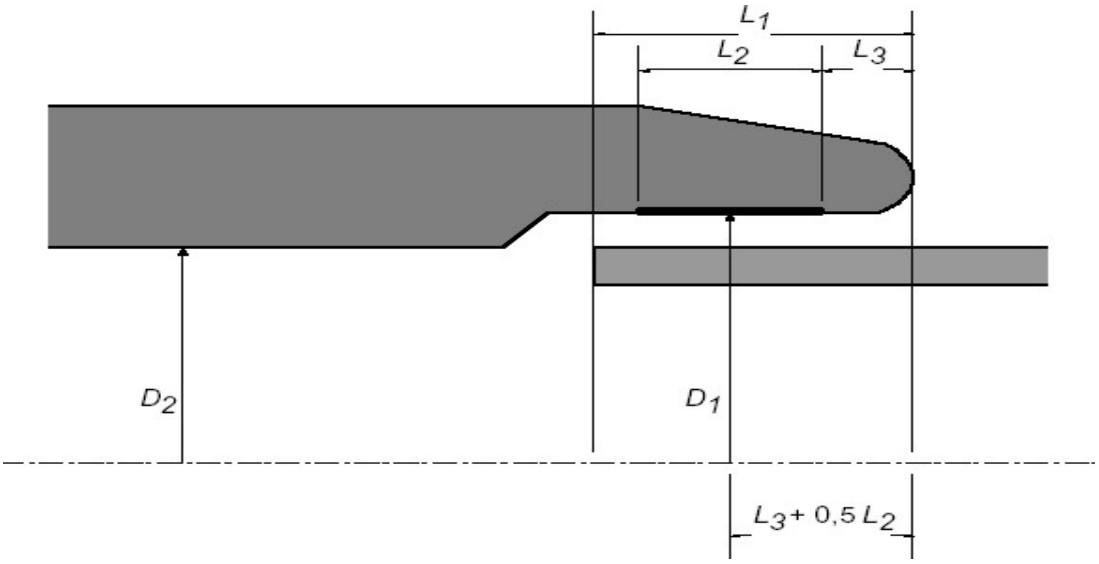
7. GEOMETRICAL CHARACTERISTICS

7.1. SIZE OF ELECTROFUSION SLEEVES

The sizes of the electrofusion accessory sleeves and their tolerance limits are described in chapter “Geometrical characteristics” of EN standard 1555-3.

They are controlled according to the method described in the specification standard. Any possible sealing plugs are removed from the sleeve 4 hours before the size control check. Measurements are controlled without the plugs inserted.

The main symbols are shown in the figure 1 below:



D_1 The "average internal diameter in the welding zone" — that is: the average internal diameter measured in a parallel plane to the opening plane, at a distance of $L_3 + L_2/2$ of the latter.

D_2 "Minimum drilling/boring" — that is the minimum diameter of the draining canal through the body of the accessory.

L_1 "penetration depth" of the pipe or the inserted (male) end of the accessory

L_2 "Nominal length of the welding zone" that corresponds with the length subject to heating.

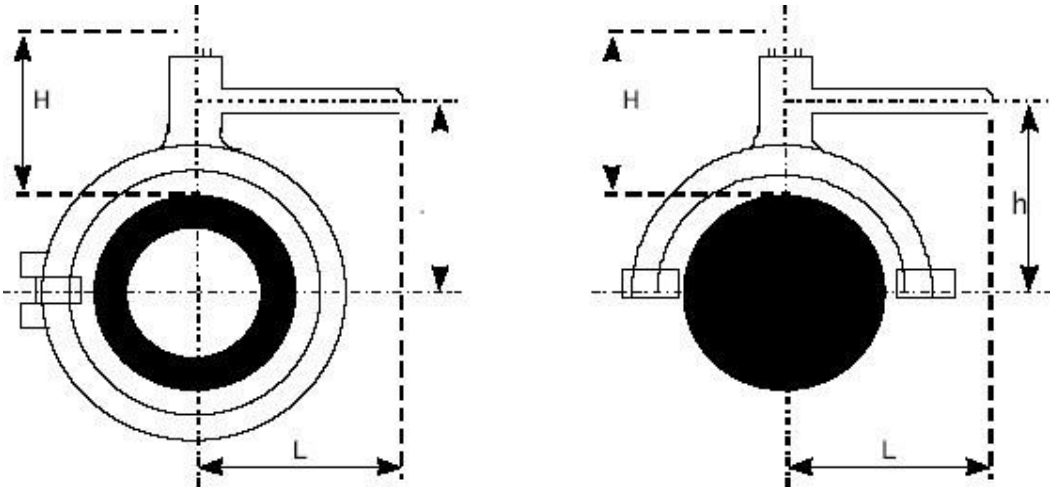
L_3 "Nominal non-heated entry/inlet length of the sleeve". This refers to the distance between the tip of the accessory and the beginning of the welding zone.

7.2. ELECTROFUSION SADDLE MEASUREMENTS

The measurements of the electrofusion saddles and their tolerance limits are described in EN standard 1555-3

They are controlled according to the method described in the specification standard. Any possible sealing plugs are removed from the sleeve 4 hours before the size control check. Measurements are controlled without the plugs inserted.

The main symbols are shown in the figure 2 below:



H The “height of the saddle” — that is the distance between the upper generator of the main pipe and the top of the branch pipe saddle

h The “height of the branch pipe” – that is the distance between the axis of the main pipe and the axis of the branch pipe

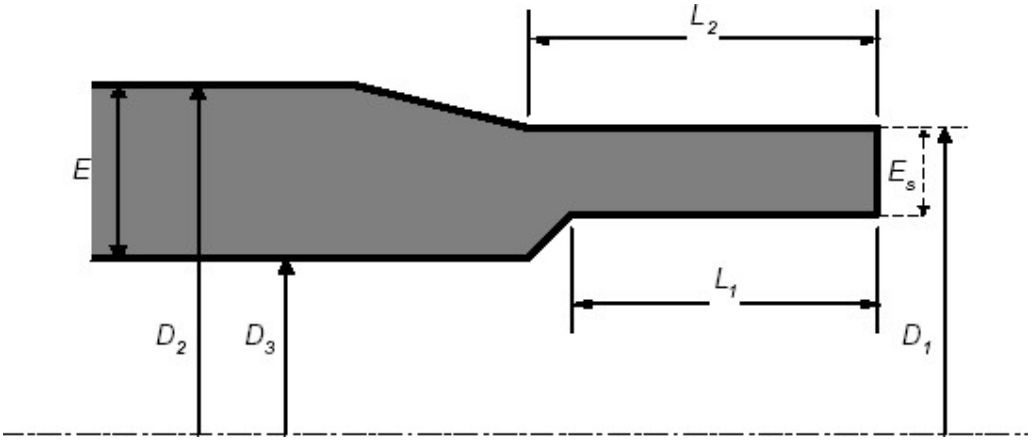
L The “width of the branch pipe saddle” – that is the distance between the axis of the pipe and the surface plane of the branch pipe opening

7.3. MEASUREMENTS OF ACCESSORY ENDS TO BE WELDED

The measurements of the ends and their tolerance limits are described in EN standard 1555-3.

They are controlled according to the method described in these specification standards. Any possible sealing plugs are removed from the sleeve 4 hours before the size control check. Measurements are controlled without the plugs inserted.

The measurements and main symbols used in this specification are shown in the figure 3 below:



D_1 The "average external diameter of the end to be welded measured on any plane parallel to the inlet/entry plane at a distance where this plane does not exceed L_2 (tubular section).

D_2 The "average external diameter of the body" of the tip of the accessory.

D_3 "Minimum drilling/boring" — that is the minimum diameter of the passage through the body of the accessory. Measuring of the diameter must not include any ribbing due to welding.

E "Thickness of the accessory body wall" — that is: the thickness measured at any point of the accessory wall.

Es "Thickness of the end to be welded" measured at any point but where the distance does not exceed L_1 (length that can be cut) compared to the inlet/ entry plane, must be equal to the thickness of the nominal pipe wall.

L_1 The "cuttable section" of the end to be welded — that is the initial depth of the tip of the insertion section, necessary for end-to-end welding or for starting an end-to end weld again.

L2 The "tubular section" of the end to be welded — that is the initial length of this section. This tubular section permits the following in all types of combination :

- Use of the clamp stirrups, as is essential for end-to-end welding, or for electrofusion.
- Assembly using electrofusion sleeves.

8. ACCESSORY MECHANICAL CHARACTERISTICS

All accessories must obey the requirements and tests described in the chapter concerning the mechanical characteristics of EN standard 1555-3. They must also comply with the hydrostatic test conditions described in the same standard.

They must be controlled as described in the same standard.

9. PHYSICAL CHARACTERISTICS

All accessories must obey the requirements and tests described in the chapter concerning the mechanical characteristics of EN standard 1555-3

They must be controlled as described in the same standard

10. PRODUCT APPROVAL

The product will be approved by the Owner if all results of the tests, controls and checking prescribed by this specification are satisfying.

The manufacturer will provide a complete approval dossier including all the product characteristics specified in 6.1. (technical dossier) and the results of tests prescribed in these specifications. The number of tests run on the product must comply with EN standard 1555-7. The results of these tests described in the approval dossier must be confirmed by the Owner authorised laboratory. Hydraulic testing must be continued until the rupture of at least two test samples for each set of tests. (max. 2000 hours).

All changes made to the approved product must be communicated to the Owner, and this entails further control checks for approval.

Any requirement not observed or test missing from this specification will result in the withdrawal of the product approval and can even result on annulment of contract.

11. MARKING

11.1. ACCESSORY MARKING

11.1.1. Identification marking will be made directly on the accessory. The system used to make the product must not provoke cracking or other faults. All marking must be permanently legible for the product life under standard stocking conditions, exposure to external weather conditions, treatment, installation, and use.

11.1.2. Where the products are printed, the colour of the printed identification mark must be different from that of the basic product colour.

11.1.3. Marking quality and size must be of a standard that can be read with the naked eye without magnification.

No marking must be printed on the minimum length of the insertion section of accessories.

11.1.4. 11.1.4. Each accessory must be marked with at least the obligatory details required by EN standard 1555-3. The marking must be printed on the accessory itself or on a label as shown in the standard described above

The SDR pipe range that are to be fitted with these accessories must be clearly marked on the fitting. Details must include: each SDR value, or the upper and lower value of the permitted SDR range.

11.2. COMPLEMENTARY INFORMATION

All complementary information on welding conditions (welding time and cooling time) can also be described on a label affixed to the accessory or delivered with the accessory.

12. PACKAGING AND DELIVERY

Normally all accessories are packed separately in plastic sheeting and/or cardboard boxes.

Sometimes they can be loosely packed together where there is no danger of damage or deterioration or loss of loose parts.

All boxes and plastic sheeting must be marked with at least one label showing the manufacturer's name, the product type, part measurements, and number of single parts contained in the box or bag, plus all details necessary for stocking and stock expiry dates.

All electrofusion accessories must be printed with a bar code and an individual magnetic card. The magnetic card contains the welding parameters that have been encoded in the magnetic track, as well as the bar code printed on the card. Coding must be carried out according to prescriptions included in ISO TR 13950 standards.

With regard to stocking guarantee, accessories must correspond with the prescriptions of the local laws & regulations if any. If the guarantee period decided by the manufacturer is shorter that that in these document, the Owner must be informed in writing at the time of the offer.

13. QUALITY CONTROL

13.1. GENERAL RULINGS

13.1.1. Manufacturer's responsibility

The manufacturer is entirely responsible for the quality of the PE accessories manufactured by his firm.

All control checks prescribed above do not relieve him of this responsibility.

To ensure that all PE accessories are in compliance with the specification in all aspects, they must be controlled by the plant control service, which must be independent from the manufacturing department.

All PE accessories supplied are guaranteed for a one-year period after application for use, that is a maximum of three years after the date of production.

13.1.2. Quality assurance

The manufacturer must have some form of quality control to ensure that products comply with EN standards 29001 or 29002. The quality assurance manual must be madeavailable to the Owner Control Service or an external Control laboratory appointed byhim.

The system of quality assurance must be certified by an authorised body.

13.2. CONTROLS

13.2.1. Control testing b y the manufacturer

13.2.1.1. *By material batch.*

The manufacturer demands a certificate from the raw material manufacturer including the following :

- Fluid index
- Water content
- Volume mass
- Carbon black or yellow stabilising agent content
- Carbon black or yellow stabilising agent quality
- OIT value (thermal stability)

13.2.1.2. **By accessory batch**

The manufacturer must run control checks as follows :

- Appearance / colour
- Measurements
- Hydraulic testing
- Electrical resistance
- Printing/marking.

Control checks and the number of tests must be carried out according to the prescriptions of the EN standard 1555-3. Also refer to table N° 8, paragraph 4.2.3. “Lot release tests” of EN standard 1555-7.
The results must be written out in documents that contain the complete identification of the accessory batch.

These documents must be made immediately available for the Owner representative.

13.2.2. Plant Reception by the Owner Control Service representative

13.2.2.1. **Reception control checks**

For each accessory batch or any fractions of the batch, minimal batch sampling is established in annexed enclosure 3. These control checks and tests are to be run according to the prescriptions of EN standard 1555-3

All quality controls must be run in the presence of the Owner Control Service representative.

All tests and control checks must comply with appropriate standard prescriptions and with the specific specifications established with the order.

At each visit by the Owner representative, the manufacturer must provide, free of charge, all means and personnel necessary for running the established control checks.

While the order is under production, the PMCmust have access to stocking installations of all raw materials before manufacturing, manufacturing and control installations, as well as the accessory stocking areas for any control checks he is responsible for.

During his visits, the PMCwill receive a certificate as soon as he reaches the plant for each batch of accessories presented for reception.

Each time this is requested by the Owner representative, the manufacturer must provide recent reports of all control checks and measuring instrument results and testing results.

13.2.2.2. **Convocation for reception**

Convocation instructions for reception are to be defined with the order.

13.2.2.3. **Reception control checks**

For each accessory batch or any fractions of the batch, minimal batch sampling is established in annexed enclosure 3. These control checks and tests are to be run according to the prescriptions of EN standard 1555-3

13.3. **ACCEPTANCE OR REFUSAL**

13.3.1. Appearance, measurements and marking

Any requirements not supplied will lead to the refusal of the complete batch. However in the case where a batch is refused, it can be presented for approval again after a control check, on agreement with the Owner Control Service.

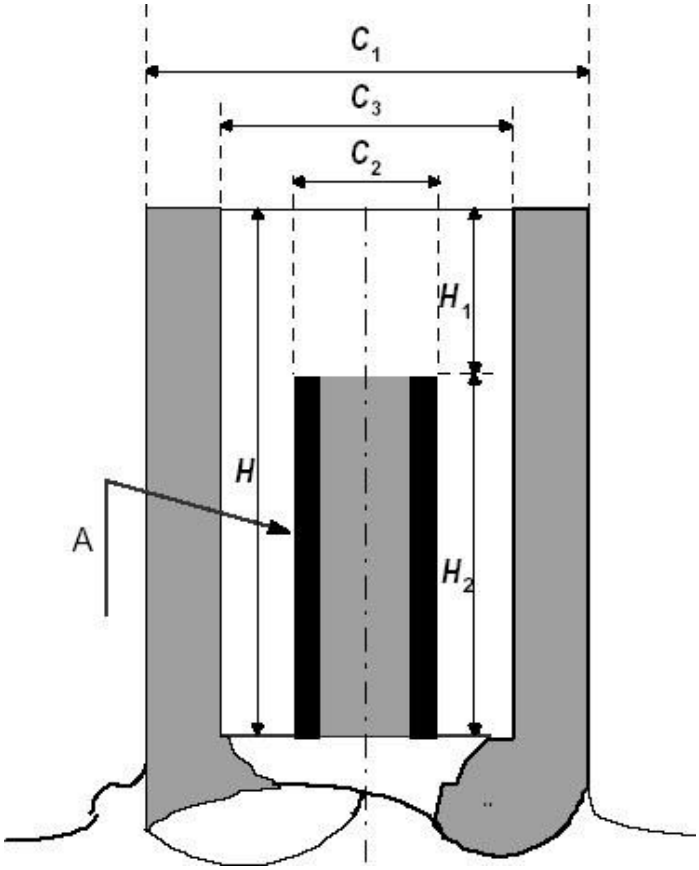
13.3.2. Control check on characteristics

All results that do not comply with the specification prescriptions and the particular specifications requested with the order, demand counter-testing on at least double the number of the samples previously tested. If the undesirable result is confirmed, then the batch is refused permanently. If the result is positive, then the batch will be accepted.

As a complementary control check, other analyses and/or tests can be run after common agreement, and at the manufacturer's cost.

ANNEX 1

CONNECTOR FOR ELECTROFUSION ACCESSORIES



Symbols

C1	External diameter of connector	C1≥ 11,8 mm
C2	Diameter of active part of connector	C2 = 4.0 ±0.03 mm
C3	Internal diameter of connector	C3 = 9,5 ±.1,0 mm
C4	Max. Diameter of active part foot	C4 ≥ 6,0
H	Connector internal depth	H ≥ 12,0 H ≥ H1 + H2
H1	Distance between upper part of connector and active part	H1 = 3,2 ± .0,5
H2	Height of active part	H2 ≥.7,0 mm
A	Active zone.	

RECEPTION AT MANUFACTURER'S PLANT.

Characteristics	Reference EN 1555-3	Minimum drill tests / frequency	N° of samples	N° of measure/ samples
Appearance /colour	5.2 /5.3	1 x /size / product type / internal space	10	1
Measurements	6	1 x /size / product type / internal space	10	1
Thermal stability (OIT)	8.2	1 x batch	1	1
Meltmass/flow rate (MFR)	8.2	1 x batch	1	1
Electrical resistance	5.6	1 x /size / product type / internal Space	5	1
Cohesion resistance	7.2	1 x /size / product type	2	1
End-to-end seam resistance to traction (cohesion resistance)	7.2	1 x /size / product type	2	1
Shock resistance	7.2	1 x /size / product type	1	1
Load loss	7.2	1 x /size / product type	1	1
Marking	10.2	1 x /size / product type	1	1

Polyethylene compounds for manufacture of pipes and fittings for underground networks for natural gas Distribution

Acceptance procedure

TABLE OF CONTENTS

1. SUBJECT

2. REFERENCES: STANDARDS AND SPECIFICATIONS

3. DEFINITIONS AND SYMBOLS

3.1. LOWER CONFIDENCE LIMIT (LCL)

3.2. MINIMUM REQUIRED STRENGTH (MRS 10)

3.3. PE 100

3.4. BATCH OF COMPOUND

3.5. BATCH OF PIPES

4. GENERAL SPECIFICATIONS

5. SUMMARY OF THE PROCEDURE

5.1. GENERAL

5.2. APPLICATION FOR APPROVAL

6. TECHNICAL FILE

6.1. EVALUATION

6.2. ADDITIONAL TESTS

7. CONFIRMATION TESTS

8. FOLLOW-UP

8.1. TECHNICAL DATA SHEET

8.2. CONTINUITY OF THE COMPOUND

APPENDIX 1

1. SUBJECT

This specification describes the procedure to be followed for acceptance of a polyethylene (PE) compound for manufacture of natural gas underground distribution systems.

This specification also gives the minimum requirements which have to be met by PE compounds for manufacture of pipes, fittings and valves and for the construction of underground distribution systems for natural gas.

The compounds that meet this specification must at the minimum be PE 100.

The colour shall be black or orange in accordance with the local

requirements.

2. REFERENCES: STANDARDS AND SPECIFICATIONS

This section contains the list of standards and specifications referred to in this specification.

EN 728: 1997	Plastics piping and ducting systems – Polyolefin pipes and fittings - Determination of oxidation induction time.
EN 1555-1	Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 1: General
EN 1555-3 EN 1555-7	Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 7: Assessment of conformity.
EN 12099	Plastics piping systems - Polyethylene piping materials and components - Determination of volatile content.
EN 12118	Plastics piping systems - Determination of moisture content in plastics by coulometry.
EN ISO 12162: 1995	Thermoplastics materials for pipes and fittings for pressure applications - Classification and designation - Overall service (design) coefficient.
EN ISO 13478: 1997	Thermoplastics pipes for the conveyance of fluids Determination of resistance to rapid crack propagation (RCP) - Full-scale test (FST).

EN ISO 13479: 1997	Thermoplastics pipes for the conveyance of fluids - Determination of resistance to crack propagation (RCP) - Test method for slow crack growth on notched pipes (notch test).
EN 45001: 1990	General criteria for the operation of testing laboratories.
ISO 1133: 1997	Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics.
ISO 6964: 1996	Polyolefin pipes and fittings - Determination of carbon black content by calcination and pyrolysis - Test method and basic specification.
ISO/DIS 9080	Plastics piping and ducting systems - Determination of the long-term hydrostatic strength of thermoplastics materials in pipe from by extrapolation.
ISO 11420: 1996	Method for the assessment of the degree of carbon black dispersion in polyolefin pipes, fittings and compounds.
ISO 13477: 1997	Thermoplastics pipes for the conveyance of fluids - Determination of resistance to rapid crack propagation (RCP) - Small-scale-steady-state test (S4 test).

3. DEFINITIONS AND SYMBOLS

3.1. LOWER CONFIDENCE LIMIT (LCL)

A quantity with the dimensions of stress, in megapascal, which can be considered as a property of the material under consideration and represents the 97.5% lower confidence limit of the predicted long-term hydrostatic strength at a temperature of 20°C for 50 years with internal water pressure.

3.2. MINIMUM REQUIRED STRENGTH (MRS 10)

Standardised class of compounds for which the LCL is equal to 10.

3.3. PE 100

Standard designation for PE compounds in class MRS 10.

For such PE compounds, the long-term hydrostatic strength – calculated and classified according to the standardised method (ISO 9080 and ISO 12162) for a temperature of 20°C, a period of 50 years and a reliability of 97.5 % — must be at least 10 MPa.

3.4. BATCH OF COMPOUND

By batch of compound is meant a homogeneous quantity of PE compound of the same origin and of a particular brand.

The batch must be registered under a single identification number (batch number) which leaves no doubt as to the origin, identity and date of manufacture of the compound.

3.5. BATCH OF PIPES

By batch of pipes is meant a homogenous lot of pipes with identical dimensions, made in a continuous process by the same extrusion machine and from the same batch of compound.

4. GENERAL SPECIFICATIONS

The PE compounds that are acceptable according to the requirements of this specification must conform to the requirements for PE 100 described in EN1555-1.

If the proposed compound is destined for manufacture of pipes, then the acceptance procedure is carried out as described in this specification.
If the proposed compound is destined for manufacture of fittings, then the first stage (section 6) of this acceptance procedure is carried out, after which type tests are carried out on the fittings manufactured from the material concerned. An independent laboratory appointed by Owner will then evaluate whether conformity with the characteristics mentioned in the technical file has been proved, on the basis of the provisions of EN 1555-7.

5. SUMMARY OF THE PROCEDURE

5.1. GENERAL

The acceptance procedure for PE compounds comprises two stages, namely the evaluation of the technical file and the confirmation tests. The different steps are carried out in the order described below.

The tests which form part of the technical file are carried out on pipes or samples supplied by the compounds manufacturer. In principle, all tests mentioned in the technical file are carried out on pipes from the same batch.

The tests mentioned in chapter 7 are carried out on pipes manufactured by a pipe manufacturer chosen by Owner.

The tests mentioned in chapter 6.1 (table 1), 6.2 and 7 are carried out in a laboratory appointed by Owner.

5.2. APPLICATION FOR APPROVAL

A manufacturer that wishes to have a certain PE compound classified for the manufacture of PE gas components must submit a written application to Owner.

This application must be accompanied by a clear description of the compound concerned, including the technical characteristics.

All correspondence must be in English.

6. TECHNICAL FILE

6.1. EVALUATION

If the application is taken into consideration by Owner, the compound manufacturer must submit a technical file to a laboratory appointed by Owner.

This technical file must include the following information:

- name and class of the PE compound;
- technical characteristics of the compound, with reference to the standard;
- a dossier with test results, from an independent laboratory, showing that the proposed compound meets the requirements of EN 1555-1 for a PE 100 compound. The dossier must also state which tests have been carried out on the same batch of pipes or test samples, including the identification of their origin.

The laboratory chosen by Owner will also evaluate the conformity of this dossier, taking the following rules into account:

a) If the tests mentioned in the technical file have been carried out by a laboratory

accredited according to EN 45001, and if the tests have been carried out on the same batch of pipes for the required diameter and wall thickness, then the evaluation will be limited to an examination of the dossier in accordance with the provisions of EN 1555-1 and the quantity of test samples laid down in 1555-7;

b) If the tests mentioned in the technical file have been carried out by a laboratory that is not accredited according to EN 45001 and/or on different batches of pipes for the same diameters/wall thickness, then the evaluation will be done on the basis of further tests in order to confirm the characteristics mentioned in the technical file.

c) The characteristics for rapid crack propagation (RCP) and slow crack propagation (SCG), as mentioned in the technical file, must comply with the requirements of the standard. Furthermore, the requirements of table 1 must be met:

Table 1

Characteristic	Requirement	Standard
Pc S4	DN 250 – SDR 11 $0^{O}c$ - > 3,5 BAR	ISO 13477
Pc FS	DN 250 – SDR 11 $0^{O}c$ - > 15 BAR	EN ISO 13478
SCG	DN 250 – SDR 11 $80^{O}c$ – σ4,6 - > 500 h	EN ISO 13479

The tests mentioned in table 1 must be carried out by an independent laboratory appointed by Owner. The three series of tests must be carried out on the same batch of pipes.

If it emerges from the evaluation of the technical file that conformity with EN 1555-1 is guaranteed, then the next stage of the procedure can commence, as described in section 7.

6.2. ADDITIONAL TESTS

6.2.1. General

If from the evaluation it emerges that the dossier submitted is incomplete or does not offer the necessary guarantees of conformity with the standard, then additional tests will be carried out by the laboratory appointed by Owner, at the cost of the compound manufacturer.
The same procedure will be followed if the technical file has been drawn up by a laboratory that is not accredited and/or if several batches of pipes have been used for each diameter/wall thickness in carrying out the tests.

6.2.2. Delivery of the pipes

The required batch of pipes must be delivered by the compound manufacturer, the pipes having been produced by a pipe manufacturer who at that moment is a Owner supplier.

The number of pipes must be based on the numbers and frequencies mentioned in EN 1555-7.

If the technical file is based on tests carried out by a non-accredited laboratory and/or carried out on several batches of pipes per diameter/wall thickness, then the tests will repeated on at least half of the required test samples; if the number thus calculated is not a whole number, the number of test samples taken will be equal to the next whole number.

6.2.3. Test results

If from the additional tests it appears that conformity with EN 1555-1 is guaranteed, then the next phase of the procedure can commence, as described in section 7.

If despite the additional tests no unambiguous decision can be taken regarding the conformity of the compound, then further additional tests will be carried out, until the number of test samples is at maximum equal to the number specified in the standard concerned. For this purpose, the manufacturer must keep sufficient pipes of the same batch in reserve.

If the evaluation is still not positive after the maximum number of samples has been tested, then the compound will be considered as not accepted.

7. CONFIRMATION TESTS

The second stage of the acceptance covers the industrial production of pipes, the verification of the characteristics, the laying of the pipes and the fusion to existing PE systems.

This second stage of the acceptance is carried out by Owner.

Before this stage can commence, the manufacturer must provide Owner with a technical data sheet (see appendix 1) showing the limit values for the characteristics of the compound concerned.

For the purpose of carrying out this part of the procedure, Owner will order a batch of pipes from one of its pipe manufacturers. After verification of the characteristics in the factory and confirmation by an independent laboratory, the pipes will be installed in the Owner gas distribution network, taking into account the following aspects:

- Any problems with delivery and with extrusion of the compound will be noted.
- The limits of the characteristics mentioned in the technical data sheet.
- For characteristics not included in the technical data sheet, the measured value may

- deviate by max. 30% from the average values mentioned in the technical file, to the extent that these are relevant and not in conflict with the requirements of the standard.

- Any problems with laying or welding or connecting the pipes; these will be noted.

If from the test results it appears that the characteristics of the compound and/or pipes do not comply with the requirements, or if anomalies are found in laying and/or welding of the pipes, then the acceptance procedure will be provisionally suspended. The problems found will be analysed in consultation with the compound manufacturer, and an attempt will be made to find solutions which are acceptable to both parties. If this turns out to be impossible, then the compound will be considered as not accepted.

In such a case, the costs of the second stage could be charged to the compound manufacturer.

If the second stage of the procedure is successfully completed, then the compound is accepted and will be included in the list of "Approved PE Compounds".

8. FOLLOW-UP

8.1. TECHNICAL DATA SHEET

The manufacturer must supply Owner with a technical data sheet, as described in Appendix 1, with permission for Owner to publish this technical data sheet in the specifications for PE pipes and fittings, for as long as the compound is included in the list of approved compounds.
The data entered on this data sheet apply as limit values for the compound concerned. Whenever one or more characteristics of a batch of compounds falls outside these limits, then the batch will be automatically refused for production of components destined for our gas network.

8.2. CONTINUITY OF THE COMPOUND

No alterations may be made to the compound without prior permission from Owner.

As mentioned in 8.1, the limits mentioned in the technical data sheet must be respected. Furthermore, in the case of characteristics not included in the technical data sheet, the measured values may not deviate by more than 30% from the average value mentioned in the technical file, to the extent that these are relevant and not in conflict with the requirements of the standard.

Each change that affects the final characteristics of the compound can result in additional tests being carried out by the compound manufacturer in accordance with the provisions of EN 1555-7 appendix A. The procedures for the test shall correspond to those described in section 6.1 of this specification.

APPENDIX 1

Technical Data Sheet

Characteristics of (*name of PE compound*) as per EN 1555-1

Characteristics	Standard	Specification
MRS	EN ISO 12162	> .... MPa
Density min. max.	Method D of ISO 1183	 .... kg/m3 .... kg/m3
MFR 190/5 min. max.	ISO 1133	 .... g/ 10 min .... g/ 10 min
Volatile content max.	EN 12099	 .... mg/kg
Water content max.	EN 12118	 .... mg/kg
Carbon black content min. max.	ISO 6964	 .... % .... %
Carbon black dispersion max.	ISO 11420	 ≤ grade ...
OIT at 210^{0}C min.	EN 728	 ... min

Company.....

Person Responsible.....

Position.....

Signature.....

□ □ □

POLYETHYLENE VALVES FOR NATURAL GAS DISTRIBUTION UNDERGROUND NETWORK

TABLE OF CONTENTS

1. SCOPE AND FIELD OF APPLICATION

2. NORMATIVE REFERENCES

3. DEFINITIONS

3.1. NOMINAL SIZE DN/OD

3.2. NOMINAL OUTSIDE DIAMETER (DN)

3.3. NOMINAL WALL THICKNESS (EN)

3.4. COMPOUND

3.5. MAXIMUM OPERATING PRESSURE (MOP)

3.6. VALVES

3.7. BASE PLATE

3.8. SPINDLE PROTECTION SLEEVE

3.9. EXTERNAL LEAK-TIGHTNESS

3.10. INTERNAL LEAK-TIGHTNESS

3.11. LEAK-TIGHTNESS TEST

3.12. INITIATING TORQUE

3.13. RUNNING TORQUE

3.14. LEAKAGE

4. GENERAL SPECIFICATION

5. MATERIAL PARTICULARITIES

5.1. GENERAL

5.2. PE COMPOUND FOR POLYETHYLENE VALVES BODIES

5.3. SEALS

5.4. LUBRICANTS

5.5. OPERATING CAP

6. VALVES GENERAL PARTICULARITIES

6.1. TECHNICAL FILE

6.2. DESIGN

6.3. APPEARANCE AND COLOUR

6.4. DIMENSIONS

7. MECHANICAL CHARACTERISTICS FOR ASSEMBLED VALVES

7.1. GENERAL

7.2. RUNNING TORQUE

7.3. INDIVIDUAL TEST (BATCH RELEASE TEST)

7.4. PRESSURE DROP AT LOW PRESSURE

8. MARKING

9. PACKAGING AND DELIVERY

10. GUARANTEE

11. QUALITY CONTROL

11.1. GENERAL RULINGS

11.1.1. Manufacturer's responsibility

11.1.2. Quality assurance

11.2. CONTROLS

11.2.1. Control testing by the manufacturer

11.3. ACCEPTANCE OR REFUSAL

11.3.1. Appearance, measurements and marking

11.3.2. Control check on characteristics

ANNEXE A

DIMENSIONS OF THE EXTENSION SPINDLE

ANNEX B

DIMENSIONS OF THE OPERATING CAP TYPE A ANNEX C

DIMENSIONS OF THE OPERATING CAP TYPE B ANNEX D

DIMENSIONS OF THE OPERATING CAP TYPE C

1. SCOPE AND FIELD OF APPLICATION

This General Technical Specification specifies the requirements for valves and its component made from extruded or injected moulded polyethylene (PE) and which are intended to be used for the Natural gas distribution systems where the maximum operating pressure (MOP) is equal to 5 bar.

In addition, it specifies some general properties of the materials from which these valves are made.

It applies to bi-directional valves with spigot ends or electrofusion sockets intended to be fused with polyethylene pipes in accordance with the Technical standards.

This specification is limited to valves with a nominal diameter (dn) up to and including 225 mm.

2. NORMATIVE REFERENCES

EN 1555-1	Plastics piping systems for the supply of gaseous fuels- Polyethylene (PE) - part 1 : General
EN 1555-4	Plastics piping systems for the supply of gaseous fuels- Polyethylene (PE) - part 4 : Valves
EN 1555-7	Plastics piping systems for the supply of gaseous fuels- Polyethylene (PE) - part 7 : Guidance for assessment of conformity
ISO CD 12176-4	Plastics pipes and fittings - Equipment for fusion Jointing polyethylene system - part 4 : traceability coding
ISO TR 13950	Plastics pipes and fittings - Automatic recognition systems for electrofusions

3. DEFINITIONS

3.1. NOMINAL SIZE DN/OD

Nominal size, related to the outside diameter.

3.2. NOMINAL OUTSIDE DIAMETER (dn)

Specified outside diameter, in millimetre, assigned to a nominal size DN/OD.

3.3. NOMINAL WALL THICKNESS (en)

Numerical designation of the wall thickness of a component, which is a convenient round number, approximately equal to the manufacturing dimension in millimetre (mm).

Note : For thermoplastics components conforming to EN 1555, the value of the nominal wall thickness en is identical to the specified minimum wall thickness at any point, emin.

3.4. COMPOUND

Homogenous mixture of base polymer (PE) and additives, i.e. anti-oxidants, pigments, UV-stabilisers and others, at a dosage level necessary for the processing and use of components conforming to the requirements of this standard.

3.5. MAXIMUM OPERATING PRESSURE (MOP)

Maximum effective pressure of the fluid in the piping system, expressed in bar, which is allowed in continuous use. It takes into account the physical and the mechanical characteristics of the components of a piping system.

Note : It is calculated using the following equation : $MOP = \frac{(20xMRS)}{Cx(SDR - 1)}$

3.6. VALVES

An obturating device designed to stop or restore the gas flow by operating the opening and closing mechanisms.

3.7. BASE PLATE

The valves are split into two models.

MODEL 1	Valve supply without base plate
MODEL 2	Valve supply with a base plate fixed or integrated

3.8. SPINDLE PROTECTION SLEEVE

A sleeve tube that protect the valve spindle. The protection sleeve exists in two models

VENTILATED	The sleeve is provided with opening and wrapped with textile fabric in order to let the gas escape and prevent the soil to go in.
NON VENTILATED	A normal sleeve tube without textile fabric.

3.9. EXTERNAL LEAK-TIGHTNESS

The tightness of the body enveloping the space containing the gas, with respect to the atmosphere.

3.10. INTERNAL LEAK-TIGHTNESS

The tightness between the inlet and the outlet of the valve, obtained by closing the operating mechanism.

3.11. LEAK-TIGHTNESS TEST

Test to determine

- the internal leak-tightness of the valve's closing seat when closed and pressurised from either side;
- the external leak-tightness of the valve when half open.

3.12. INITIATING TORQUE

Torque required to initiate movement of the obturator.

3.13. RUNNING TORQUE

Torque required to achieve full opening or closing of the valve at maximum allowable operating pressure.

3.14. LEAKAGE

Emission of gas through the body, sealing membrane or any other component of the valve.

4. GENERAL SPECIFICATION

The present specification is based on the European Standards EN 1555 series prepared by technical committee CEN/TC 155 plastic technical and ducting system.

The requirements of this General technical specification are chosen in order to guarantee a high quality gas system which will respond to the European Standards for gas supply systems.

- the valves described in this General technical specification comply with the standard EN1555-4 and the complementary particular requirements or options of the present GTS.
- the valves are intended to be use in gas distribution networks made of PE pipes and accessories complying with technical standards.
- the valves are laid and welded as specified in the technical standards.

5. MATERIAL PARTICULARITIES

5.1. GENERAL

All parts of the valve in contact with the gas stream shall be resistant to the gas, its condensates and other occurring substances such as dust.

All metallic parts of the PE valve shall resist to both internal and external corrosion.

5.2. PE COMPOUND FOR POLYETHYLENE VALVES BODIES

- The PE compound from which the valve body, with spigot end or electrofusion socket is made out, shall conform to EN1555-1 and comply with the technical standards "acceptance procedure".
- The PE valves bodies are PE 100 class made from approved material as specified in the technical standards General requirements - appendix 1.

Are forbidden :

- use of recycled materials,
- mixture of different materials,
- addition of complementary materials.

5.3. SEALS

- The seals shall be homogeneous, without any inner crack, inclusion or impurities and cannot contain any component that can alter the properties of the materials they are

in contact with, and prevent the non-conformity of those materials with the present specification.

- additives shall be distributed evenly.
- The rubber seal rings shall comply with standard EN 682.
- Other seals shall comply with the relevant standard and be suitable for gas service.

5.4. LUBRICANTS

Lubricants cannot have any adverse effects on the long-term performance of the valve parts.

5.5. OPERATING CAP

Operating cap are in plastic material or in metal, protected against corrosion.

6. VALVES GENERAL PARTICULARITIES

6.1. TECHNICAL FILE

The manufactures of the valves shall deliver for each type of valve a technical file which includes:

- Raw materiel used,
- drawings, dimensions and tolerances, including for the accessories,
- application range (temperature and pressure limits),
- running torque and initiating torque,
- pressure drop and flow diagram,
- test results and data proving the conformity of the valve in accordance with EN1555-4 and EN1555-7,
- the pipe elements used during valves testing have to be conform to the technical standards.
- the assembly pipes/valves realised during testing shall be in conformity with the manufactures instructions and the extreme installation conditions.
- For the test assembly due consideration should be taken regarding the fabrication tolerances and the variation of the outside ambient temperature.
- The welding of the assembly will comply with technical standards.

6.2. DESIGN

- The valves will be designed for a maximum operating pressure (MOP) equal to 10 bar.
- The wall thickness of the PE valve body shall be equal or greater than the minimum wall thickness of the corresponding SDR 11 series pipes.
- Valves body and valves ends form an indivisible whole.
- Except otherwise stated in the Owner purchase order, all valves will be "ball valve" type.
- The operating cap shall be designed in a way that it cannot be ejected "non blow out" type.
- The design of the extension spindle and the spindle protection sleeve will be such that they will never, in any case, even due to soil settlement, lay on the non reinforced part of the valve body or the valve ends. The spindle protection sleeve cannot turn during valve turning operation.
- The owner will specify if the spindle protection sleeve is a ventilated or non-ventilated type.
- The spindle protection sleeve ventilated type will have holes (min. diameter 10 mm) or slot type holes (min. width 1 mm) all around the sleeve in sufficient number in order to assure a maximum permeability for the gas.
- The sleeve will be covered by a non-waved geo-textile fabric (90 µm). The geo-textile fabric with a 50 mm overlap will be well secured on the sleeve;
- The valves should be equipped with a base plate. In order to achieve this, the valve body will be design with a flat base (model 1) or with an attached base plate or an integrated one (model 2). The Owner or his representative will specify the model.
- The operating mechanism and the stop wedges will be protected against water intrusion.
- The valve body is completely sealed except a passage for the spindle mechanism.

6.3. APPEARANCE AND COLOUR

- The internal and external surfaces of valves shall be smooth clean and shall have no scoring, cavities or other defects to an extend that would prevent non-conformity to the present GTS or to the standard EN 1555-4.
- The colour of the PE valves shall be either yellow, black or orange.
- The colour of the valve shall be specify by the Owner or his representative in the purchase order;

6.4. DIMENSIONS

- The dimensions will be in conformity with the standard EN1555-3 and EN1555-4.
- The dimensions of the extensions spindle are detailed in appendix A.
- The operating cap will be design as per appendix B, C or D.
- The type of the operating cap will be specified by the Owner or his representative in the purchase order.
- The design of the extension spindle is such that the extension can be turn easily at
- any time to suit the site conditions.

7. MECHANICAL CHARACTERISTICS FOR ASSEMBLED VALVES

7.1. GENERAL

The valve shall have mechanical characteristics and be tested as specified in the standard EN 1555-4.

7.2. RUNNING TORQUE

The running torque and the concept of the valve shall prevent the valve from being easily operated (by hand) without an operating key. To operate the valve designed with running torque as specified I the standard EN 1555-4, the use of an operating key is requested.

Neither the operating cap nor the spindle shall be damaged when operating at maximum operating torque as specified in the standard EN 1555-4;

7.3. INDIVIDUAL TEST (BATCH RELEASE TEST)

Before delivery each valves will be individually tested for mechanical strength and leaktightness as per standard EN1555-4.

A combined mechanic resistance and leak-tightness test shall be performed in conformity with the EN1555-4.

By batch of valves a supplementary leak-tightness test (25 mbar) shall be performed in conformity with the EN 1555-4 on 3 valves taken at random.

7.4. PRESSURE DROP AT LOW PRESSURE

The drop of pressure is measured with natural gas as a medium and according to the diagram specified in the standard EN 12117 (fig.1).

The maximum drop of pressure measured with natural gas (inlet pressure 25 mbar) will be limited to 0,2 mbar for a nominal gas flow as per table below.

d_n	Flow m^3/h
32	10
40	15
63	60
90	180
110	250
160	600
200	1000

8. MARKING

At least the information given below shall be printed or formed directly on the valve :

a) Manufacturer's name and/or trademark;

b) Material and designation (e.g. PE 100);

c) Design application series (e.g. SDR 11);

d) Nominal diameter;

e) Internal fluid "gas";

f) Traceability code (valve and component) as per standard ISO/FDIS 12176-4;

g) Number of the system standard (e.g. EN 1555-4) this information can be printed/formed directly on the valve or on a label associated with the valve or on an individual bag.

h) Production period, year and month;

The marking shall stay legible during normal manipulation, storage and installation.

The marking shall not adversely influence the performance of the valve and prevent the non-conformity of the valve.

No marking will be accepted at the valve spigot ends.

9. PACKAGING AND DELIVERY

The valve and its accessories shall be packaged individually in plastic bags in order to prevent them from deterioration. The valves ends shall be protected with external caps.

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

10. GUARANTEE

The manufacturer will extend his guarantee for each part for 10 years after production. This guarantee period is valid if the parts are kept in proper conditions and in the original packaging.

The valves equipped with electrofusion sockets will be supply with a magnetic card and a code bar tag containing the welding parameters. The coding of the parameters shall be in conformity with the standard ISO TR 13950.

The operating manual (in English) will be inserted in the individual part package.

11. QUALITY CONTROL

11.1. GENERAL RULINGS

11.1.1. Manufacturer's responsibility

The manufacturer is entirely responsible for the quality of the PE valves manufactured by his firm.

All control checks prescribed above do not relieve him of this responsibility.

To ensure that all PE valves are in compliance with the specification in all aspects, they must be controlled by the plant control service, which must be independent from the manufacturing department.

All PE valves supplied are guaranteed for 10 years after the date of production.

11.1.2. Quality assurance

The manufacturer must have some form of quality control to ensure that products comply with EN standards 29001 or 29002. The quality assurance manual must be made available to the Owner Control Service or an external Control laboratory appointed by him.
The system of quality assurance must be certified by an authorized body.

11.2. CONTROLS

11.2.1. Control testing by the manufacturer

11.2.1.1. By material batch.

The manufacturer demands a certificate from the raw material manufacturer including the following :

- Fluid index
- Water content
- Volume mass
- Carbon black or yellow stabilising agent content
- Carbon black or yellow stabilising agent quality
- OIT value (thermal stability)

11.2.1.2. By accessory batch

The manufacturer must run control checks as specified in the standard EN 1555-4 and EN 1555-7:

Control checks and the number of tests must be carried out according to the prescriptions of the EN standard 1555-4.

Also refer to table N° 8, paragraph 4.2.3. “Lot release tests” of standard EN 1555-7.

The results must be written out in documents that contain the complete identification of the accessory batch.

These documents must be made immediately available for the Owner representative.

11.2.2. Plant Reception by the Owner Control Service representative

11.2.2.1. General information

All quality controls must be run in the presence of the Owner Control Service representative.

All tests and control checks must comply with appropriate standard prescriptions and with the specific specifications established with the order.

At each visit by the Owner representative, the manufacturer must provide, free of charge, all means and personnel necessary for running the established control checks.

While the order is under production, the PMCmust have access to stocking installations of all raw materials before manufacturing, manufacturing and control installations, as well as the accessory stocking areas for any control checks he is responsible for.

During his visits, the PMCwill receive a certificate as soon as he reaches the plant for each batch of accessories presented for reception.

Each time this is requested by the Owner representative, the manufacturer must provide recent reports of all control checks and measuring instrument results and testing results.

11.2.2.2. Convocation for reception

Convocation instructions for reception are to be defined with the order.

11.2.2.3. Reception control checks

For each accessory batch or any fractions of the batch, minimal batch sampling is established in annexed enclosure 3. These control checks and tests are to be run according to the prescriptions of standard EN 1555-4.

11.3. ACCEPTANCE OR REFUSAL

11.3.1. Appearance, measurements and marking

Any requirements not supplied will lead to the refusal of the complete batch. However in the case where a batch is refused, it can be presented for approval again after a control check, on agreement with the Owner Control Service.

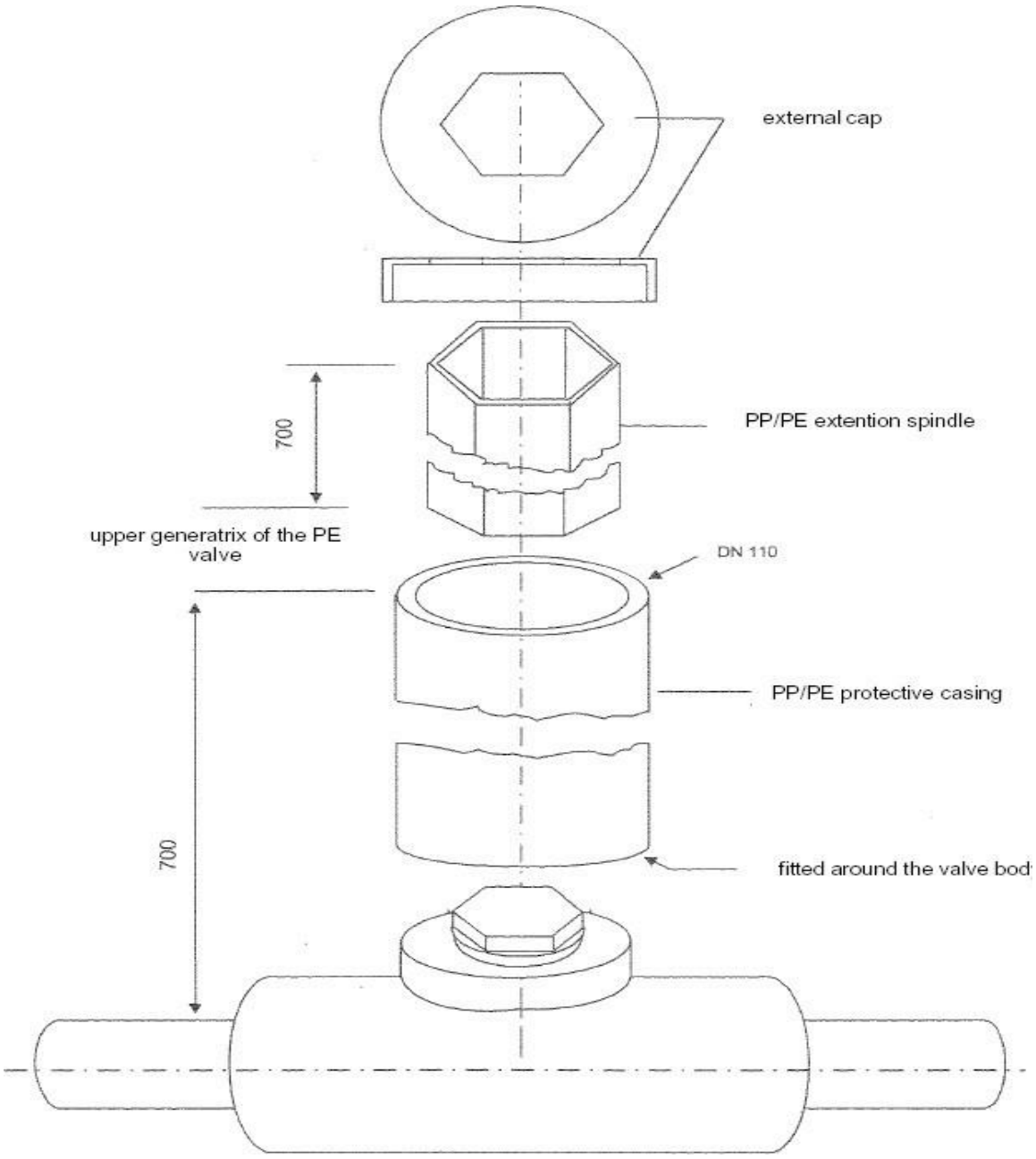
11.3.2. Control check on characteristics

All results that do not comply with the specification prescriptions and the particular specifications requested with the order, demand counter-testing on at least double the number of the samples previously tested. If the undesirable result is confirmed, then the batch is refused permanently. If the result is positive, then the batch will be accepted.

As a complementary control check, other analyses and/or tests can be run after common agreement, and at the manufacturer’s cost.

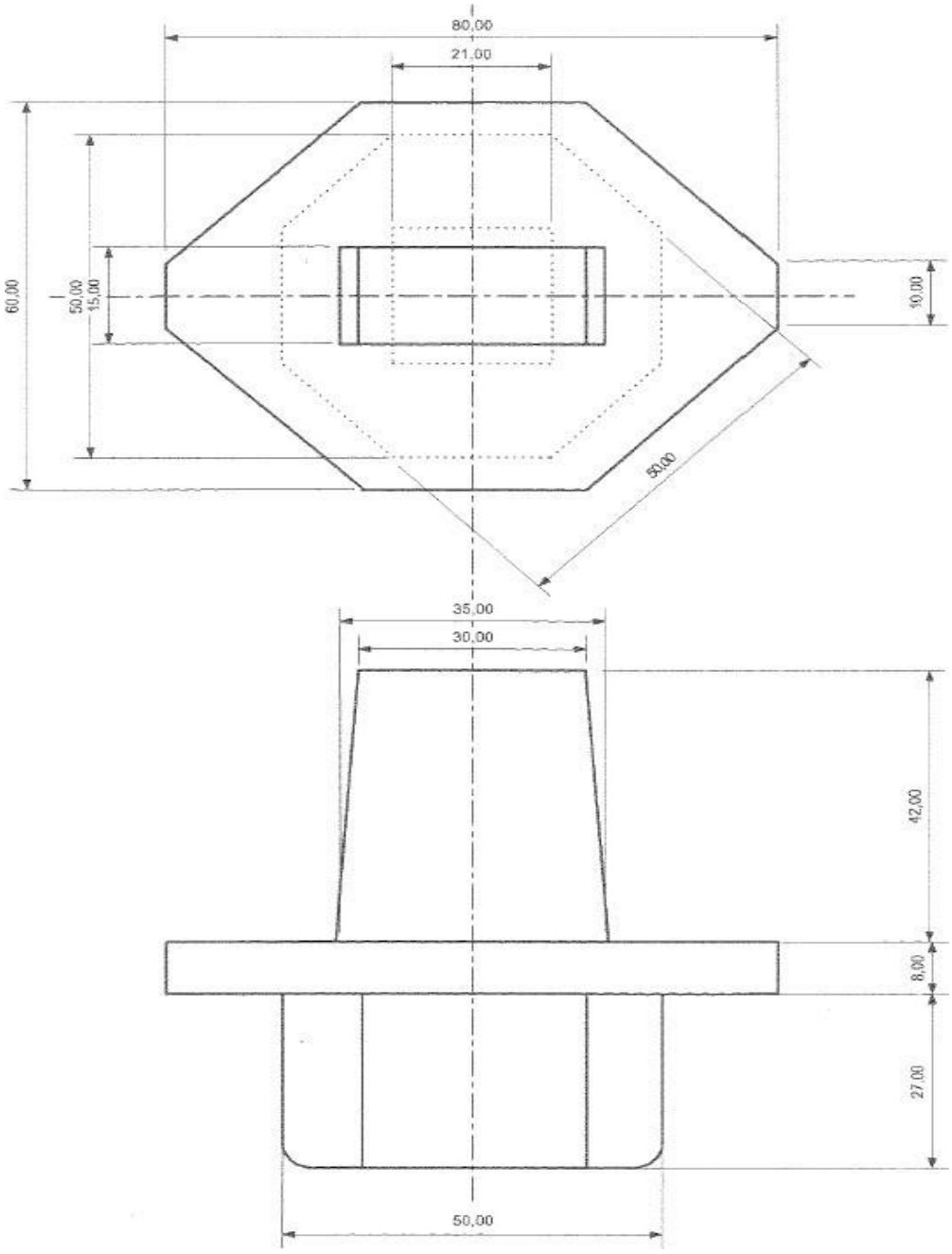
ANNEXE A

Dimensions of the extension spindle



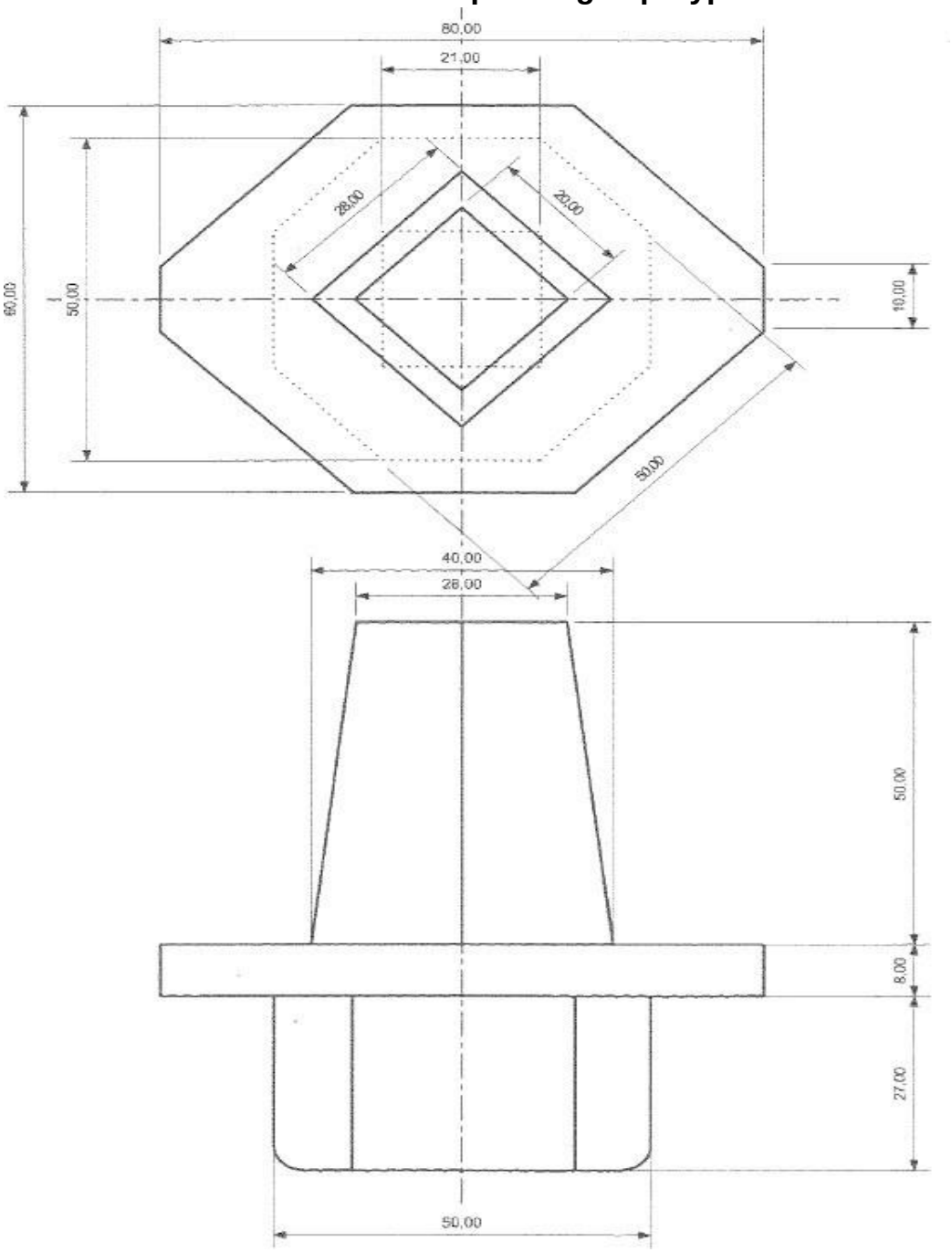
ANNEX B

Dimensions of the operating cap Type A

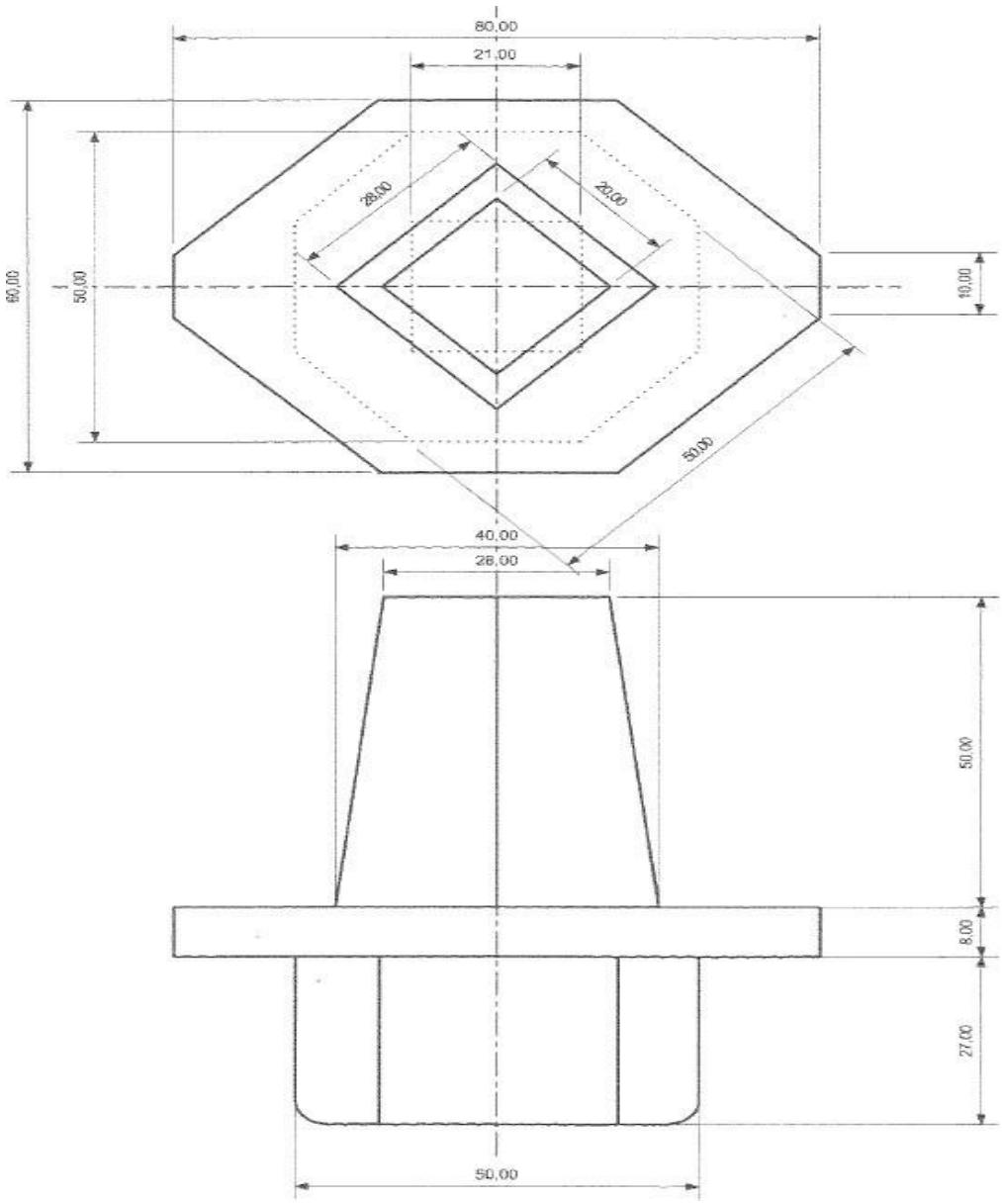


ANNEXURE C

Dimensions of the operating cap Type B



ANNEXURE D



Dimensions of the operating cap Type C

Central U.P. Gas Limited	**TECHNICAL TENDER** **CUGL/REPL/WORKS/2026/33**	Resonance Energy

CENTRAL UP GAS LIMITED
(CITY GAS DISTRIBUTION PROJECT IN KANPUR, BAREILLY & JHANSI)

TENDER FOR

EMPANELMENT OF CONTRACTORS FOR D-PNG CONNECTIVITY WORKS IN KANPUR, UNNAO, BAREILLY AND JHANSI FOR A PERIOD OF 1 YEAR
TENDER NO. CUGL/REPL/WORKS/2026/33

VOLUME II OF II

TECHNICAL VOLUME PART-B
OPEN DOMESTIC COMPETITIVE BIDDING
(THROUGH E-TENDERING MODE)

0	12.11.2026	Issued for Bid	VS	GS	AN
Rev	**Date**	**Description**	**Prepared by**	**Checked by**	**Approved by**

MAIN TABLE OF CONTENTS

LAYING OF MDPE PIPE, INSTALLATION OF GI/CU/MLC AND ASSOCIATED WORKS FOR CITY GAS DISTRIBUTION PROJECT AT KANPUR, UNNAO, BAREILLY & JHANSI GA

SL.NO.	DESCRIPTION		PAGE No.
I	**SECTION A - COMMERCIAL (VOLUME I OF II)**		
II	**SECTION B - TECHNICAL (VOLUME II OF II) - PART A**		
III	**SECTION B - TECHNICAL (VOLUME II OF II) - PART B**		
1	QAP	MDPE FITTINGS	1-2
2	QAP	MDPE VALVES	3-4
3	QAP	TRANSITION FITTINGS	5
4	QAP	GI PIPES	6-7
5	QAP	GI FITTINGS	8
6	QAP	WARNING MAT	9
7	QAP	ISOLATION VALVE	10
8	QAP	APPLIANCE VALVE	11
9	QAP	COPPER TUBE	12
10	QAP	COPPER FITTINGS	13
11	QAP	BRASS FITTING	14
12	QAP	CORRUGATED FLEXIBLE METAL HOSE	15
13	QAP	STEEL REINFORCED RUBBER HOSE	16
14	VL	RECOMMENDED VENDORS LIST	17-18
15	DRW	TYPICAL DETAILS OF CAUTION BOARD	19
16	DRW	TYPICAL DETAILS OF BARRICADING	20
17	DRW	TYPICAL DETAILS OF RCC ROUTE MARKER	21
18	DRW	POLE MARKER WITH FOUNDATION	22
19	DRW	PLATE MARKER	23
20	DRW	TYPICAL TRENCH DIMENSIONS FOR PIPELINE	24
21	DRW	TYPICAL UNDERGROUND CABLE CROSSING DETAILS	25
22	DRW	ROAD/HIGHWAY CASED CROSSING FOR MDPE PIPE	26
23	DRW	SPECIFICATION FOR WOOD SCREWS	27
24	DRW	HALF ROUND CONCRETE SLEEVE	28
25	DRW	SCHEMATIC DIAGRAM OF SINGLE STREAM SERVICE REGULATOR	29
26	DRW	SCHEME FOR DOMESTIC CONSUMER CONNECTION	30
27	DRW	BRICK VALVE CHAMBER (1.5 M X 1.0 M)	31
28	DRW	BRICK VALVE CHAMBER (1.5 M X 1.5 M)	32
29	DRW	RCC VALVE CHAMBER (1.5 M X 1 M)	33
30	DRW	RCC VALVE CHAMBER (1.5 M X 1.5 M)	34
31	DRW	TYPICAL DETAILS OF FENCING	35
32	DRW	TYPICAL DETAILS OF GATE	36
33	DRW	SCHEMATIC DIAGRAM OF HOUSING FOR SINGLE SERVICE REGULATOR	37
34	DRW	DRAIN CROSSING FOR LAYING OF SERVICE LINES	38
35	QAP	MLC PIPE	39

RESONANCE ENERGY PVT LTD CITY GAS
DISTRIBUTION PROJECT

QUALITY CONTROL TABLE PE FITTINGS

Document No. : **Rev.0**
REPL/CUGL/QAP/01 Date : 30.07.2024
Prepared by: VS **Checked By: GSJ**
Approved by: AN

S.No.	COMPONENTS/OPERATIONS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	VENDOR	CA/TPI	REMARKS
1	Review of test certificate for Raw material		Each Batch certificate	Raw Material manufacturer's test certificate	Raw Material manufacturer's test certificate	Test Certificate	R	R	
2	Hydrostatic strength								
2.1	At 20º C	Strength test	As per EN 1555-7	EN 1555 - 3/ EN 921 / PTS / GTS	No leakage through the fittings duringthe test	Inspection report	P	W	
2.2	At 80º C	Strength test	As per EN 1555-7	EN 1555 - 3/ EN 921 / PTS / GTS	No leakage through the fittings duringthe test	Inspection report	P	W	
3	Cohesive Resistance								
3.1	Length of Initial rupture ≤ L2/3 in brittle failure	Mechanical properties	As per EN 1555-7	ISO 13954 / ISO 13955 / PTS / GTS	EN 1555 - 3	Inspection report	P	R	This test is applicable only for Electrofusion socket fittings
3.2	Surface of rupture ≤ 25% brittle failure	Mechanical properties	As per EN 1555-7	ISO / DIS 13956 /PTS / GTS	EN 1555 - 3	Inspection report	P	R	This test is applicable only for Electrofusion saddle fittings
4	Tensile strength for butt fusion	Mechanical properties	As per EN 1555-7	ISO / DS 13953/PTS	ISO / DS 13953/PTS		P	R	This test is applicable only for Spigot end fittings
5	Impact strength	Mechanical properties	As per EN 1555-7	EN 1716 / PTS / GTS	EN 1716 / PTS / GTS	Inspection report	P	R	This test is applicable only for Electrofusion saddle fittings
6	Pressure Drop	Air flow rate	As per EN 1555-7	EN 12117 / PTS	EN 12117 / PTS	Inspection report	P	R	This test is applicable only for Electrofusion saddle fittings
7	Electrical Resistance test		As per EN 1555-7	EN 1555 - 3 / PTS /GTS	EN 1555 - 3 / PTS	Inspection report	P	W	
8	Oxidation induction time(Thermal stability)		As per EN 1555-7	EN 1555 - 3 / EN728 / PTS / GTS	> 20 min	Inspection report	P	W	
9	Meltmass/ Flow rate (MFR)		As per EN 1555-7	EN 1555 - 3 / ISO4440 / GTS / PTS	(0.2 ≤ MFR ≤ 1.4) g / 10 min and after processing maximum deviation of ± 20 % of the nominated value declared by manufacturer.	Inspection report	P	W	
10	Dimensional Check	Dimensions	100%	As per EN 1555 -3 /PTS / GTS	As per EN 1555 -3 / PTS / GTS	Inspection report	P	RW	

11	Storage	Visual	All materials	-	Manufacturer Recommendation	Stock register	H	M	
12	Marking	Visual	100%	EN 1555 / PTS / GTS	EN 1555 -3	Inspection report	P	RW	
13	Documentation	All Inspection Reports and Certificates	-	EN 1555	All Inspection Reports and Certificates	Inspection Report	P	R	
LEGENDS:		**H-**HOLD, **P**-PERFORMANCE, **W**-WITNESS, **RW** - RANDOM WITNESS, **TC**-TEST CERTIFICATE, **MTR**-MANUFACTURER TEST REPORT, **TPIA**-THIRD PARTY INSPECTION AGENCY, CA - OWNER/OWNER'S REPRESENTATIVE							

Notes :

1 The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 Vendor shall in coordination with supplier/ sub vendor issue detailed Production and inspection schedule indicating the dates and the locations to facilitate Owner/ Owner's representative and TPIA to organize inspection.

3 Owner/ Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.

4 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/CA at the time of Inspection 5 Only calibrated instruments shall be used for inspection.

6 Before dispatch of the materials to the contractors, manufacturer shall submit copy of all related document of inspection along with release note and MTC to the owner /PMC for the dispatch clearance.

7 ssSampling Frequency of the testing shall be done as per EN 1555-7

RESONANCE ENERGY PVT LTD	CITY GAS DISTRIBUTION PROJECT	QUALITY CONTROL TABLE MDPE VALVES	Document No. REPL/CUGL/QAP/02 Rev.0
			Date 30.07.2024
			Prepared by : VS Checked By: GSJ
			Approved by : AN

SR. No	DESCRIPTION	TYPE OF CHECK	QUANTUM OF CHECK	REF. DOC.	ACCEPTANCE NORMS	DOCUMENTATION	INSPECTION		REMARKS
							MANUF.	CA / TPIA	
1	Review of mill test certificate for Raw material		Each Batch certificate	Raw Material manufacturer's test certificate	Raw Material manufacturer's test certificate		R	R	
2	Test of Raw Material Inspection		Each Batch		As per material test certificate	Test report	H	R	
3	Hydrostatic strength@ 80 degree C		100%	EN 917/ISO 5208/PTS/GTS	EN 917/ISO 5208/PTS/GTS	Inspection report	P	W	
4	Leak Tightness test @ 11 bar and 25 mbar	External & internal leak testing	100%	EN 1555-4 / PTS / GTS	EN 1555-4 / PTS / GTS	Inspection report	P	R	
5	Running torque	Mechanical properties	100%	EN 1555-4 / PTS / GTS	EN-28233/PTS/GTS	Inspection report	P	R	
6	Initiating Torque	Mechanical properties		EN 1555-4 / PTS / GTS	EN 1555-4 / PTS / GTS	Inspection report	P	R	
7	Impact strength	Mechanical properties		As per standard	GTS /PTS	Inspection report	P	R	
8	Pressure Drop	Air flow rate		As per standard	GTS /PTS	Inspection report	P	R	
9	Oxidation induction time(Thermal stability)			EN 728/ GTS/PTS	EN 728/GTS/PTS	Inspection report	P	W	
10	Meltmass/ Flow rate (MFR)			ISO 1133/ GTS/PTS	ISO 1133/GTS/PTS	Inspection report	P	W	
11	Dimensional Check		Each Batch	ISO 1183/ GTS/PTS	ISO 1183/ GTS/PTS	Inspection report	P	RW	
11	Storage		All materials		Manufacturer Recommendation	Stock register	H	M	

12	Marking		Each Batch	GTS /PTS	GTS /PTS	Inspection report	P	R	
13	Lot release test		Each lot	EN 1555-7 / GTS / PTS	EN 1555-7 / GTS / PTS	Inspection report	P	R	

LEGEND:

P:Perform R:Review W:Witness H : Hold M : MonitorTPIA: Third Party Inspection Agency CA : Owner/Owner's Representative

Note:

1 The Above Testing and acceptance critera are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP prepared on the basis of above for approval of Owner/Owner's representative and TPIA.

3 Supplier shall submit Calibration certificates of all Instruments/Equipment to be used for Inspection and Testing to TPIA with relavant procedures and updated standards for TPIA reveiew/Approval.

4 TPIA will have Right to Inspect minimum 10% of all manufacturing activities on each day or as specified above.

5 TPIA along with Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

6 Contractor shall in coordination with Supplier/Sub vendor shall issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.

7 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

8 Certification requirement shall comply with European standard EN 10204 (latest edition)

9 For Mechanical fittings, the Requirement of ISO / DIS 10838-1 /2 / 3, as applicable ,

apply10 Sampling Frequency of the testing shall be done as per EN 1555-7

RESONANCE ENERGY PVT LTD

CITY GAS DISTRIBUTION PROJECT

QUALITY CONTROL TABLE TRANSITION FITTINGS

Document No. PREPL/CUGL/QAP/03 Rev.0
DATE : 30.07.2024
Prepared by: VS **Checked By: GSJ**
Approved by: AN

S.No.	COMPONENTS/OPERATIONS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	VENDOR	TPI	REMARKS
1	Review of test certificate for Raw material		Each Batch certificate	Raw Material manufacturer's test certificate	Raw Material manufacturer's test certificate	Test Certificate	R	R	
2	Hydrostatic strength								
2.1	At 20º C	Strength test	As per EN 1555-7	EN 1555 - 3/ EN 921 / PTS / GTS	No leakage through the fittings during the test	Inspection report	P	W	
2.2	At 80º C	Strength test	As per EN 1555-7	EN 1555 - 3/ EN 921 / PTS / GTS	No leakage through the fittings during the test	Inspection report	P	W	
3	Electrical Resistance test		As per EN 1555-7	EN 1555 - 3 / PTS / GTS	EN 1555 - 3 / PTS	Inspection report	P	W	
4	Oxidation induction time(Thermal stability)		As per EN 1555-7	EN 1555 - 3 / EN 728 / PTS / GTS	> 20 min	Inspection report	P	W	
5	Meltmass/ Flow rate (MFR)		As per EN 1555-7	EN 1555 - 3 / ISO 4440 / GTS / PTS	(0.2 ≤ MFR ≤ 1.4) g / 10 min and after processing maximum deviation of ± 20 % of the nominated value declaredby manufacturer.	Inspection report	P	W	
6	Dimensional Check	Dimensions	100%	As per EN 1555 -3 / PTS / GTS	As per EN 1555 -3 / PTS / GTS	Inspection report	P	RW	
7	Storage	Visual	All materials	-	Manufacturer Recommendation	Stock register	H	M	
8	Marking	Visual	100%	EN 1555 / PTS / GTS	EN 1555 -3	Inspection report	P	RW	
9	Documentation	All Inspection Reports and Certificates	-	EN 1555	All Inspection Reports and Certificates	Inspection Report	P	R	
LEGENDS:		**H-**HOLD, **P**-PERFORMANCE, **W**-WITNESS, **RW** - RANDOM WITNESS, **TC**-TEST CERTIFICATE, **MTR**-MANUFACTURER TEST REPORT, **TPIA**-THIRD PARTY INSPECTION AGENCY							

Notes :

1 The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 Vendor shall in coordination with supplier/ sub vendor issue detailed Production and inspection schedule indicating the dates and the locations to facilitate Owner/ Owner's representative and TPIA to organize inspection.

3 Owner/ Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.

4 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection 5 Only calibrated instruments shall be used for inspection.

6 Before dispatch of the materials to the contractors, manufacturer shall submit copy of all related document of inspection along with release note and MTC to the owner /PMC for the dispatch clearance.

7 Sampling Frequency of the testing shall be done as per EN 1555-7

RESONANCE ENERGY PVT LTD

CITY GAS DISTRIBUTION PROJECT

QUALITY CONTROL TABLES GI PIPES CONFORMING TO IS:1239 (PART-1):2004 (Latest eddition)

Document No REPL/CUGL/QAP/04 Rev-0

Date: 30.07.2024

Prepared by: VS **Checked by GSJ**

Approved by: AN

INSPECTION

S.No.	COMPONENTS/OPERATIONS	CHARACHTERISTICS	CLASSIFICATION	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	VENDOR	TPIA/CA
1	2	3	4	5	6	7	8	9	10	11
1.0	**Raw Material Inspection**									
1.1	RAW MATERIAL	IDENTIFICATION	Major	Co-relation with MTC.	100%	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	T.C.	P	R
		CHEMICAL COMPOSITION	Major	Chem. Analysis	One / Heat	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
		PHYSICAL PROPERTIES (T.S., Y.S., %Elong.)	Major	Lab. Test	One / Heat	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
		VISUAL & DIMENSIONS	Major	Visual & Measur.	100%	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
2.0	**IN PROCESS INSPECTION**									
2.1	PIPE MANUFECTURING	SURFACE DEFECT	Major	Visual	100%	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
		DIMENSIONS (O.D., THK., LENGTH etc.)	Major	Measur.	As Per Relevent Std.	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
		MASS (Kg/Mtr.)	Major	Measur.	As Per Relevent Std.	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
2.2	END PREPARATION	END TYPE & DIMENSIONS	Major	Visual & Measur.	100%	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
2.3	PHYSICAL PROPERTIES	TENSILE, ELONGATION & BEND / FLATTENING TEST AS APPLICABLE	Major	Lab. Test	As Per Relevent Std.	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R
2.4	LEAK TEST	HYDRAULIC	Critical	Leak Test	100%	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	W
2.5	GALVANIZING	ZINC COATING UNIFORMITY & MASS	Major	Mass of Zinc Coating & Uniformity	2 Sample / Shift	IS: 4736	IS: 4736	IIR	P	W
2.6	FINISH, PAINTING & MARKING	OVERALL FINISH, PAINTING & MARKING	Major	Visual	100%	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IIR	P	R

RESONANCE ENERGY PVT LTD	CITY GAS DISTRIBUTION PROJECT	QUALITY CONTROL TABLES GI PIPES CONFORMING TO IS:1239 (PART-1):2004 (Latest eddition)	Document No. REPL/CUGL/QAP/04 Rev0 Date: 30.07.2024 Prepared by: VS Checked by GSJ Approved by: AN INSPECTION

S.No.	COMPONENTS/OPERATIONS	CHARACHTERISTICS	CLASSIFICATION	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	VENDOR	TPIA/CA
1	2	3	4	5	6	7	8	9	10	11
3.0	**FINAL INSPECTION**									
3.1	FINISHED PRODUCT	FINISH DIMENSIONS	Major	Visual & Measur.	Random As Per IS:4711	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IR	P	W
		PHYSICAL PROPERTIES (TENSILE, ELONGATION & BEND / FLATTENING TEST AS APPLICABLE)	Major	Lab. Test	Random As Per IS:4711	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IR	P	W
		LEAK TEST (HYDRAULIC TEST)	Critical	Leak Test	Randomly (10% of lot qty)	IS:1239 / P.O. Spec.	IS:1239 / P.O. Spec.	IR	P	W
		REVIEW OF ALL TEST CERTIFICATE / REPORTS & VENDOR'S IIR	Major	Review	--	IS:1239 / P.O. Spec., EN10204	IS:1239 / P.O. Spec., EN10204	IR	P	R

LEGENDS : **H**-HOLD **R**-REVIEW **W**-WITNESS **TC**-TEST CERTIFICATE **P-IIR**-INTERNAL INSPECTION REPORT **TPIA**-THIRD PARTY INSPECTION AGENCY **CA** - CONTROL AUTHORITY

1 The above testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

4 Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

6 Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.

7 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection

8 At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note, despatch clearance note & MTC.

RESONANCE ENERGY PVT LTD | CITY GAS DISTRIBUTION PROJECT

QUALITY CONTROL TABLES - GI FITTINGS

Document No. REPL/CUGL/QAP/05 Rev-0
Date : 30.07.2024
Prepared by : VS **Checked by : GSJ**
Approved by : AN

SR. No	DESCRIPTION	COMPONENT	CHARACTERISTICS	QUANTUM OF CHECK	REF. DOC.	ACCEPTANCE NORMS	RECORD	INSPECTION			REMARKS
								MANUF.	TPIA/OWNER	CA	
1	Chemical Composition of raw material	Test bar	Marking and Correlation with TC	IS 14329 Grade BM 300	PO, Material specification	IS 14329 / PO, Material specification	Mill TC	R	R	R	
2	Chemical Composition of final product	Fitting	Chemical properties	IS 14329 Grade BM 300	PO, Material specification	IS 14329 / PTS	TC	P	W	R	
3	Cleaning and Finishing	Fitting	Descaling	100%	IS 14329 / PTS	IS 14329 / PTS	Inspection Report	W	RW	R	
4	Destructive Testing (Tensile , Elongation & Hardness)	Fitting	Mechanical Properties	IS 14329	IS 14329 / PTS	IS 14329 / PTS	Lab report	W	W	RW	
5	Compression Test	-	Malleability	Three samples per Heat	IS 1879 / PTS	IS 1879 / PTS	Inspection report	P	W	RW	
6	Pressure Test	-	-	IS 1879	IS 1879 / PTS	IS 1879 / PTS	Inspection report	P	W	RW	As per sampling procedure of IS 1839
7	Alignements of thread	-	-	IS 1879	IS 1879 / PTS	IS 1879 / PTS	Inspection report	P	W	RW	
8	Galvanizing	Fitting	Integrity of galvanised coating	As listed in IS 4759	IS 4736 / PTS	PTS	Inspection / lab report	W	W	RW	
9	Final inspection	Fittings	Visual, Dimensions, Finish,weld bevel, Bore, Marking,Colour coding	IS 1879	IS 1879 / PTS	IS 1879 / PTS	Inspection report	W	W	R	
10	Marking	-	-	100%	PTS	PTS	Inspection report	P	R	R	
11	Documentation	-	-	-	As per the term & conditions of P.O. & PTS	As per the term & conditions of P.O. & PTS	Compliance certificate	-			

LEGENDS: R - Review, W - Witness, H - Hold, P - Perform, TPIA - Third Party Inspection Agency, CA - Control Authority (Owner / Owner's representative), RW - Random witness

Note:

1	The above testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)
2	The supplier shall submit their own detailed ITP prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.
3	Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.
4	Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.
5	Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.
6	Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.
7	All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection
8	At the time of deleivery of material in stores, vendor will submit copy of all related document of inspection along with release note, despatch clearance note & MTC.

RESONANCE ENERGY PVT LTD CITY GAS DISTRIBUTION PROJECT

QUALITY CONTROL TABLEWARNING MAT

Document No. REPL/CUGL/QAP/06
Date : 30.07.2024
Prepared by : VS Checked by: GSJ
Approved by : AN

S. No	DESCRIPTION	QUANTUM OF CHECK	REF. DOC.	ACCEPTANCE CRITERIA	DOCUMENTATION	INSPECTION			REMARKS
						MANUF.	TPIA	CA	
1	Raw Material Inspection	Each Batch		As per material test certificate	Test report	R	R	R	
2	Final Inspectiom								
2.1	Width	Four sample per Lot	As per PTS	300 ± 5 mm	Inspection report	P	W	R	
2.2	Thickness	Four sample per Lot	As per PTS	Minimum 1 mm	Inspection report	P	W	R	
2.3	Tests								
2.3.1	Colouring	Four sample per Lot	PTS, EN 12613 & EN ISO 175	No discolouration or change of initial colour of test sample aftertest.	Inspection report	P	W	RW	
2.3.2	Tensile withstand Strength (in the longitudnal direction)	Four sample per Lot	PTS, EN 12613	minimum tensile withstand load not less than 200 N	Inspection report	P	W	RW	
2.3.3	Visual Warning Characterstics	Four sample per Lot	EN 12613	As per normative annex A of EN 12613	Inspection report	P	W	RW	
2.3.4	Permanence of Printing	Four sample per Lot	PTS, EN 12613 & IEC 60898:1995	Marking shall be easily legibleafter the test	Inspection report	P	W	RW	
2.3.5	Test of laying characterstics	Four sample per Lot	EN 12613	As per EN 12613	Inspection report	P	W	RW	
2.3.6	Test of Virginity	Four sample per Lot	PTS	As per Cl. 4.6.6 of PTS	Inspection report	P	W	RW	
3	Colour	Each	As per PTS	Bright Yellow Colour	Inspection report	P	W	RW	
4	Marking / Art Work	Per Meter	PTS	As per PTS	Inspection report	P	W	R	
5	Documentation	-	PO / PTS	PO / PTS	Compliance certificate	P	R	R	

LEGENDS: R - Review, W - Witness, RW - Random Witness, H - Hold, P - Perform, TPIA - Third Party Inspection Agency, CA - Control Authority (Owner / owner's representative) , P.O. - Purchase order

Notes: -

1 The Above Testing and acceptance critera are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed QAP prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to QAP/Quality manuals/Drawings etc.submitted by supplier.

4 Supplier/ Vendor shall issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

6 Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.

7 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection

8 At the time of deleivery of materail in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

RESONANCE ENERGY PVT LTD CITY GAS DISTRIBUTION PROJECT

QUALITY CONTROL ISOLATION BALL VALVE

Document No. REPL/CUGL/QAP/07 Rev-0
Date : 30.07.2024
Prepared : VS Checked : GSJ
Approved : AN

SR. NO.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION		
						Vendor	TPIA	REMARKS
1	**Raw material Testing:**							
1.1	Metallic materials (Chemical / Physical Requirement)	One in each heat	As per ASTM B 283 (ALLOY UNS C37700)	As per ASTM B 283 (ALLOY UNS C37700)	INSPECTION TEST REPORT	P	R	
1.2	Seat & Stem Seal Material	One in each heat	As per ASME B 16.33	As per ASME B 16.33	INSPECTION TEST REPORT	P	R	
2	**Final product :**							
2.1	- Gas Tightness Test	1%	As per EN 331 /ASME B 16.33 Cl no. 4.2	As per EN 331 /ASME B 16.33 Cl no. 4.2	INSPECTION TEST REPORT	P	W	Preferably witness by CA
	- Twist (Torque) Test	1%	As Per PTS	As Per PTS	INSPECTION TEST REPORT	P	W	
	- Bending Test	1%	As per EN 331 /ASME B 16.33 Cl no. 4.4.4	As per EN 331 /ASME B 16.33 Cl no. 4.4.4	INSPECTION TEST REPORT	P	W	
	- Impact Test	One in each heat	As Per PTS	As Per PTS	INSPECTION TEST REPORT	P	W	
	- Turning Torque Test	1%	As per EN 331 /ASME B 16.33 Cl no. 4.4.6	EN 331 /As per ASME B 16.33 Cl no. 4.4.6	INSPECTION TEST REPORT	P	W	
2.2	- Physical Test (Impact / Tensile test)	One in each heat	As per ASME B 16.33 Cl no. 4.4.5 / PTS	As per ASME B 16.33 Cl no. 4.4.5 / PTS	INSPECTION TEST REPORT	P	W	
2.3	Temperature Resistance test	1%	As per EN 331 /ASME B 16.33 Cl no. 4.3	As per EN 331 /ASME B 16.33 Cl no. 4.3	INSPECTION TEST REPORT	P	W	
2.4	Flow Capacity test	1%	As per EN 331 /ASME B 16.33 Cl no. 4.5	As per EN 331 /ASME B 16.33 Cl no. 4.5	INSPECTION TEST REPORT	P	W	
2.5	Hydrostatic pressure test	100%	As per EN 331/ASME B 16.33	As per EN 331/ASME B 16.33	INSPECTION TEST REPORT	P	RW	Preferably witness by CA
2.6	Visual inspection (Free from defects)	100%	As per EN 331 /ASME B 16.33	As per EN 331 /ASME B 16.33	INSPECTION TEST REPORT	P	RW	
2.7	Dimension tolerances (Min. length of engagement , OD , wall thk.)	100%	As per Approved Drawing	As per Approved Drawing	INSPECTION TEST REPORT	P	RW	
3	Marking	100%	As per EN 331 /ASME B 16.33 Cl no. 2.4 / PTS	As per EN 331 /ASME B 16.33 Cl no. 2.4 / PTS	INSPECTION TEST REPORT	P	RW	
4	Final Documentation		P.O. / PTS	P.O. / PTS	EN 10204 3.2 CERTIFICATE	P	H	

LEGENDS: R - Review, W - Witness, RW - Random Witness(Minimum 1 % of lot size) H - Hold, P - Perform, TPIA - Third Party Inspection Agency, CA - Control Authority (Owner / Owner's representative)

Notes: -

1 The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

4 Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organize Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

6 Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time

7 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection

8 At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

RESONANCE ENERGY PVT LTD CITY GAS DISTRIBUTION PROJECT

QUALITY CONTROL TABLE APPLIANCE
BALL VALVE

Document No. REPL/CUGL/QAP/08	Rev-0
Date : 30.07.2024	
Prepared : VS	Checked : GSJ
Approved : AN	

SR. NO.	INSPECTION AND TESTING	QUANTUM OFCHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION		
						Vendor	TPIA	REMARKS
1	**Raw material Testing:**							
1.1	Metallic materials (Chemical / Physical Requirement)	One in each heat	As per ASTM B 283 (ALLOY UNS C37700)	As per ASTM B 283 (ALLOY UNS C37700)	INSPECTION TEST REPORT	P	R	
1.2	Seat & Stem Seal Material	One in each heat	As per EN 331	As per EN 331	INSPECTION TEST REPORT	P	R	
2	**Final product :**							
2.1	- Gas Tightness Test	1%	As per EN 331 Cl no. 7.2	As per EN 331 Cl no. 7.2	INSPECTION TEST REPORT	P	W	Preferably witness by CA
	- Twist (Torque) Test	1%	As per EN 331 Cl no. 7.5	As per EN 331 Cl no. 7.5	INSPECTION TEST REPORT	P	W	
	- Bending Test	1%	As per EN 331 Cl no. 7.5	As per EN 331 Cl no. 7.5	INSPECTION TEST REPORT	P	W	
	- Impact Test	One in each heat	As per PTS	As per PTS	INSPECTION TEST REPORT	P	W	
	- Turning Torque Test	1%	As per EN 331 Cl no. 7.4	As per EN 331 Cl no. 7.4	INSPECTION TEST REPORT	P	W	
2.2	- Physical Test (Impact / Tensile test)	One in each heat	As per EN 331	As per EN 331	INSPECTION TEST REPORT	P	W	
2.3	Temperature Resistance test	1%	As per EN 331	As per EN 331	INSPECTION TEST REPORT	P	W	
2.4	Flow Capacity test	1%	As per EN 331 Cl no. 7.3	As per EN 331 Cl no. 7.3	INSPECTION TEST REPORT	P	W	
2.5	Hydrostatic pressure test	100%	As per EN 331	As per EN 331	INSPECTION TEST REPORT	P	RW	Preferably witness by CA
2.6	Visual inspection (Free from defects)	100%	As per EN 331	As per EN 331	INSPECTION TEST REPORT	P	RW	
2.7	Dimension tolerances (Min. length of engagement , OD , wall thk.)	100%	As per Approved Drawing	As per Approved Drawing	INSPECTION TEST REPORT	P	RW	
3	Marking	100%	As per EN 331 / PTS	As per EN 331 / PTS	INSPECTION TEST REPORT	P	RW	
4	Final Documentation		P.O. / PTS	P.O. / PTS	EN 10204 3.2 CERTIFICATE	P	H	

LEGENDS: R - Review, W - Witness, RW - Random Witness (Minimum 1 % of lot size) H - Hold, P - Perform, TPIA - Third Party Inspection Agency, CA - Control Authority (Owner / Owner's representative)

Notes: -

1 The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

4 Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organize Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

6 Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time

7 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection

8 At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

RESONANCE ENERGY PVT LTD	CITY GAS DISTRIBUTION PROJECT	QUALITY CONTROL TABLES - COPPER TUBE	Document No. REPL/CUGL/QAP/09 Rev-0 Date 30.07.2024 Prepared by :VS Checked by :GSJ Approved by : AN

SR. NO.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA (As per EN 1057 / PTS)	FORMAT OF RECORD	INSPECTION	
						Vendor	TPIA/Owner
1	Raw material : Chemical Requirement.	As per EN 1057	As per EN 1057	Material grade Cu - DHP / CW 024A Cu + Ag : Min. 99.9% P : .0015% to 0.040%	MTC	P	R
2	Final product : Chemical Requirement.	As per EN 1057	As per EN 1057			P	W
3	Physical test (Tensile , Elongation, Hardness etc.)	As per EN 1057	As per EN 1057	UTS - Min. 250 N / Sq. mm Elongation - Min. 30% Hardness - 75 to 100 HV	Inspection Report	P	W
4	Carbon film test	As per EN 1057	As per EN 1057	Maximum Residual carbon - 0.20 mg / sq. dm	Inspection Report	P	W
5	Carbon content test	As per EN 1057	As per EN 1057	As per EN 1057 / PTS	Inspection Report	P	W
6	Drift expanding test	As per EN 1057	As per EN 1057	As per EN 1057 / PTS	Inspection Report	P	W
8	Hydrostatic test	As per EN 1057	As per EN 1057	Min 35 bar @ 10 second.	Inspection Report	P	W
7	Eddy current test	As per EN 1057	As per EN 1057	As per EN 1057 / PTS	Inspection Report	P	W
9	Dimensional Inspection (O.D. , Wall thk. , Length , etc.)	As per EN 1057	As per EN 1057	As per EN 1057 / PTS	Inspection Report	P	W
10	Visual Inspection (Free from defect)	As per EN 1057	As per EN 1057	As per EN 1057 / PTS	Inspection Report	P	R
11	Marking	As per EN 1057	As per EN 1057	As per EN 1057 / PTS		P	R
12	Final Documentation (All Inspection reports etc.)		As per EN 1057	As per EN 1057 / PTS	Inspection Report	P	R

LEGENDS: **R** - Review, **W** - Witness, **H** - Hold, **P** - Perform, **TPIA** - Third Party Inspection Agency

Note :

1. The above testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)
2. The supplier shall submit their own detailed ITP prepared on the basis of above QCT & Technical specification for approval of Owner/Owner's representative.
3. Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.
4. Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.
5. Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.
6. Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.
7. All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection
8. At the time of deleivery of material in stores, vendor will submit copy of all related document of inspection along with release note,despatch clearance note & MTC.

RESONANCE ENERGY PVT LTD CITY GAS DISTRIBUTION
PROJECT

QUALITY CONTROL TABLES - COPPER FITTINGS

Document No. REPL/CUGL/QAP/10 Rev-0
Date 30.07.2024
Prepared by :VS Checked by : GSJ
Approved by : AN

S. NO.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION	
						Vendor	TPIA/Owner
1	Raw material : Chemical Requirement.	one in each heat	As per EN 1254	Material grade Cu - DHP / CW 024A Cu + Ag : Min. 99.9% P : .0015% to 0.040%	MTC	P	R
2	Final product : Chemical Requirement.	one in each heat	As per EN 1254			P	W
3	Carbon in bore tests (Carbon film test , carbon content test)	one in each heat	As per EN 1254	As per EN 1254 / PTS	TEST REPORT	P	W
4	Stress corrosion resistance test	one in each heat	As per ISO 6957	As per ISO 6957 / PTS	TEST REPORT	P	W
5	Hydrostatic pressure test	100%	As per EN 1254	Min. 37.5 bar @ 15 min.	TEST REPORT	P	W
6	Pneumatic pressure test	100%	As per EN 1254	Min. 6 bar .@ 10 second	TEST REPORT	P	W
7	Dimensional Inspection (Min. length of engagement , OD , Wall thk.)	100%	As per EN 1254	As per EN 1254 / PTS	TEST REPORT	P	W
8	Visual Inspection (Free from defect)	100%	As per EN 1254	As per EN 1254 / PTS	TEST REPORT	P	R
8	Marking	100%	As per EN 1254	As per EN 1254 / PTS		P	R
10	Final Documentation (All Inspection reports etc.)		As per EN 1254	As per EN 1254 / PTS	Inspection Report	P	R

LEGENDS: R - Review, W - Witness, H - Hold, P - Perform, TPIA - Third Party Inspection Agency

Note :

1 The above testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP prepared on the basis of above QCT & Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

4 Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

6 Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.

7 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection

8 At the time of deleivery of material in stores, vendor will submit copy of all related document of inspection along with release note,despatch clearance note & MTC.

RESONANCE ENERGY PVT LTD	CITY GAS DISTRIBUTION PROJECT	QUALITY CONTROL TABLES - BRASS FITTING	Document No. REPL/CUGL/QAP/11 Rev-0 Date 30.07.2024 Prepared by : VS Checked by : GSJ Approved by : AN

SR. NO.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION		
						Vendor	TPIA/CLIENT	REMARKS
1	Raw material Testing: (Chemical / Physical Requirement)	One in each heat	As per EN 12164	As per EN 12164 / PTS	MTC	P	W	Preferably witness by CA
2	Final product :							
2.1	Resistance to dezincification	One in each heat	As per EN 1254	As per EN 1254	TEST REPORT	P	W	
2.2	Stress corrosion resistance test	One in each heat	As per ISO 6957	As per ISO 6957 / PTS	TEST REPORT	P	W	
2.3	carbon in bore test	One in each heat	As per EN 1254	As per EN 1254 / PTS	TEST REPORT	P	W	
2.4	Hydrostatic pressure test	100%	As per EN 1254	Min 37.5 bar @ 15 min.	TEST REPORT	P	W	Preferably witness by CA
2.5	Pneumatic pressure test	100%	As per EN 1254	Min 6 bar @ 15seconds	TEST REPORT	P	W	
2.6	Visual inspection (Free from defects)	100%	As per EN 1254	As per EN 1254 / PTS	TEST REPORT	P	R	
2.7	Dimension tolerances (Min. length of engagement , OD , wall thk.)	100%	As per EN 1254	As per EN 1254 / PTS	TEST REPORT	P	RW	
2.8	Marking	100%	As per EN 1254	As per EN 1254		P	R	
3	Final Documentation		P.O. / PTS	P.O. / PTS	TEST REPORT	P	H	

LEGENDS: R - Review, W - Witness, H - Hold, P - Perform, TPIA - Third Party Inspection Agency, CA - Control Authority (Owner / Owner's representative), RW - Random witness

Notes: -

1 The above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

4 Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organize Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

6 Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time

7 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/GGL at the time of Inspection

8 At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note , despatch clearance note & MTC.

RESONANCE ENERGY PVT LTD CITY GAS DISTRIBUTION PROJECT	QUALITY CONTROL TABLES - CORRUGATED FLEXIBLE METAL HOSE(ANACONDA)	Document No. REPL/CUGL/QAP/12 Rev-0 Date 30.07.2024 Prepared by : VS Checked by : GSJ Approved by : AN

S. NO.	Item/Description	Test Parameters	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	INSPECTION		Remarks
						Vendor	TPIA	
1	**Raw Material**							
1.1		Chemical & Mech. Test of material ofSS hose	100%	SS316 BS: 1449 PART -2	SS316 BS: 1449 PART -2/ MTC	P	W	
1.2		Chemical & Mech. Test of material ofend fittings (Adaptors, nuts, washer)	100%	As per PTS	As per PTS / MTC	P	W	
1.3		Heat treatment	100%	As per BS: 6501 PART 1	As per BS: 6501 PART 1	P	R	
2	**Final Product**							
2.1	Type test	Cyclic life/ static bend test at 1.5 xdesign pressure	one (1) per batch	As per Cl. No. 14 of BS: 6501 PART 1	As per BS: 6501 PART 1 No cracks permissible	P	W	Witness / Review by CA
2.2		Yield and Burst test	one (1) per batch	As per Cl. No. 14 of BS: 6501 PART 1	As per BS: 6501 PART 1	P	W	Witness / Review by CA
2.3	Production test	Pressure test (Pneumatic Test)	100%	As per Cl. No. 15 of BS: 6501 PART 1	As per BS: 6501 PART 1	P	RW	Witness / Review by CA
2.4		Visual Inspection	100%	As per BS: 6501 PART 1	As per BS: 6501 PART 1	P	R	
2.5		Dimension	100%	As per PTS	As per PTS	P	RW	
3	End fittings (Adaptors, nuts, washer)	Visual & dimensional check	100%	As per PTS	As per PTS	P	R	
4	Marking	-	100%	As per BS: 6501 PART 1	As per BS: 6501 PART 1	P	R	
5	Final Documentation	-	-	As per the term & conditions of P.O. & PTS	As per the term & conditions of P.O.& PTS	P	H	

LEGENDS: R - Review, W - Witness, H - Hold, P - Perform, TPIA - Third Party Inspection Agency, CA - Control Authority (Owner / Owner's representative), RW - Random witness

Notes: -

1 The Above Testing and acceptance critera are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP along with proposed drawing and marking details prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

4 Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

6 Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.

7 All reference Codes/ Standards, Documents, P.O. Copies shall be arranged by vendor / supplier for reference of TPIA/Owner at the time of Inspection

8 At the time of deleivery of material in stores, vendor will submit copy of all related document of inspection along with release note, despatch clearance note & MTC.

	QUALITY ASSURANCE PLAN MULTI LAYER COMPOSITE (MLC) PIPE & FITTINGS	Document No. REPL/CUGL/QAP/14 Rev-0 Date 17.10.2026 Prepared by :VS Checked by : GSJ Approved by : AN

MULTILAYER COMPOSITE (MLC) PIPE

S.NO	INSPECTION AND TESTING	CHARACTERISTICS	QUANTUM OF CHECK / TEST	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION BY		REMARKS
							Manufacturer	TPIA	
1	Raw Materials	**POLYETHYLENE:** 1. MFR (5Kg) - 0.20 to 1.40g/10min 2. Density - ≥0.930g/cm3" **ALUMINIUM:** 1. Tensile Strength ≥ 115 Mpa 2. Elongation > 23%	Each Batch	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	RMTC	P	R	
2	Dimesion & visual Inspection	**DIMENSION:**1. Check Pipe ID & OD 2. Check Pipe Wall Thickness **VISUAL:**1. Pipe Outer Layer Color = Yellow 2. Pipe Inner Layer Color = Black/yellow 3. Free from Defect	One sample per Lot	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	IR	P	W	
3	Long-term pressure strength	Failure control points for each diameter for 22 hrs, 165 hrs and 1000 hrs shall be calculated	Type Test	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	TC	P	R	
4	Resistance to slow crack growth of the outer layer	1. The crack growth rate of the outer layer shall be less than 10 mm/day. 2. The test shall be carried out on pipe produced from material used for the outer layer.	Type Test	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	TC	P	R	
5	Resistance to gas constituents	1. 1500 hrs conditioning Test & (23±2)°c 2. 10% expansion Cone Test	Type Test	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	TC	P	R	No Delamination
6	Thermal durability of the outer layer of M-pipes	0.25 years Test at 110°C or 0.50 years Test at 100°C	Type Test	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	TC	P	R	No Visual Cracks on Outer Layer
7	Oxidation induction time (OIT)	≥ 20 min Test at 200 +/- 2 °C	One sample per Lot	ISO 11357-6 / ISO 17484-1 / IS-17544/ PTS	ISO 11357-6 / ISO 17484-1 / IS-17544/ PTS	TC	P	R	
8	Delamination:M-pipes	1. Peel strength ≥ 15 N/cm (-20±2)°C/ (+60±2)°C 2. No of Cycles - 10	One sample per Lot	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	TC	P	R	
9	Odorant permeability	Flow THT for 60 days Test at 23 +/- 2°C	Type Test	ISO 17484-1 / IS-17544 / PTS	ISO 17484-1 / IS-17544 / PTS	TC	P	R	
10	Marking	1. Manufacturer's Name or Trademark 2. Size	One sample per batch	IS-17544 / ISO 17484 / Approved Tech Spec	IS-17544 / ISO 17484 / Approved Tech Spec	Inspection Test Report	P	W	
11	Packaging	1. Manufacturer's Name or Trademark 2. Packing : Wrapped in Kraft Paper + Polyethylene Sheet and tied with Plastic strips	One sample per batch	IS-17544 / ISO 17484 / Approved Tech Spec	IS-17544 / ISO 17484 / Approved Tech Spec	Inspection Test Report	P	W	
MULTILAYER COMPOSITE (MLC) PIPE FITTINGS									
1	Chemical Composition Test	1. Copper: 56 to 59% 2. Lead: 2 to 3.5% 3. Iron: max 0.35%	-	IS 319 / Approved Tech Spec	IS 319 / Approved Tech Spec	Material Test Certificate	P	R	
2	Mercurous Nitrate Test	No crack on surface to be observed	-	ASTM B154 / Approved Tech Spec	ASTM B154 / Approved Tech Spec	Material Test Certificate	P	R	
3	Stress Corrosion Resistance Test	No crack on surface to be observed	-	ISO 6957 / Approved Tech Spec	ISO 6957 / Approved Tech Spec	Material Test Certificate	P	R	
4	Dimensional Check	Dimensions as per Approved Drawings	One sample per batch	ISO 17484 / IS-17544 / Approved Tech Spec	ISO 17484 / IS-17544 / Approved Tech Spec	Inspection Test Report	P	W	
5	Marking	1. Manufacturer's Name or Trademark 2. Fitting Size	One sample per batch	ISO 17484 / IS-17544 / Approved Tech Spec	ISO 17484 / IS-17544 / Approved Tech Spec	Inspection Test Report	P	W	
6	Final Documentation		-	Document Pertaining to all tests specified in this QAP	Document Pertaining to all tests specified in this QAP	Dossier	P	H	

LEGENDS : TC - Test Certificate, R - Review, W - Witness, H - Hold, P - Perform, TPIA - Third Party Inspection Agency.

1. The above testing and acceptance criteria are minimum requirements; however, manufacturer shall ensure that the product shall also comply to the additional requirements as per specification.
2. The supplier shall submit their own detailed ITP prepared on the basis of above I Technical specification for approval of Owner / Owner's representative.
3. Owner/ Owner representative shall review/ approve all the documents related to ITP / Quality manuals / Drawings etc. submitted by supplier
4. Contractor shall in coordination with Supplier / Sub vendor issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner / Owner's representative and TPIA
5. Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent
6. Owner / Owner's representative including TPIA will have the right to inspect any activity of manufacturing at any time.

7. All reference Codes / Standards. Documents, P.O. Copies shall be arranged by vendor I supplier for reference of TPIA/ CUGL at the time of inspection.
8. At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note, dispatch clearance note & MTC

RESONANCE ENERGY PVT LTD	CITY GAS DISTRIBUTION PROJECT	QUALITY CONTROL TABLE STEEL REINFORCED RUBBER HOSE	Document No. REPL/CUGL/QAP/13 Rev-0 Date 30.07.2024 Prepared by :VS Checked by : GSJ Approved by : AN

S. NO.	Item/Description	Test Parameters	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA	CERTIFICATE	INSPECTION		Remarks
							Vendor	TPIA	
1.1	**Raw Material**	Chemical & Mech. Test of material of Steel Reinforced Rubber Hose (Lining, Reinforcement material & Cover)	100%	IS 9573	IS 9573	MTC	P	R	
2	**Final Product**								
2.1	Final Inspection	Mechanical Properties	one (1) per batch	Tensile Strength = 10 Mpa (Min.) El (Lining & Cover) is 200 & 250 resp. (Min.)	PTS & IS 9573	Inspection Report	P	W	
2.2		Resistence of Lining to n-pentane	one (1) per batch	Shall not exceed 10% absorbed & 5 % extractableas per Cl.no. 5.2 of PTS	Cl 5.4.3.2 of IS 9573	Inspection Report	P	W	
2.3		Adhesion Test	one (1) per batch	Min. Adhesion shall be 2 KN/m as per Cl. No. 5.3of PTS	Cl. no. 5.5.1 of IS 9573	Inspection Report	P	W	
2.4		Low Temperature Flexibility Test	one (1) per batch	Conditioned at -40^{0}C for 5 hrs. & bent at 180^0 around mandrel of dia 12 times the Nominal Boreof hose as per Cl no. 5.4 of PTS	Cl. No. 5.5.2 of IS 9573	Inspection Report	P	W	
2.5		Flexibilty of hose at 1.5 x design pressure	one (1) per batch	Bent empty to radius 95 mm without flattening & suffering structural damages.	Cl. No. 5.5.3 of IS 9573	Inspection Report	P	W	Witness by CA
2.6		Ozone Resistance Test	one (1) per batch	Cl no. 5.9 of PTS	Cl. No. 5.5.4 of IS 9573	Inspection Report	P	W	
2.7		Hydrostatic Test / Proof Pr. Test	100%	2 Mpa for 1 min. as per Cl. No. 5.7 of PTS	Cl. No. 5.5.5.1 of IS 9573	Inspection Report	P	W	Witness by CA
2.8		Burst test	one (1) per batch	Min Pressure shall be 5 MPA as per Cl. 5.8 of PTS	Cl. No. 5.5.5.2 of IS 9573	Inspection Report	P	W	Witness by CA
2.9		Grip Strength Test	4 specimen / Batch	Cl no. 5.9 of PTS	Cl no. 5.5.7 & Annex. A of IS 9573	Inspection Report	P	W	
2.10		Burning Test	one (1) per batch	Shall not burn till 45 sec. as per Cl. No. 5.10 of PTS	Cl no. 5.5.8 of IS 9573	Inspection Report	P	W	
2.11		Visual & Dimensional Inspection	100%	Cl. No. 4.0 of PTS & IS 9573	IS 9573	Inspection Report	P	R	
2.12		Cover Color - Orange	100%	Cl no. 5.2.3 of PTS	PTS & IS 9573	Inspection Report	P	R	
3	Marking	-	100%	As per Cl. No. 6.0 of PTS	PTS / IS 9573	Inspection Report	P	R	
4	Packaging	-	100%	As per Cl. No. 7.0 of PTS	PTS / IS 9573	Inspection Report	P	R	
5	Final Documentation	-	-	As per the term & conditions of P.O. & PTS	As per the term & conditions of P.O. & PTS	3.2 Cetificate as per EN 10204	P	H	

LEGENDS: R - Review, W - Witness, H - Hold, P - Perform, TPIA - Third Party Inspection Agency, CA - Control Authority (Owner / Owner's representative)

Notes: -

1 The Above Testing and acceptance critera are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per Particular Technical specifications(PTS)

2 The supplier shall submit their own detailed ITP prepared on the basis of above / Technical specification for approval of Owner/Owner's representative.

3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc.submitted by supplier.

4 Contractor shall in coordination with Supplier/Sub vendor shall issue detailed Production and Inspection schedule indicating the dates and the locations to facilitate Owner/Owner's representative and TPIA to organise Inspection.

5 Special manufacturing procedures have to be specially approved or only previously approved procedures have to be used, in case of conflict between specifications more stringent condition shall be applicable.

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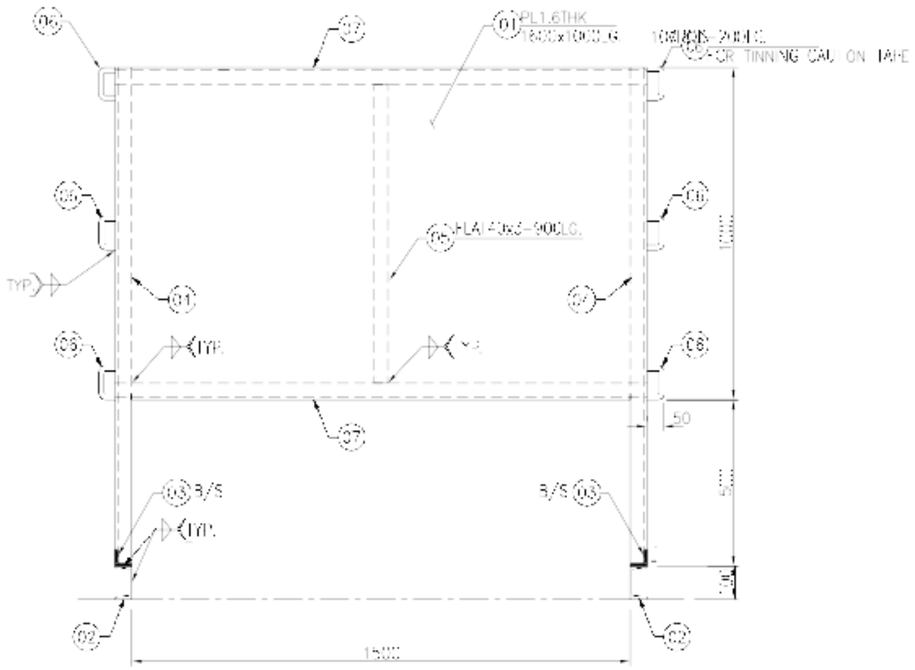
RECOMMENDED VENDOR LIST

ITEM CODE / DESCRIPTION	**GI Pipe**
M/s Vishal Pipes Ltd.	
M/s Indus Tubes Ltd.	
M/s Swastik Pipe Ltd.	
M/s Jindal Industries Ltd.	
M/s PS Steel Tubes ltd	
M/s Surya Roshni Limited	
ITEM CODE / DESCRIPTION	**GI Fittings**
M/s Chandan Enterprises	
M/s Chokhawala Distributors	
M/s Jupiter Metal Industries Ltd.	
M/s Jainsons Industries Ltd.	
M/s Green Malleable Pvt Ltd	
M/s Mehta Brothers & Co.	
ITEM CODE / DESCRIPTION	**Isolation Ball Valve & Appliance Valve**
M/s Chokhawala Distributors	
M/s Chandan Enterprises	
M/s Mehta Brothers & Co.	
• Zhejiang Valogin Technology Co LTD, China	
• OM Rudra Engineering, Jamnagar (Isolation Valve only)	
M/s Astron Valve Tech Industries Pvt Ltd (Isolation Valve only)	
M/s Sumeru Infra Solution, Surat (Isolation Valve only)	
M/s Enologas Bonomi S.P.	
ITEM CODE/DESCRIPTION	**Warning Mat**
M/s. Shree Vijay Wire & Cable Industries.	
M/s Sparco Multiplast Pvt. Ltd.	
M/s Singhal Industries Pvt Ltd.	
M/s BINA Enterprises	
M/s Jay Corporation Private Limited	
ITEM CODE/DESCRIPTION	**MDPE Pipe & HDPE Pipe**
M/s Parixit Irrigation Limited	
M/s Vishal Pipes Limited	
M/s Rungta Irrigation Limited	
M/s Veekay Plast	
M/s Venuka Polymers Pvt. Ltd.	
M/s Vishakha Renewables Private Limited	
M/s Kriti Industries India Limited	
M/s Dewa Polymers Private Limited	
M/s Northeast Polypipes LLP	
M/s Ori-Plast Limited	
M/s SAS Polymers Private Limited, Chhindwara	
ITEM CODE/DESCRIPTION	**MDPE (Fitting/Valves/Transition Fittings)**
M/s. Georg Fischer Piping System	
M/s. Kimplas piping Systems	

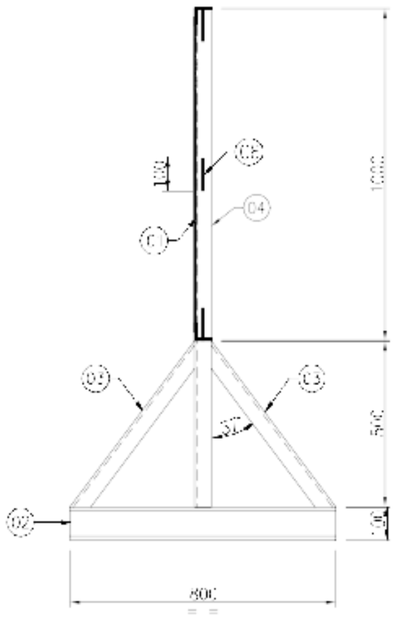
M/s. Al-Aziz Plastics Pvt. Ltd	
M/s. The Supreme Industries Limited	
M/s. Tega Muhendislik	
M/s. Glynwed pipe systems	
M/s. RMG Autometers gas technologies	
ITEM CODE/DESCRIPTION	**Brass & Copper pipe (Fitting, Valves)**
M/s Chandan Enterprises	
M/s Paras Industries	
M/s Chokhawala Distributors	
M/s Jay Corporation Private Limited	
ITEM CODE/DESCRIPTION	**MLC Pipe**
M/s Nexgen Composite Industries	
M/s Kitec Industrial (India) Pvt. Ltd.	
M/s Jindal PE-X Tubes Private Limited	
M/s Chandan Enterprises	
M/s The Supreme Industries Ltd	

Notes :

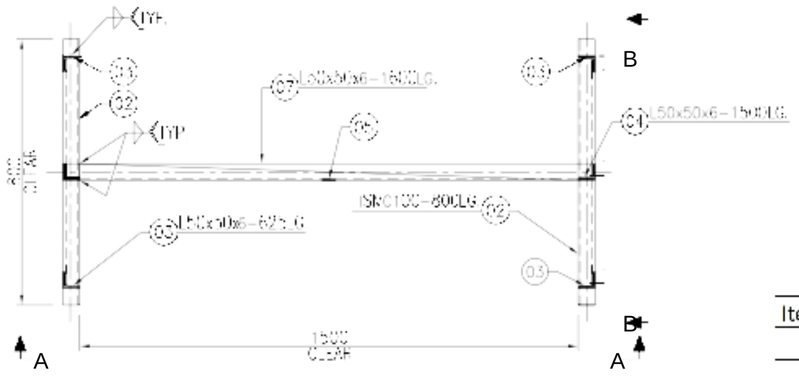
1. For the vendors of items not covered in above vendor list, but required for completion of project successfully, supplier shall take approval form Owner/Owners representative for the same during project execution. Bidder shall submit the required certifications, documents, PTR and Performance letters from clients for the same.



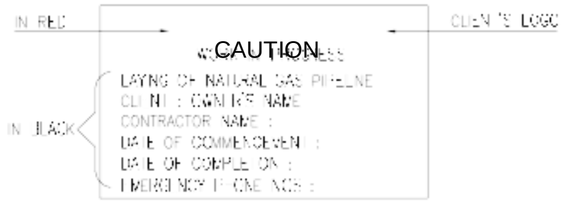
ELEVATION A-A



ELEVATION B-B



PLAN VIEW



(TO BE PRINTED ON BOTH SIDE OF ITEM NO. 01)

BILL OF MATERIAL

Item Mkd.	Section	Width	length	Item Qty.	Weight	In Kgs
				(All Marks)	Kgs/M,M2	Total Weight
1	PL 1.6 Thk.	1600	1000	1	12.56	20.1
2	ISMC 100	-----	8000	2	9.2	14.72
3	L50 x 50 x 6	-----	625	4	4.5	11.25
4	L50 x 50 x 6	-----	1500	2	4.5	13.5
5	Flat 3 thk.	40	900	1	0.94	0.03
6	10 dia rod	-----	200	6	0.62	0.74
7	L50 x 50 x 6	-----	1600	2	4.5	14.4
				Grand Total (Kg)		74.74

NOTES:
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE.

Rev	D M Y	Status	Drawn	Checked	Approved
0	17.7.2022	Approved for tender	AS	VS	GSC

SUBJECT:-TYPICAL DETAIL OF CAUTION BOARD

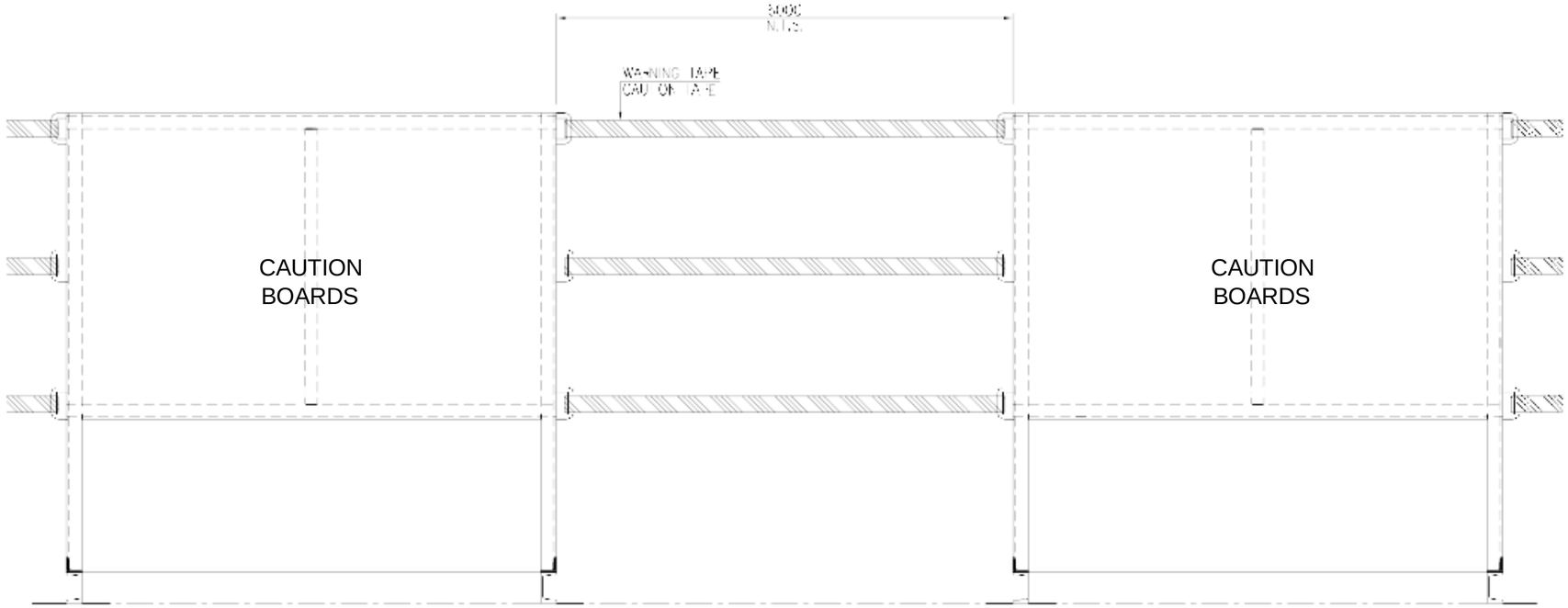
PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT. LTD.

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A3	NTS	01 of 01	0

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NOTES:
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2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE.



SCHEMATIC LAYOUT OF CAUTION BOARDS AND BARRICADDING

Rev	D M Y	Status	Drawn	Checked	Approved
0	17.07.2024	Issued for tender	AS	VS	DSL

SUBJECT:- TYPICAL DETAIL OF BARRICADING

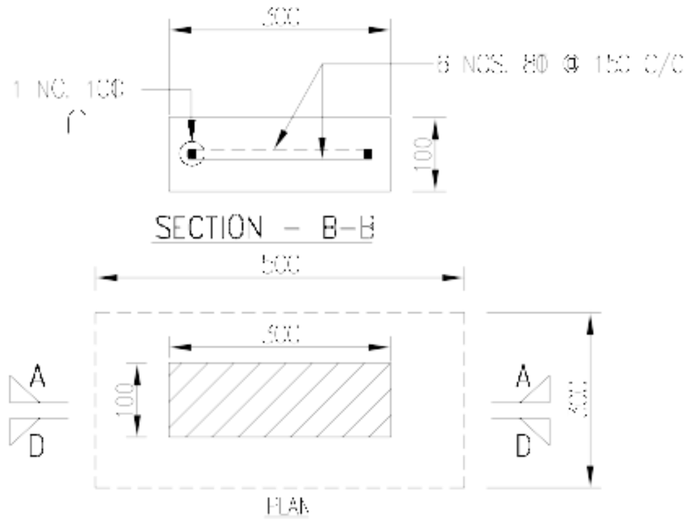
PROJECT:- CENTRAL UP GAS LIMITED

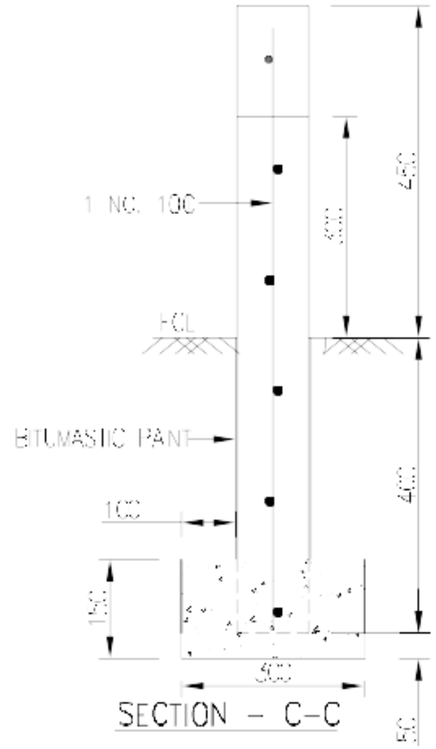
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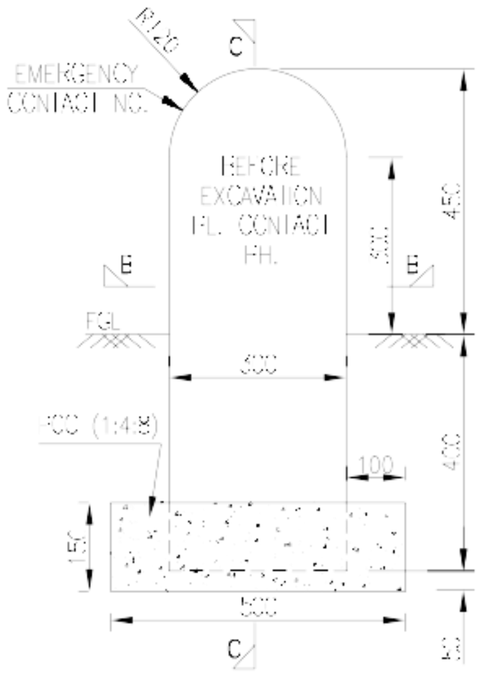
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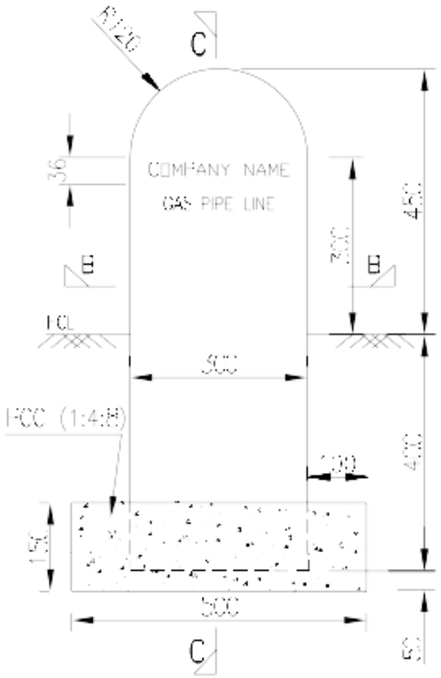
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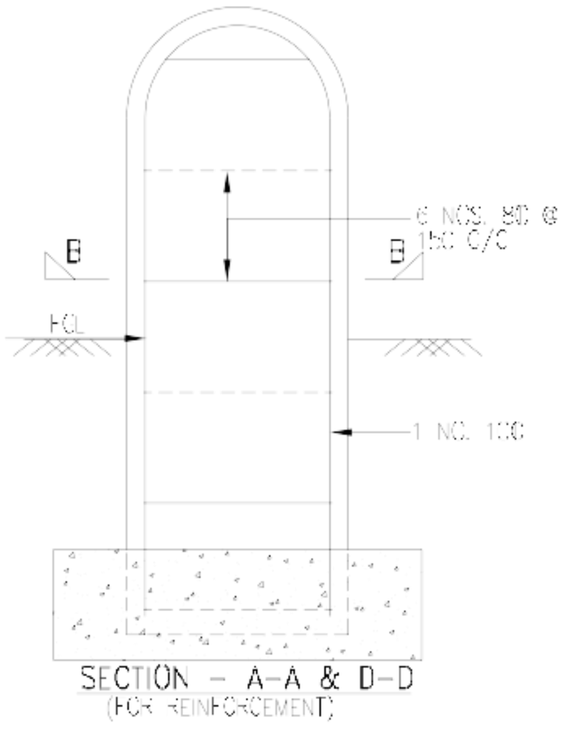
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NOTES:

1. DRAWING IS NOT TO SCALE.
2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
3. MARKERS SHALL BE INSTALLED IN EVERY 50 METER INTERVAL AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE.
4. ALL BOUNDARY MARKERS SHALL BE PRECAST & INSCRIPTIONS SHALL BE ENGRAVED 5mm DEEP IN THE MOULD ON BOTH FACE.
5. CONCRETE FOR BOUNDARY MARKER SHALL BE M-20

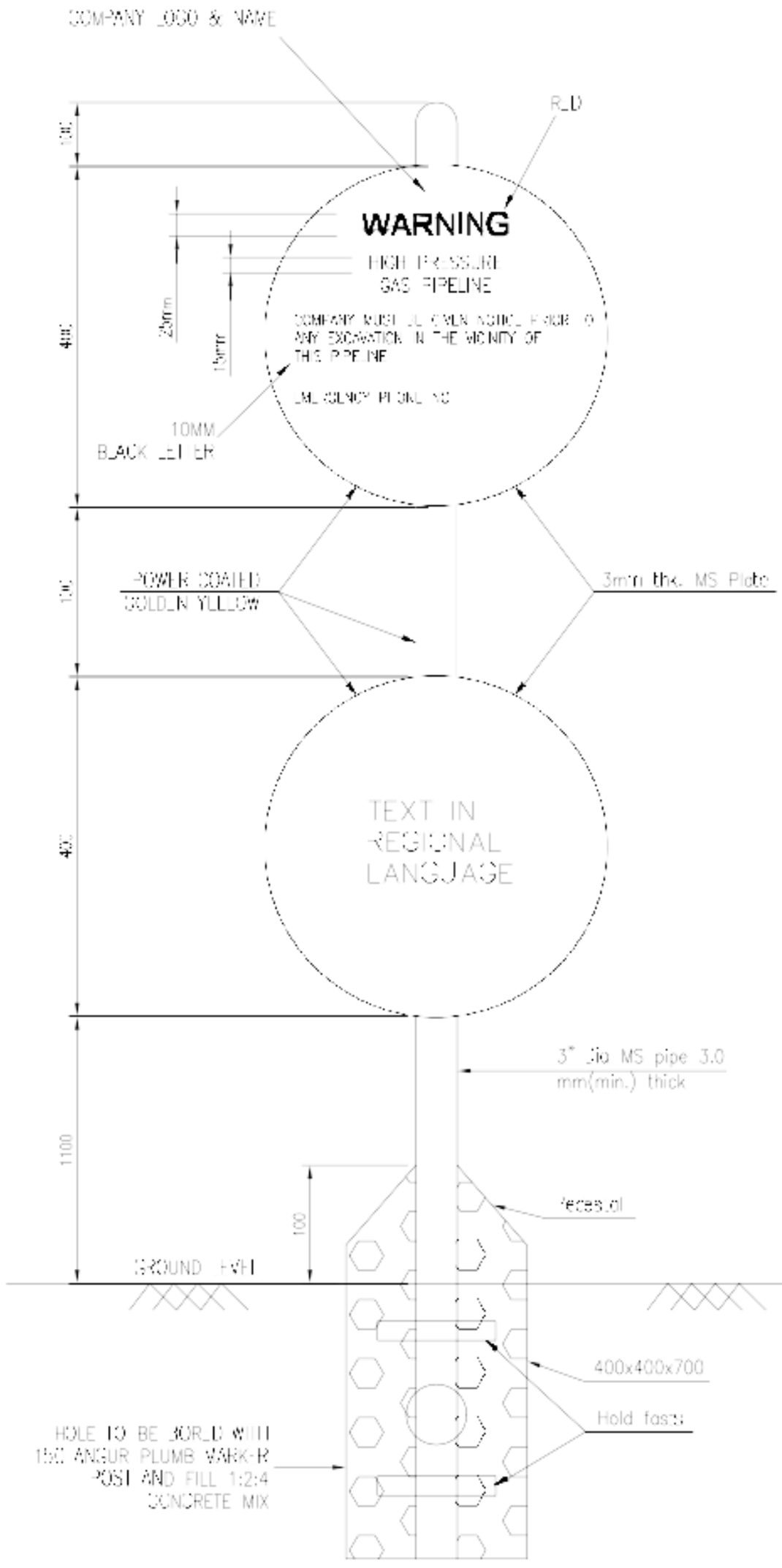
0	16.07.2024	Issued for tender	AS	VS	GSJ
Rev.	D M Y	Status	Drawn	Checked	Approved

SUBJECT :-TYPICAL DETAILS OF RCC ROUTE MARKER

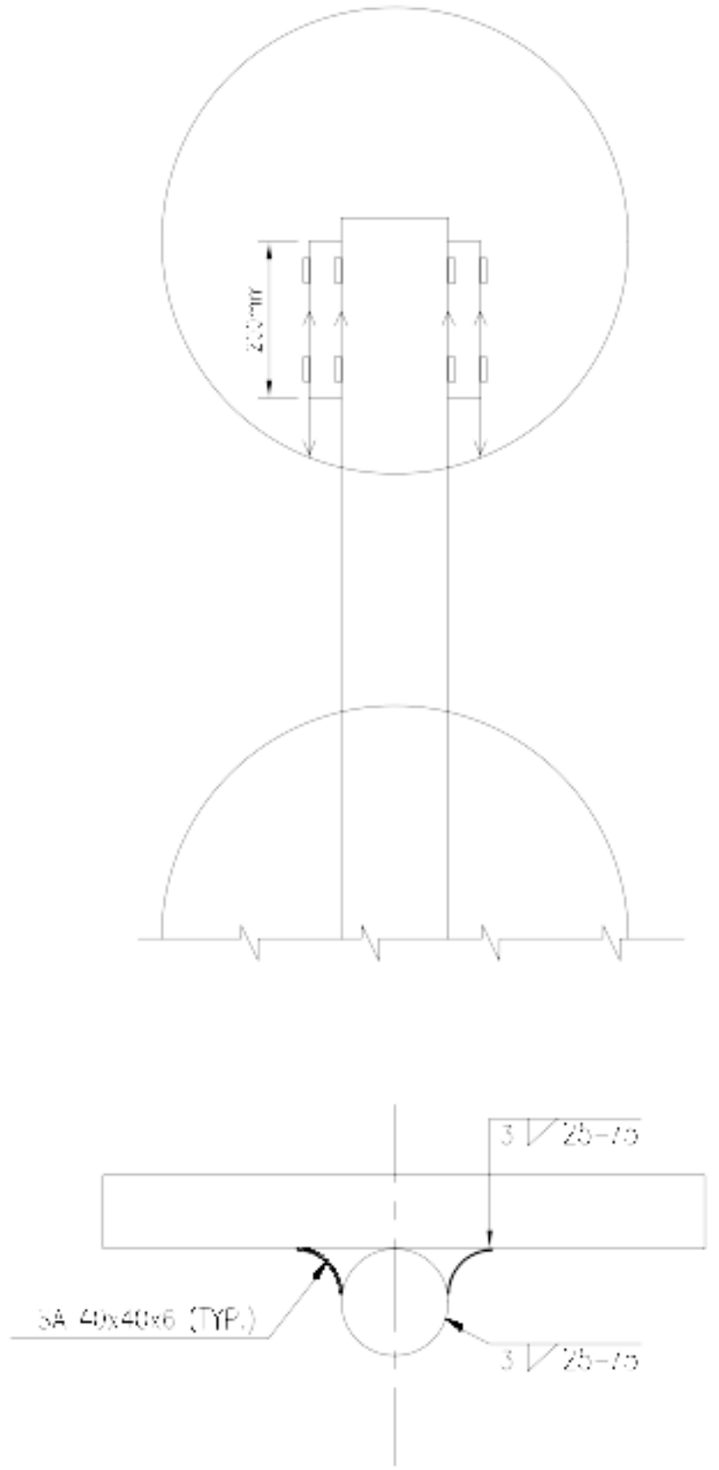
PROJECT:- CENTRAL UP GAS LIMITED

	Size	Scale	Sheet	Rev.
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	Drawing No. REPL/CUGL/STD/CSP-003			

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FIXING DETAILS



NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE FULL WORKING AND SIZES ARE ONLY INDICATIVE AND ARE SUBJECT TO THE APPROVAL BY OWNER/OWNER'S REPRESENTATIVE BEFORE FABRICATION.
3. SCHEME FOR POWDER COATING AND COLORING, ONE COAT OF PRIMER & TWO COATS OF SPECIFIED PAINTS. ALL LETERS "WARNING" TO BE PAINTED BLACK.
4. APPROVAL OF WARNING MARKER DESIGN SHALL BE OBTAINED BEFORE THE COMMENCEMENT OF WORK.

0	12.07.2024	Issued for tender	AS	VS	DSU
Rev.	D.M.Y.	Details	Drawn	Checked	Approved

SUBJECT :- POLE MARKER WITH FOUNDATION

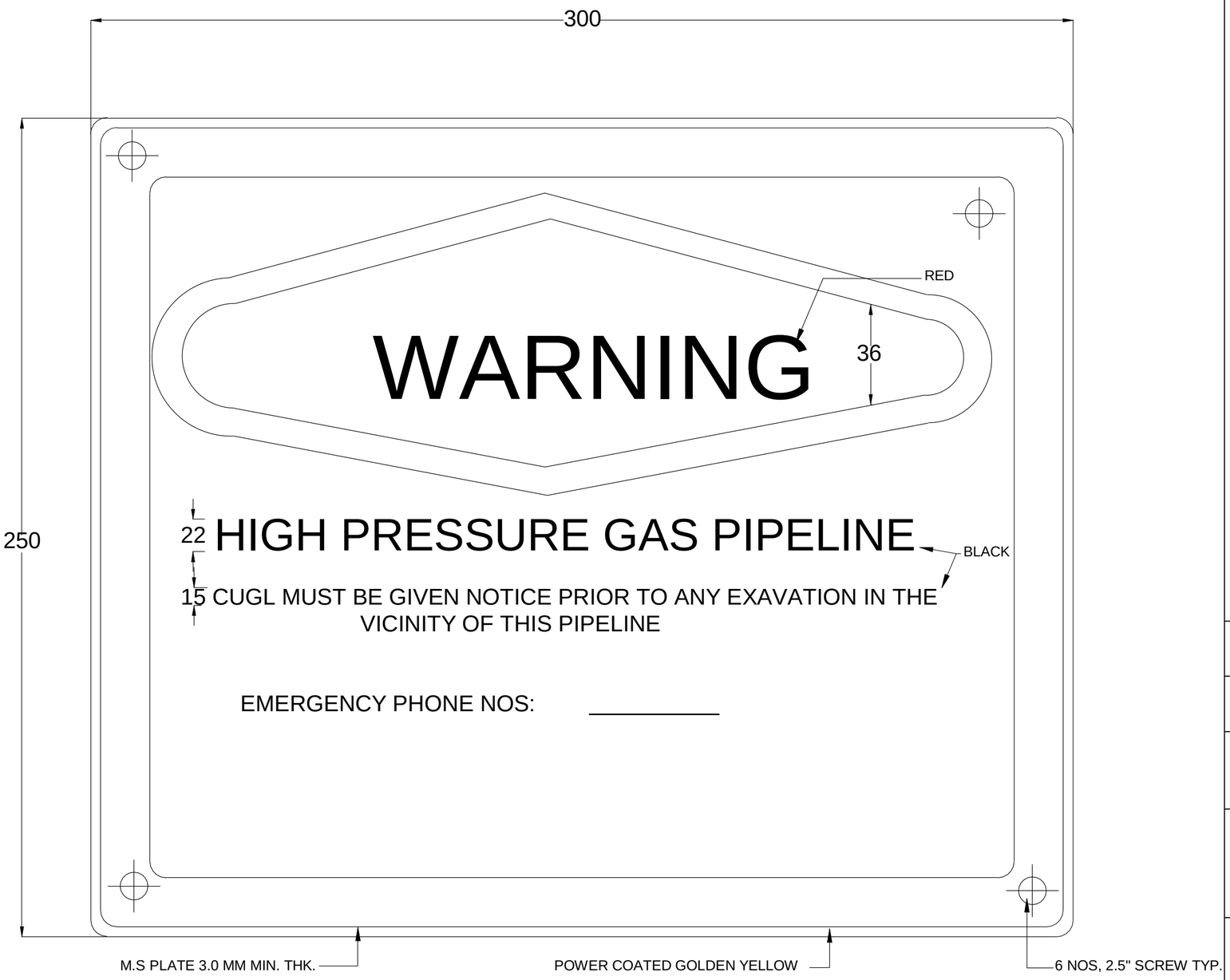
CUGL — PROJECT :- CGD (GAS LIMITED)

RESONANCE ENERGY PVT. LTD.

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Drawing No. RERL/CGL/STD/CSP-304

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1. ALL DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE

0	20/07/2024	ISSUED FOR TENDER	AS	VS	GSJ
REV.	D M Y	MODIFICATIONS	DRAWN BY	CHECKED BY	APPROVED BY

SUBJECT:- PLATE MARKER

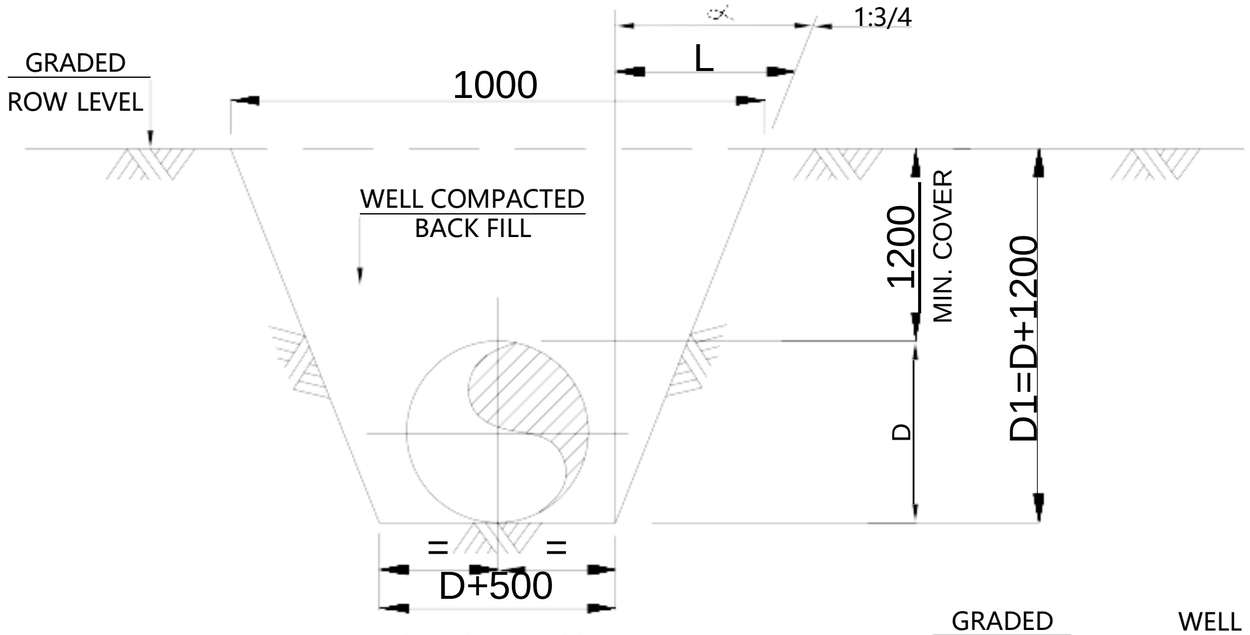
PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT. LTD.

SIZE	SCAL	SHEET	REV.
A1	NTS	01 OF 01	0

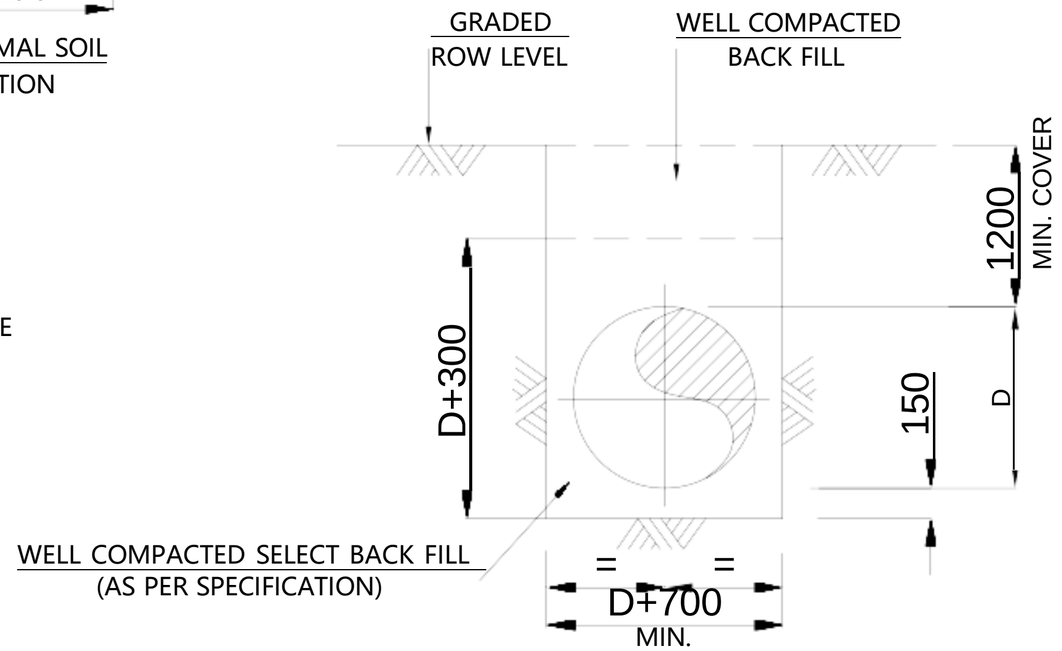
drawing no. REPL/CUGL/STD/CSP-005

TYPICAL TRENCH DIMENSION FOR PIPELINE



TRENCH NORMAL SOIL
TYPE SECTION

D= OUT SIDE DIAMETER OF PIPE



TRENCH IN CONSOLIDATED ROCK
TYPE SECTION

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE MINIMUM COVER TO BE ADOPTED SHALL BE 1200 MM ANY EXTRA COVER REQUIREMENT SHALL BE IN ACCORDANCE WITH SPECIFICATION.
3. MINIMUM COVER REQUIREMENT SHALL BE SUBJECT TO APPROVAL OF TPI AND CONCERNED AUTHORITIES WHEREVER REQUIRED.
4. EXTRA COVER REQUIREMENT SHALL BE ESTABLISHED AT ALL OVER BENDS & SAG BEND AND HORIZONTAL BENDS WHEREVER NECESSARY.
5. FOR MINIMUM COVER REQUIREMENT AT PIPELINE CROSSING ROADS RAILWAY TRACKS RIVERS MARSHY AREAS ETC.

0	18/07/2024	Issued for Tender	AS	VS	GS
Rev.	D M Y	Status	Drawn	Checked	Approved

SUBJECT:- TYPICAL TRENCH DIMENSION FOR PIPELINE

CUGL

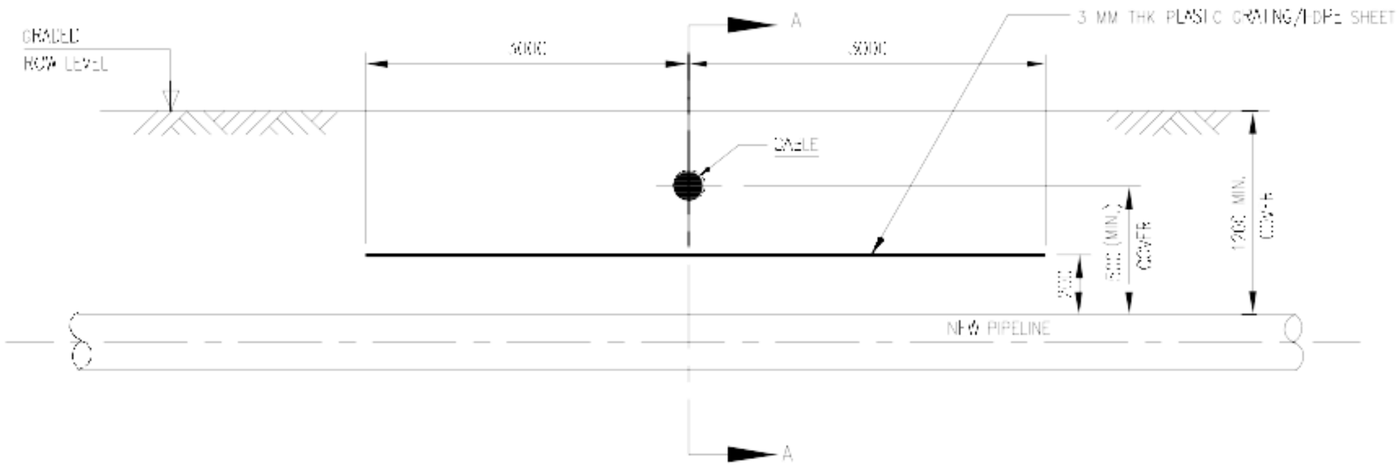
PROJECT:- CENTRAL UP GAS LIMITED

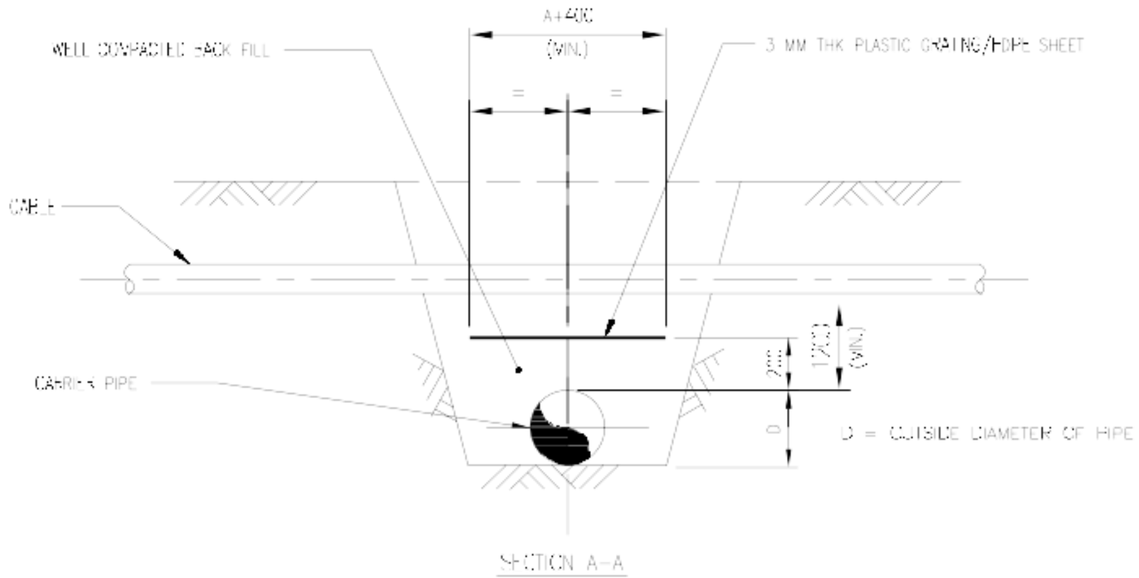
RESONANCE ENERGY PVT. LTD.

Size	Scale	Sheet	Rev.
A3	NTS	01 of 01	0

Drawing No.:- RER/CUGL/STD/CSF-008

UNDERGROUND CABLE CROSSING





SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. A PIPELINE WARNING SIGN SHALL BE INSTALLED CLOSE TO CROSSING.
3. PLASTIC GRATING AS PER RELEVANT STANDARD/SPECIFICATION.
4. PLASTIC GRATING NEED NOT BE PROVIDED BETWEEN CABLE AND CASED PIPELINE.
5. IN CASE OF ARMOURED AC CABLE, C.P. BONDING TEST STATION IS TO BE PROVIDED BETWEEN PIPELINE AND CABLE/ARMOUR. INCASE OF UNARMOURED AC CABLES, ARRANGEMENT FOR ELECTRO-MAGNETIC SHEILDING (BY PROVIDING CASING ON EITHER THE PIPE LINE OR CABLE) SHALL BE CONSIDERED.
6. DIMENSION "A" SHALL BE CALCULATED USING FORMULA A=(D1 + D2...Dn)+(N-1)x300 FOR MORE THAN ONE PIPELINE LAID IN COMMON TRENCH WHERE D1, D2,Dn ARE THE DIAMETER OF PIPELINES AND 'N' IS NUMBER OF PIPELINE IS SAME TRENCH.
7. DIMENSION "D" SHALL BE THE LATEST DIAMETER OF THE PIPELINES LAID IN THE SAME TRENCH.
8. TRENCH DIMENSIONS SHALL BE IN ACCORDANCE WITH RELEVANT STANDARDS/ SPECIFICATIONS.
9. APPROVAL OF THE CROSSING SHALL BE OBTAINED FROM CONCERNED AUTHORITIES/OWNER.

Rev	D M Y	Status	Drawn	Checked	Approved
0	12.07.2024	Issued for tender	AS	VS	GSL

SUBJECT:- TYPICAL DRAWING FOR UNDER GROUND CABLE CROSSING

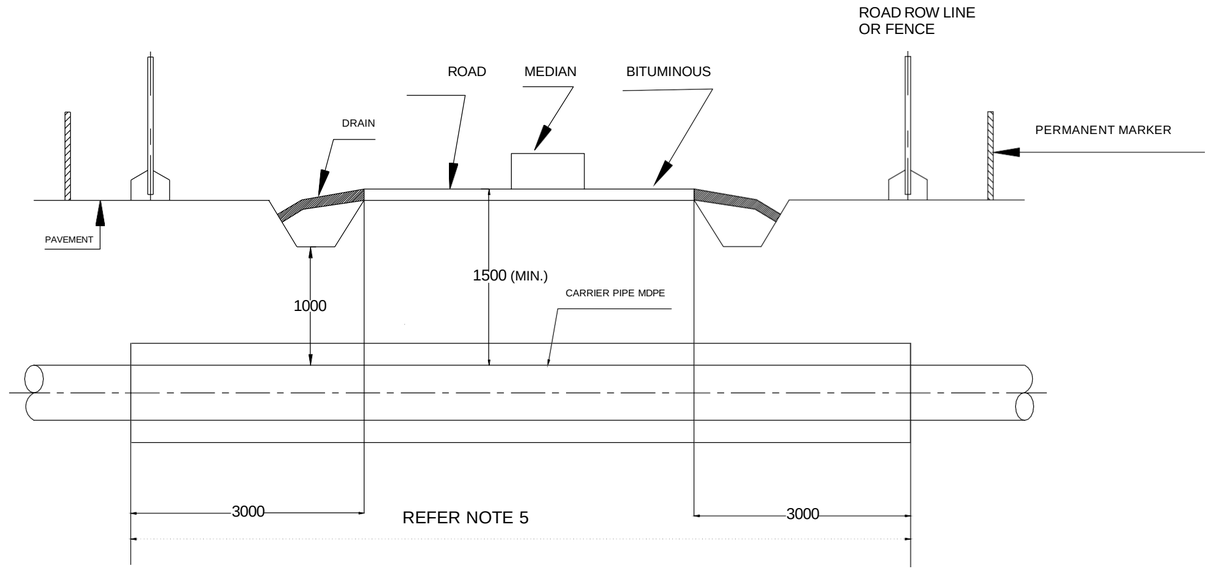
PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT. LTD.

Size	Scale	Sheet	Rev
A3	NTS	01 of 01	0

Drawing No.:- RERL/CUGL/STD/CSP-007

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NOTE-

1. ALL DIMENSION ARE IN UNLESS OTHERWISE SPCIFIED .
2. ROAD HIGHWAY CROSSING SHALL BE RESTORED YO ORIGINA CONDITION TO THE ENTIRE SATISFACTION OF OWNER AND CONCERNED AUTHORITIES HAVING JURISDICTION.
3. REFER API RP 1102 FOR OTHER DESING AND INTALLATION REQUIREMENTS.
4. ANGLE OF INTERSECTION BITWEEN PIPELINE AND THE ROAD HIGHWAY SHALL BE AS CLOSE TO 90° AS POSSIBLE BUT IN NO CASE LESS THAN 30°
5. CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSION WITH RESPECT TO SURVEY DETAIL FOR EACH ROAD HIGHWAY CROSSING AND PREPARE DETAILED DRAWING FOR INDIVIDUAL CROSSING FOR ENGINEER- IN CHARGE APPROVAL BEFORE COMMENCEMENT OF CONTRUCTION .

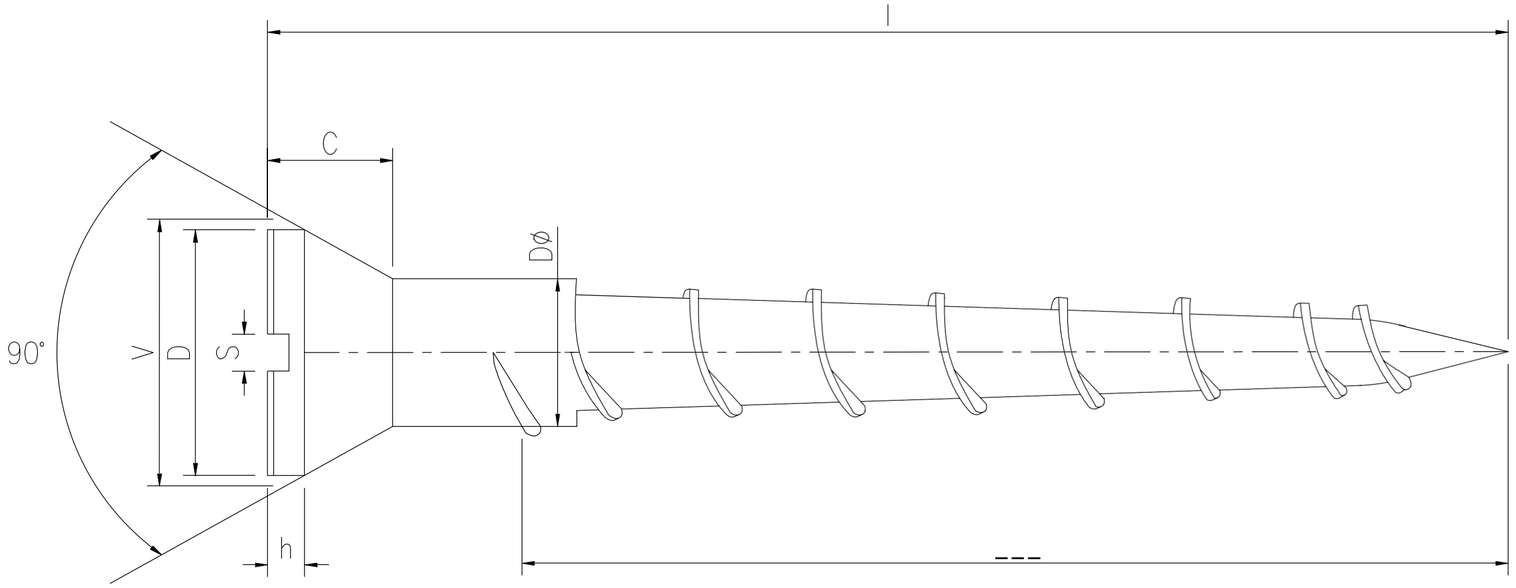
PE-100 CARRIER PIPE DIA SIZE (MM)	MIN.DIA OF HDPE CASING PIPE (MM)
32	90
63	160
90	180
125	250
180	315

REV.	D.M.Y.	MODIFICATION	drawn by	checked by	approved by
0	19/07/2024	issued for tender	AS	VS	GSJ

SUBJECT- ROAD / HIGHWAY CASED CROSSING FOR MDPE PIPELINE

PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT LTD	SIZE	SCALE	SHEET	REV.
	A1	NTS	01 OF 01	0
	DRAWING NO:- REPL/CUGL/STD/PE-008			



NOTES

1. THE DIMENSIONS FOR 'V' ARE THEORETICAL DIAMETER OF HEAD TO SHARP CORNERS & ARE GIVEN FOR DESIGN PURPOSE ONLY.
2. DIMENSIONS TOLERANCES WILL BE AS SPECIFIED IN IS : 6760-1972.
3. ALL DIMENSIONS ARE IN MILLIMETERS.

SCREW NO.	Dø			PITCH	V	D		c	s		h		l
	NOM.	MAX.	MIN.			MAX.	MIN	MAX.	MAX.	MIN	MAX.	MIN	
7	3.81	3.94	3.68	1.59	8.2	7.62	7.34	2.16	1.27	1.11	1.14	0.84	35

Rev.	D M Y	Modifications	Drawn By	Checked By	Approved By
0	16.07.2024	ISSUED FOR TENDER	AS	VS	GSJ

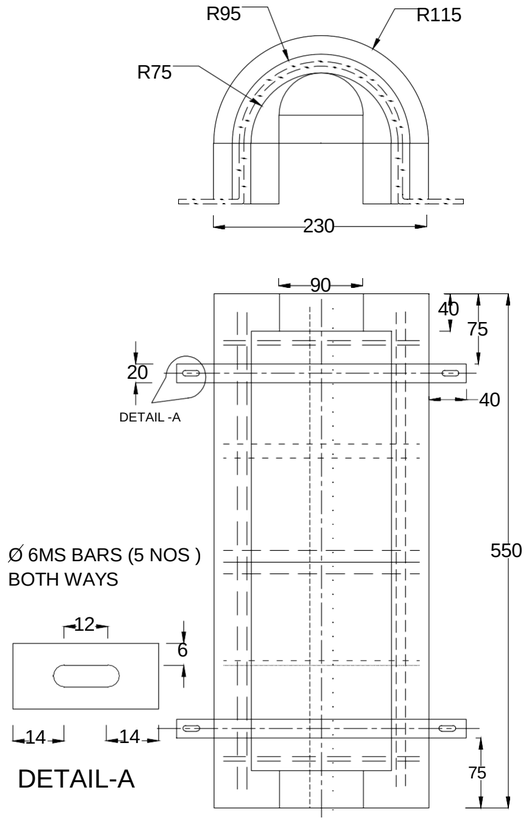
SPECIFICATION FOR WOOD SCREWS

CENTRAL UP GAS LIMITED

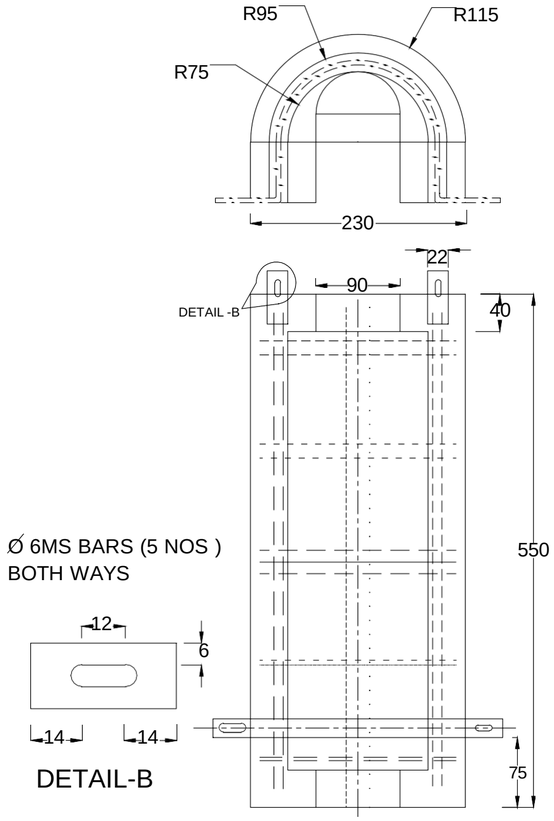
Resonance energy pvt ltd

Size	Scale	Sheet	Rev.
A1	NTS	01 of 01	0

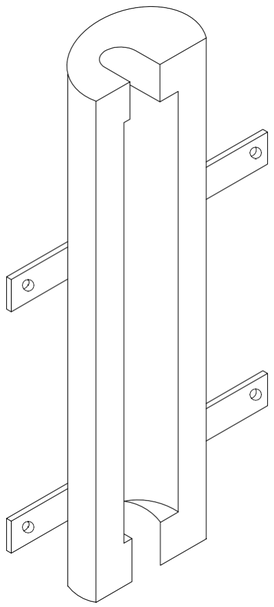
DRAWING NO.- REPL/CUGL/STD/CSP-009



DETAIL-A

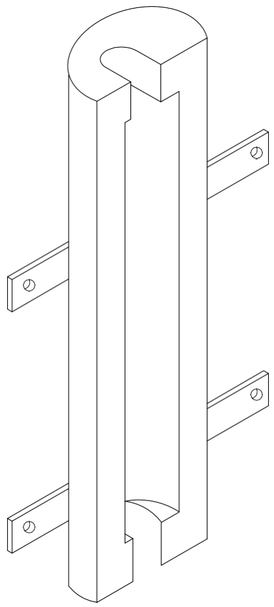


DETAIL-B



ISOMETRIC VIEW

TYPE -1



ISOMETRIC VIEW

TYPE -2

NOTE

1. ALL DIMESIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. IT SHALL BE TAKEN APPROVAL FROM OWNER PMC BEFORE STATION THE PROCUREMENT.
3. SIZES ARE SHOWN AS A TENTATIVE ONLY.

REV.	D M Y	modifications	drawn by	checked by	approved by
0	17/07/2024	Issued for tender	AK	VS	GSJ

SUBJECT- HALF ROUND CONCRETE SLEEVE

PROJECT:- CENTRAL UP GAS LIMITED

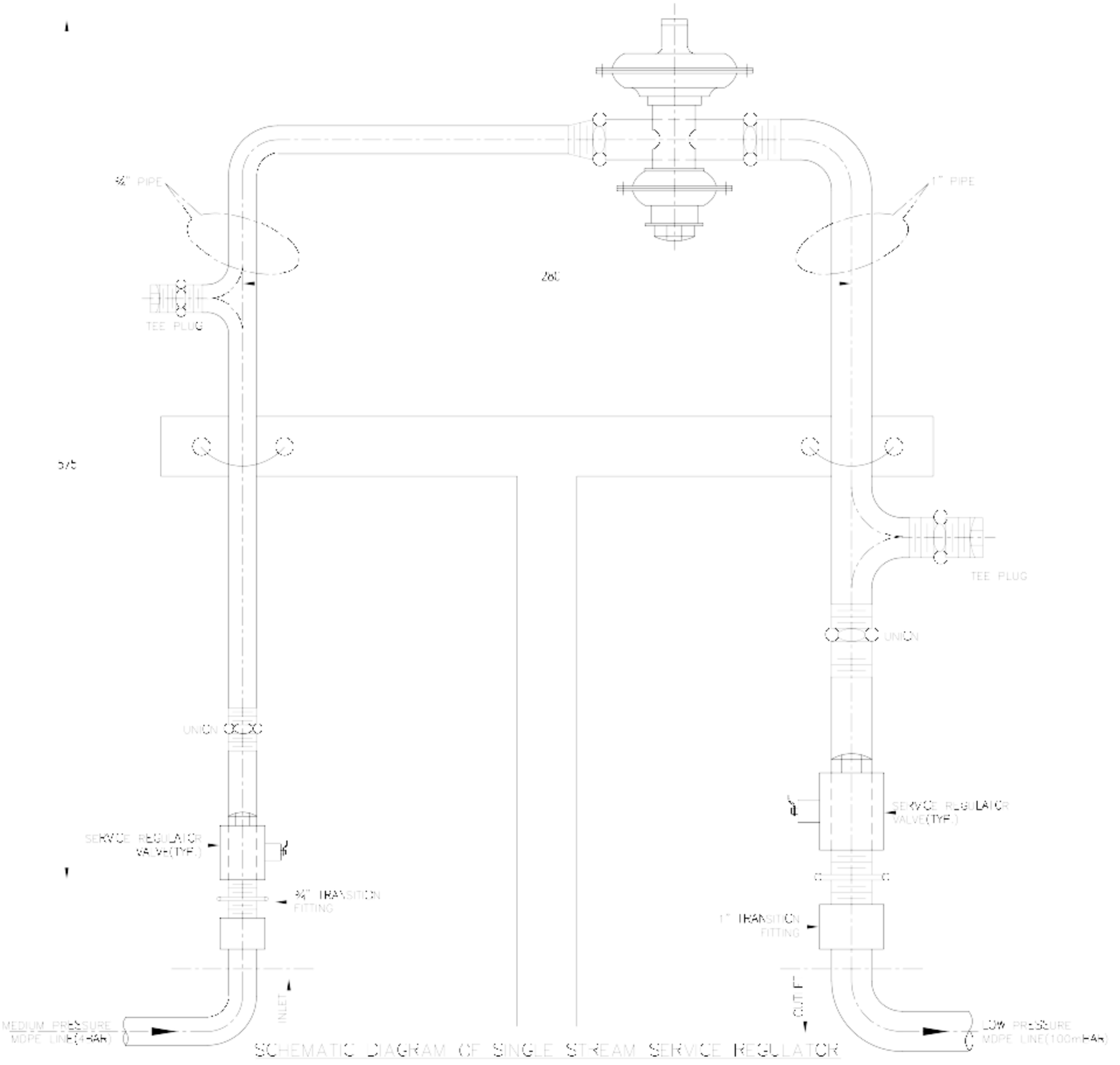
RESONANCE ENERGY PVT. LTD.

Size	Scale	Sheet	Rev.
A3	NTS	01 of 01	0

DRAWING NO.- REPL/CUGL/STD/CSP-010

NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSION ONLY. DO NOT SCALE.



SCHEMATIC DIAGRAM OF SINGLE STREAM SERVICE REGULATOR

Rev.	D M Y	Modifications	Drawn By	Checked By	Approved By
0	16.07.2024	ISSUED FOR TENDER	AS	VS	GSJ

PROJECT:-SCHEMATIC DIAGRAM OF SINGLE STREAM SERVICE REGULATOR

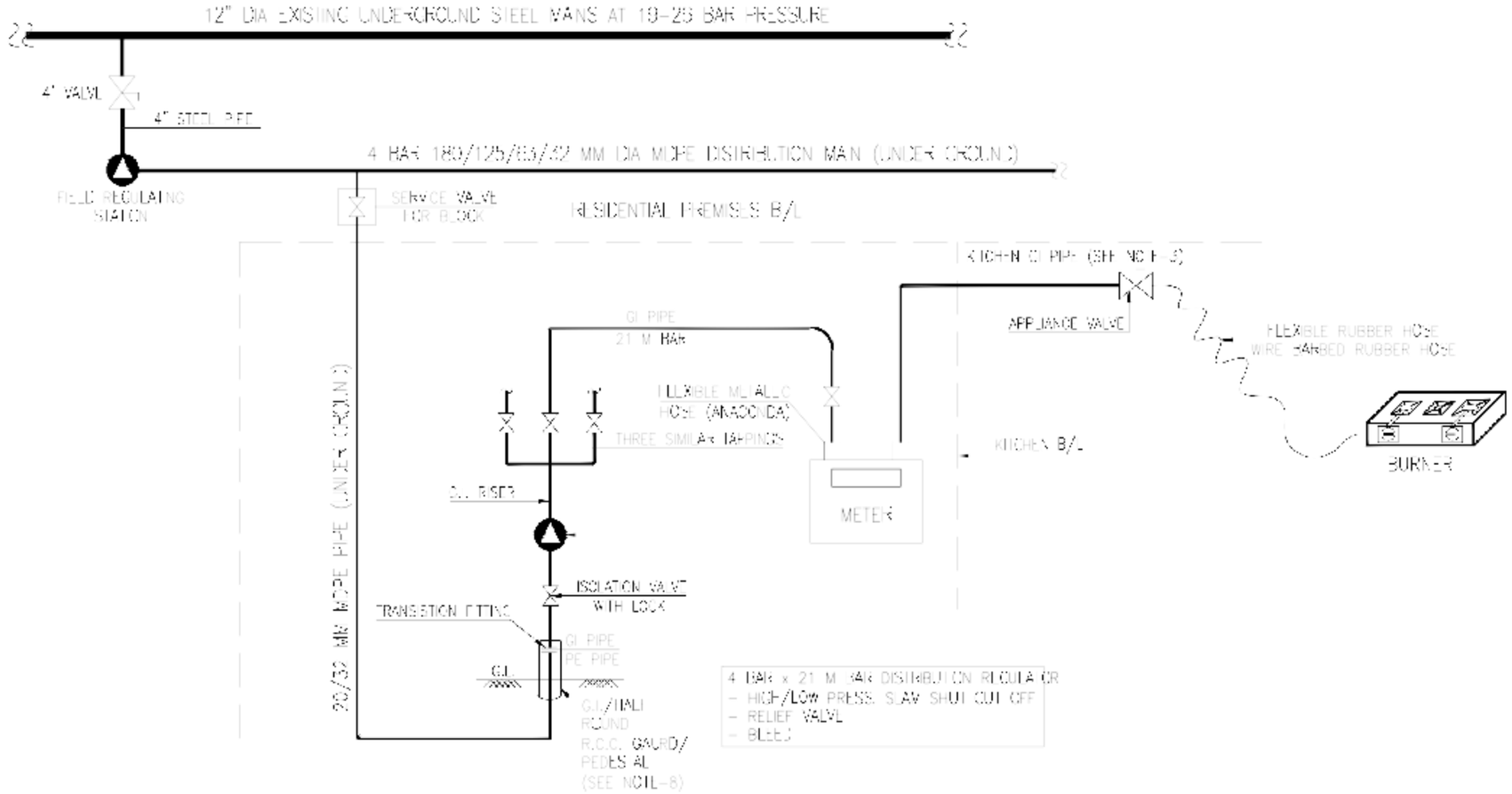
CENTRAL UP GAS LIMITED

Resonance energy pvt ltd

Size	Scale	Sheet	Rev.
A1	N.T.S.	01 OF 01	0

DRAWING NO. - REPL/CUGL/STD/CSP-011

SCHEMATIC DRAWING FOR DOMESTIC CONNECTION



NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE.IT SHALL BE DECIDED DURING DETAIL ENGINEERING.
3. PIPING DOWN STREAM METER SHALL BE OF COPPER IN CASE METER IS INSTALLED WITHIN THE KITCHEN.
4. TENTATIVE RISER LENGTH FROM OUTLET OF TRANSITION FITTINGS TO INLET OF SCALA ON VALVE SHALL BE 1.5m, ANY CHANGES IN RISER LENGTH SHALL BE AFTER APPROVAL FROM EIC.
5. GI INSTALLATION/METER INSTALLATION SHALL BE DECIDED BY OWNER/OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS
6. IF COPPER PIPE GOES TO THE APPLIANCE VALVE THEN BRASS FITTING SHALL BE USED AT THE OUTLET OF METER OR IF GI PIPE GOES TO THE APPLIANCE VALVE THEN GI FITTING SHALL BE USED AT THE OUTLET THE METER
7. MAXIMUM DISTANCE BETWEEN CLAMPS SHALL BE 1M WITH PIPE GOES IN THE STRAIGHT LENGTH. IF ANY TEE OR ANY FITTING LIES IN BETWEEN THE PIPE THEN CLAMP SHALL BE PLACED FROM TEE AWAY FROM CENTRE LINE OF FITTINGS AT EVERY SIDE FROM EVER, THE SAME MAY BE CHANGED AS PER SITE CONDITIONS/AS DIRECTED BY EIC
8. GI /HALF ROUND R.C.C. GUARD INSTALLATION SHALL BE DECIDED BY OWNER/OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS

Rev.	D M Y	Modifications	Drawn By	Checked By	Approved By
0	16.07.2024	ISSUED FOR TENDER	AS	VS	GSJ

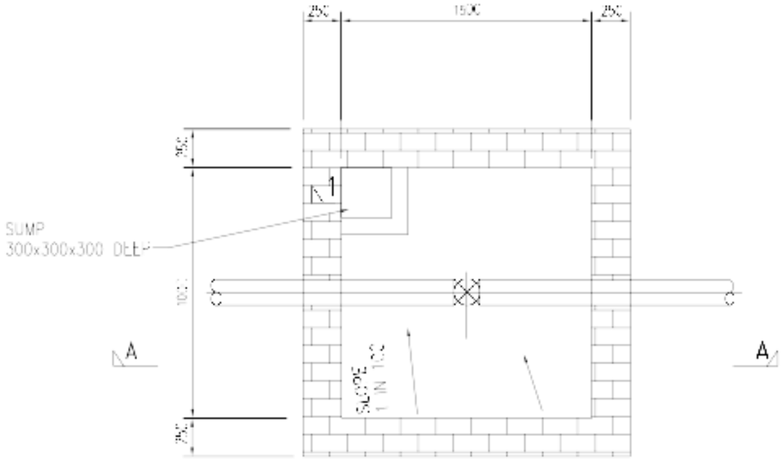
SUBJECT:- SCHEME FOR DOMESTIC CONSUMER CONNECTION

CENTRAL UP GAS LIMITED

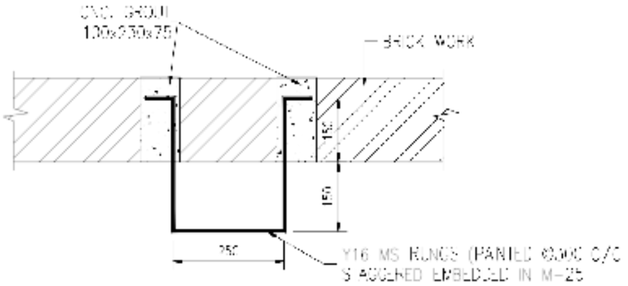
Resonance energy pvt ltd

Size	Scale	Sheet	Rev.
A1	NTS	01 of 01	0

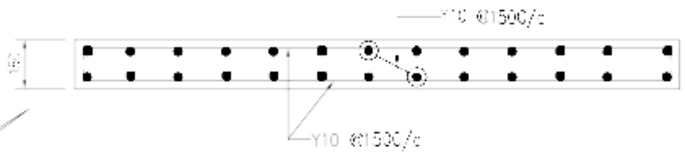
DRAWING NO.- REPL/CUGL/STD/CSP-012



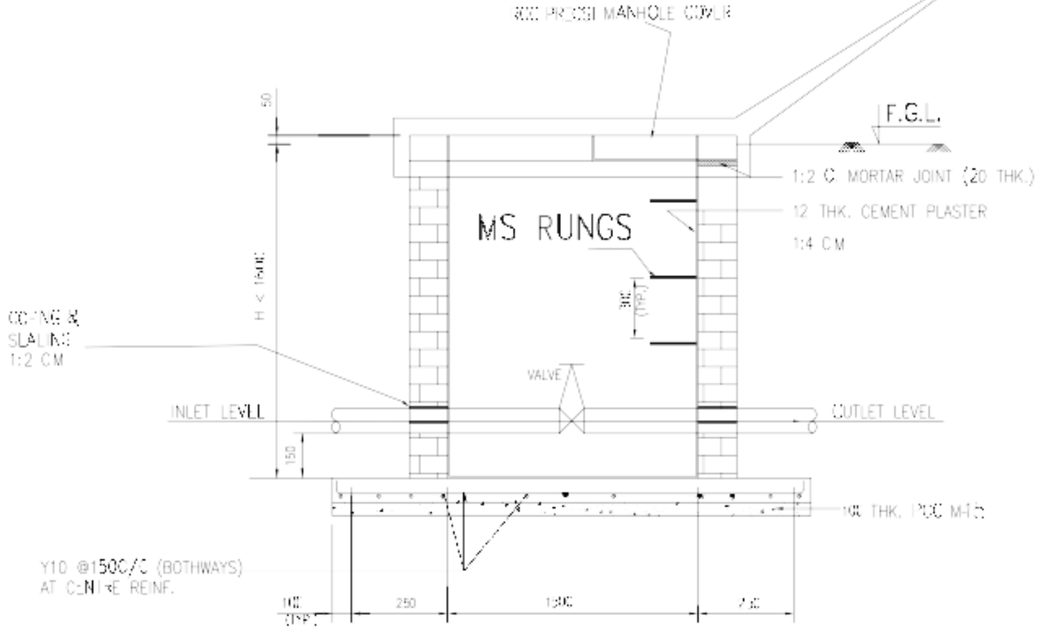
VALVE PIT PLAN



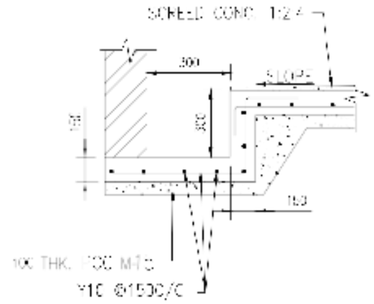
TYPICAL DETAILS OF MS RUNGS



TYPICAL SLAB R/F DETAIL



SECTION A-A



SECTION 1-1

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE SCALE THE DIMENSIONS.
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE: SLAB = 20mm.
4. BRICK SHALL BE OF 75 CLASS BCC OF M-25 & PCC OF M-15.
5. REINFORCEMENT SHALL BE OF HYSD (GRADE Fe 415) CONFORMING TO IS:1786
6. EQUIVALENT.

0	17/07/2024	issued for tender	AK	VS	GSJ
Rev	D M Y	modification	drawn by	checked by	approved by

SUBJECT:- BRICK VALVE CHAMBER (1.5M X 1.0M)

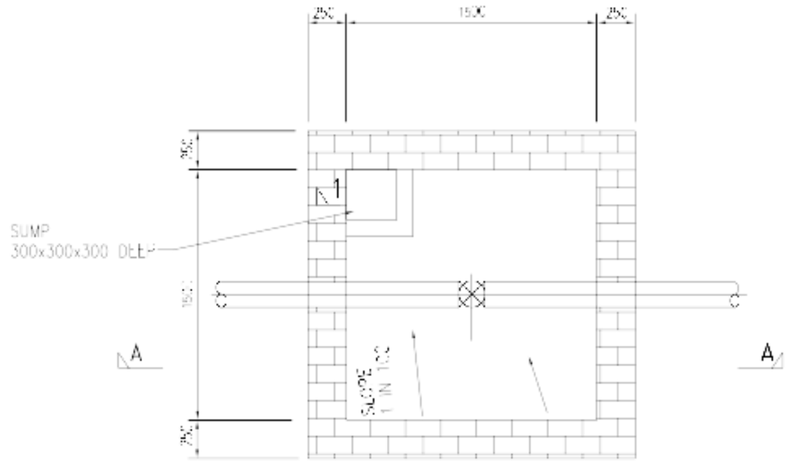
PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT. LTD.

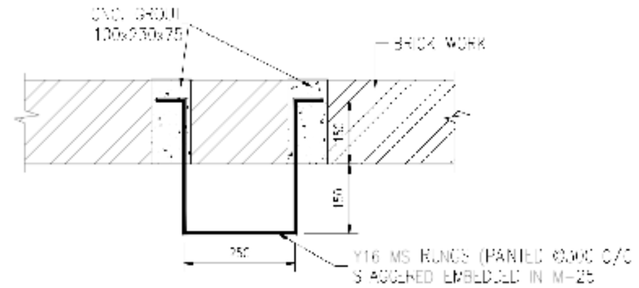
Size	Scale	Sheet	Rev
A3	NTS	01 of 01	0

Drawing No. REPL/CUGL/SID-0013

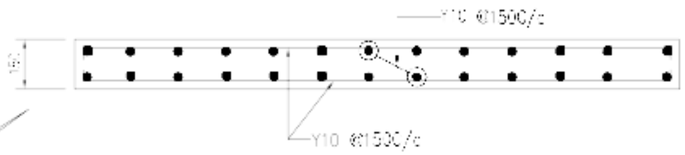
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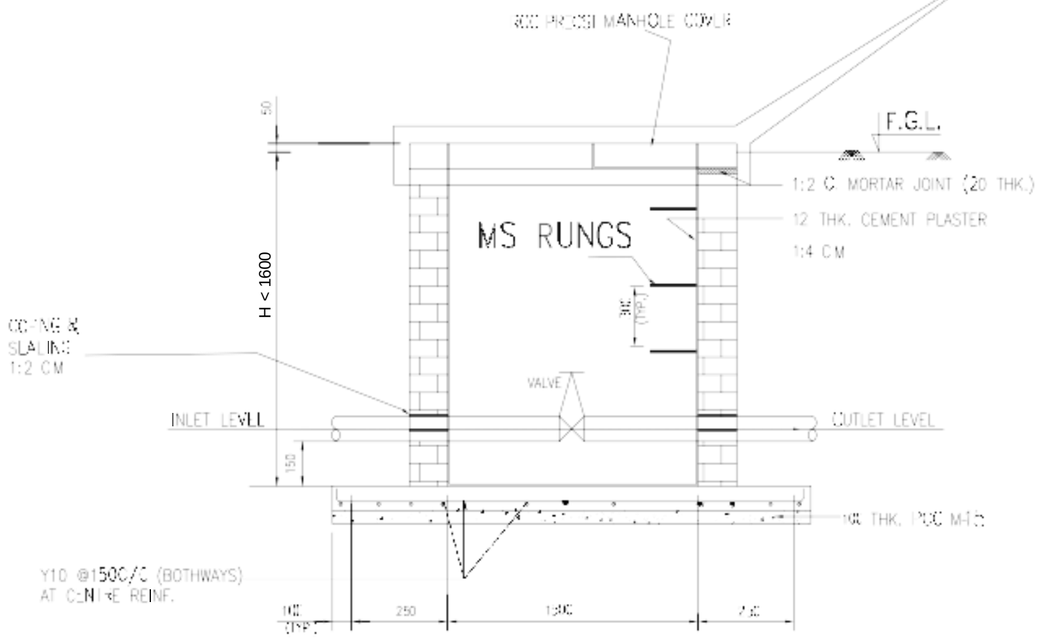
VALVE PIT PLAN



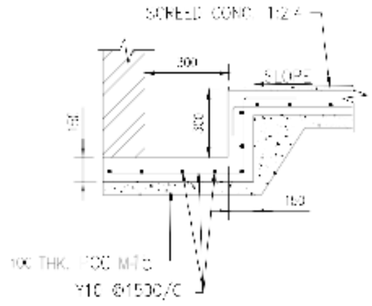
TYPICAL DETAILS OF MS RUNGS



TYPICAL SLAB R/F DETAIL



SECTION A-A



SECTION 1-1

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE SCALE THE DIMENSIONS.
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE: SLAB = 20mm.
4. BRICK SHALL BE OF 75 CLASS RCC OF M-25 & PCC OF M-15.
5. REINFORCEMENT SHALL BE OF HYSD (GRADE Fe 415) CONFORMING TO IS:1786
6. EQUIVALENT.

0	17/07/2024	issued for tender	AK	VS	GSJ
Rev	D M Y	modification	drawn by	checked by	approved by

SUBJECT:- BRICK VALVE CHAMBER (1.5M X 1.5M)

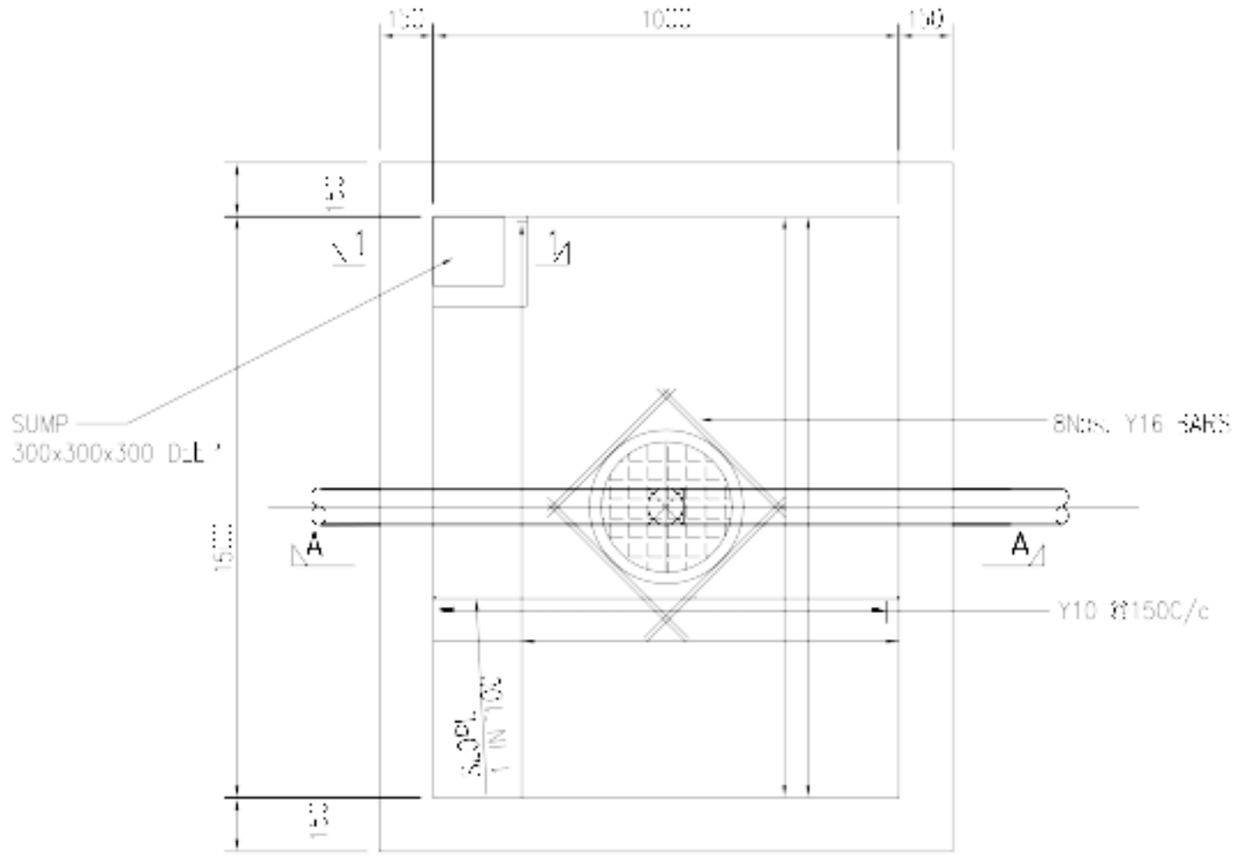
PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT. LTD.

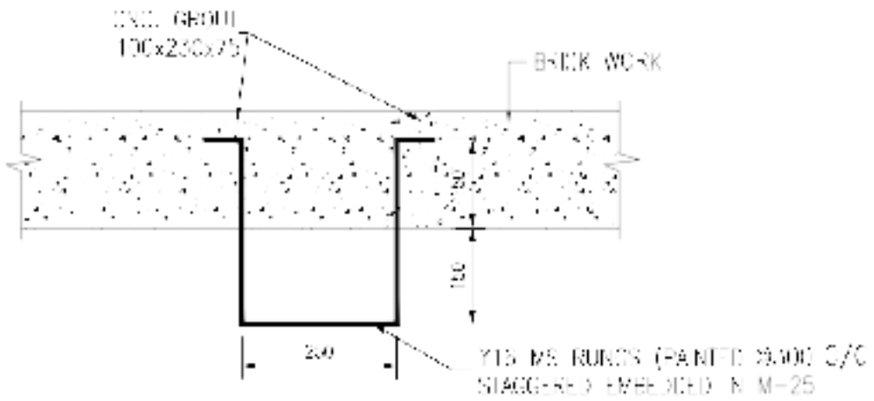
Size	Scale	Sheet	Rev
A3	NTS	01 of 01	0

Drawing No. REPL/CUGL/STD-CT-4

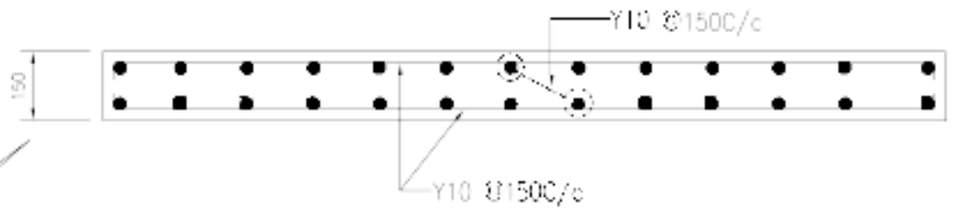
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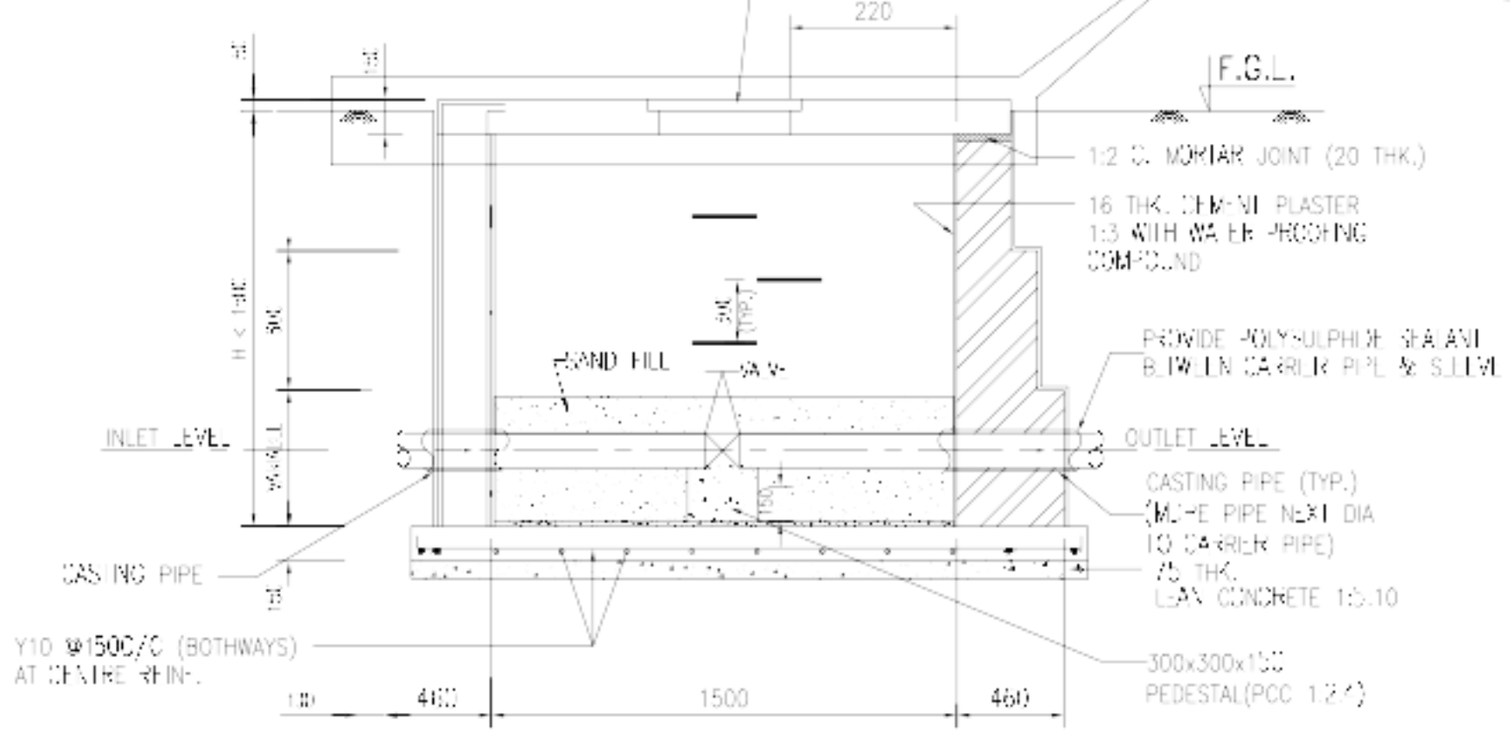
VALVE PIT PLAN



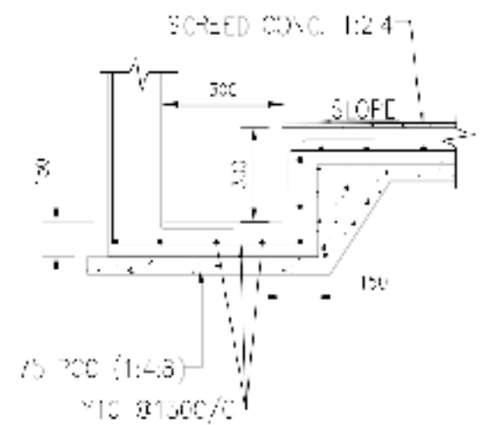
TYPICAL DETAILS OF MS RUNGS



TYPICAL SLAB R/F DETAIL



SECTION A-A



SECTION 1-1

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE.
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE: SLAB = 20 mm.
4. GRADE OF CONCRETE SHALL BE M-25.
5. REINFORCEMENT SHALL BE OF HYSD (GRADE Fe 415) OR EQUIVALENT.

0	17.07.2024	Issued for tender	AS	VS	DSK
Rev.	D.M.Y.	Details	Drawn	Checked	Approved

PROJECT:- RCC VALVE CHAMBER (1.5M X 1.0M)

CUGL

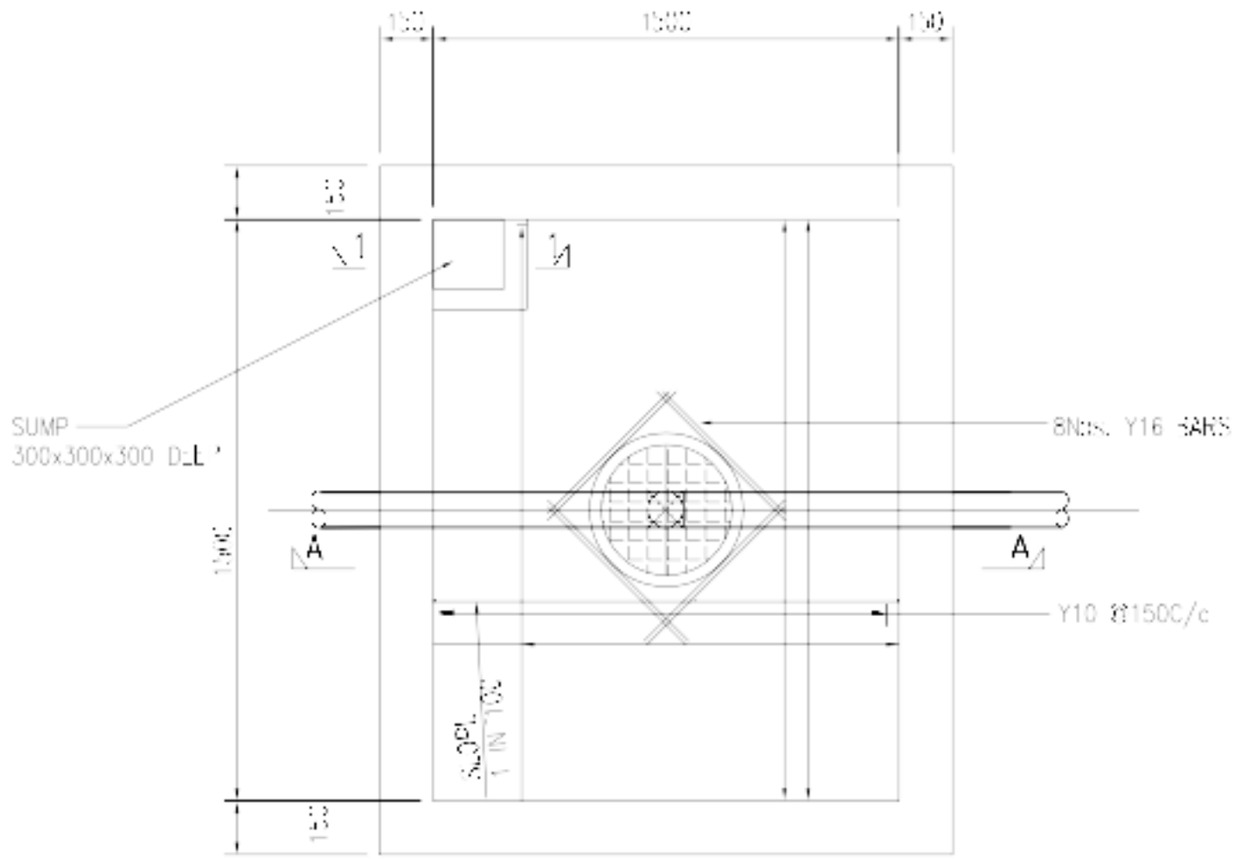
PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT. LTD.

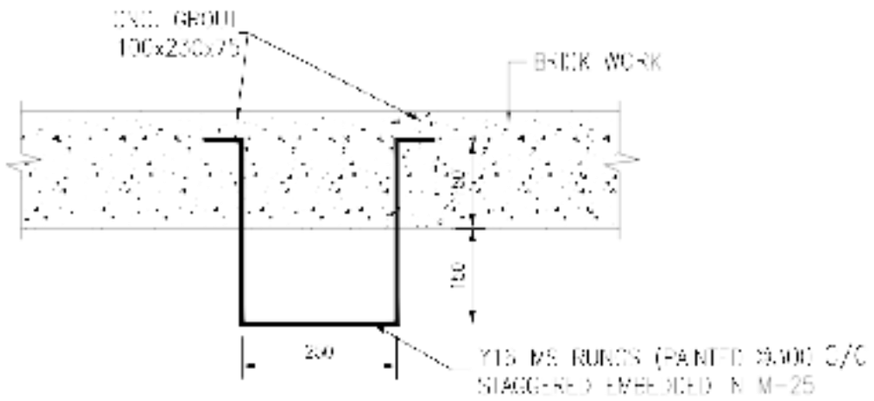
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Drawing No.:- REPL/CUGL/STD/-015

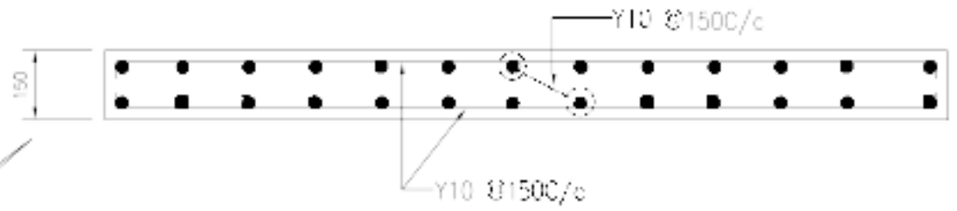
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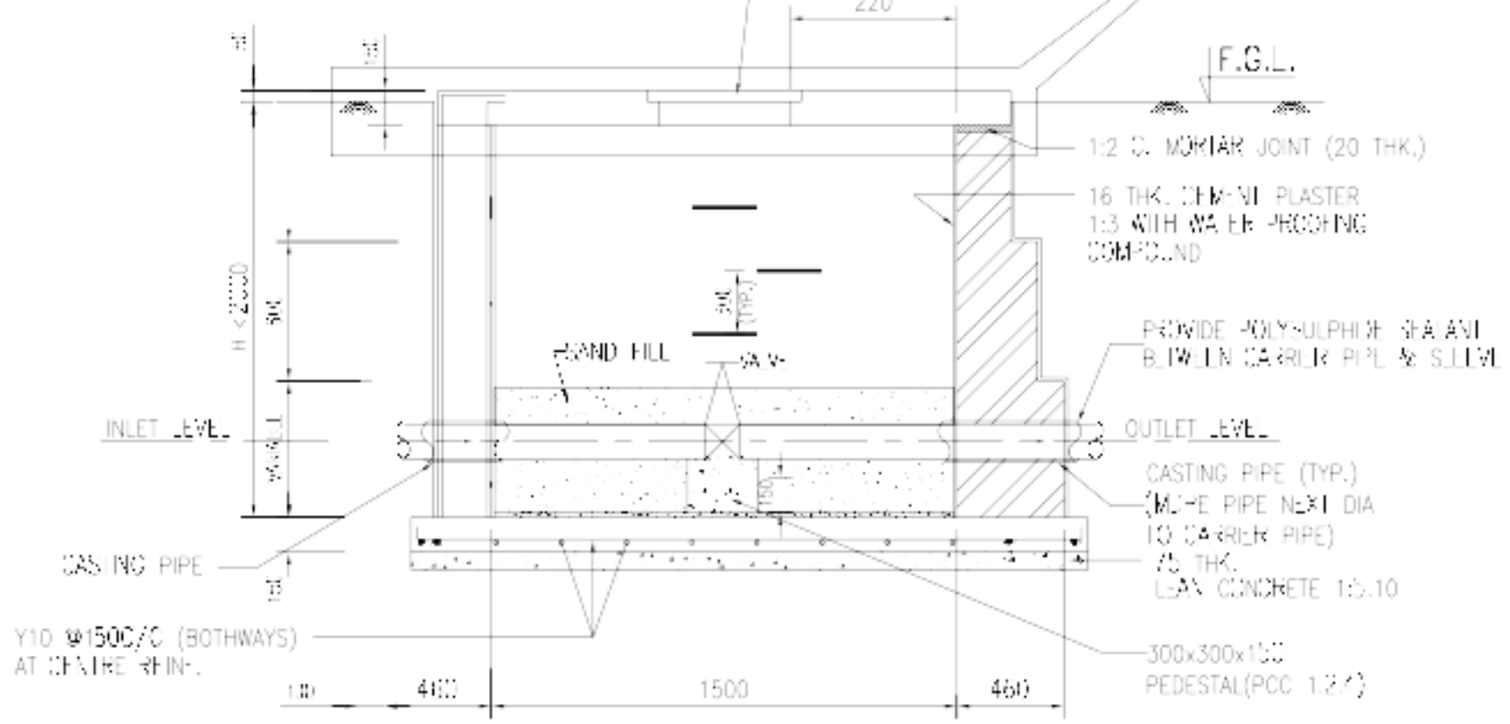
VALVE PIT PLAN



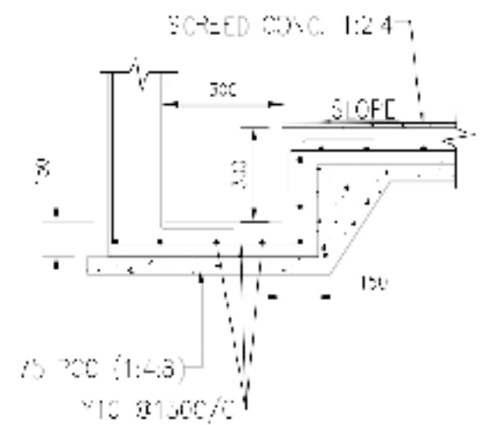
TYPICAL DETAILS OF MS RUNGS



TYPICAL SLAB R/F DETAIL



SECTION A-A



SECTION 1-1

NOTES:

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE.
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE: SLAB = 20mm.
4. GRADE OF CONCRETE SHALL BE M-25.
5. REINFORCEMENT SHALL BE OF HYSD (GRADE Fe 415) CONFORMING TO IS :1786 OR EQUIVALENT.

0	17.07.2024	Issued for tender	AS	VS	DSK
Rev.	D. M. Y.	Details	Drawn	Checked	Approved

PROJECT:-RCC VALVE CHAMBER (1.5M X 1.5M)

CUGL

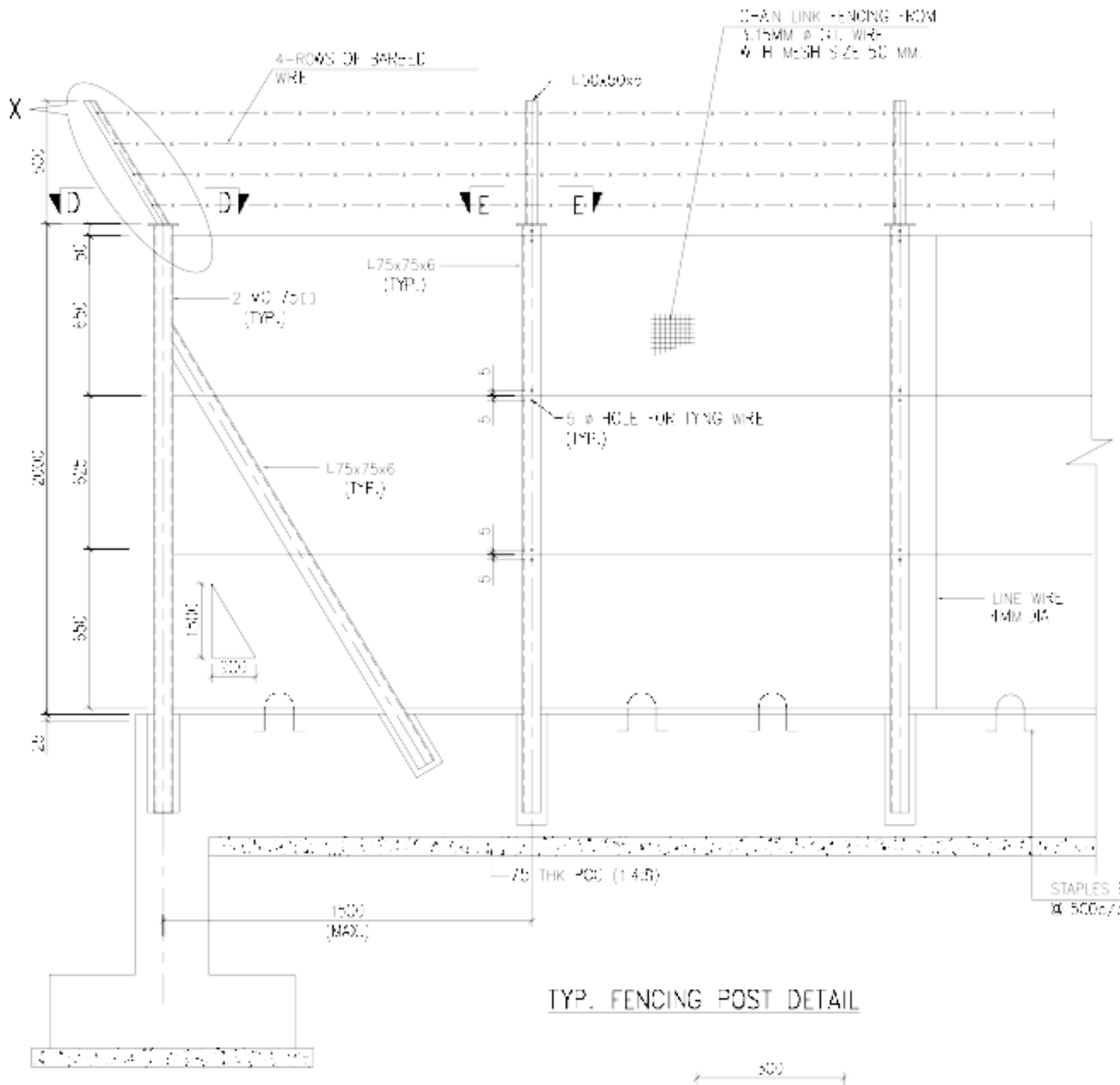
PROJECT:- CENTRAL UP GAS LIMITED

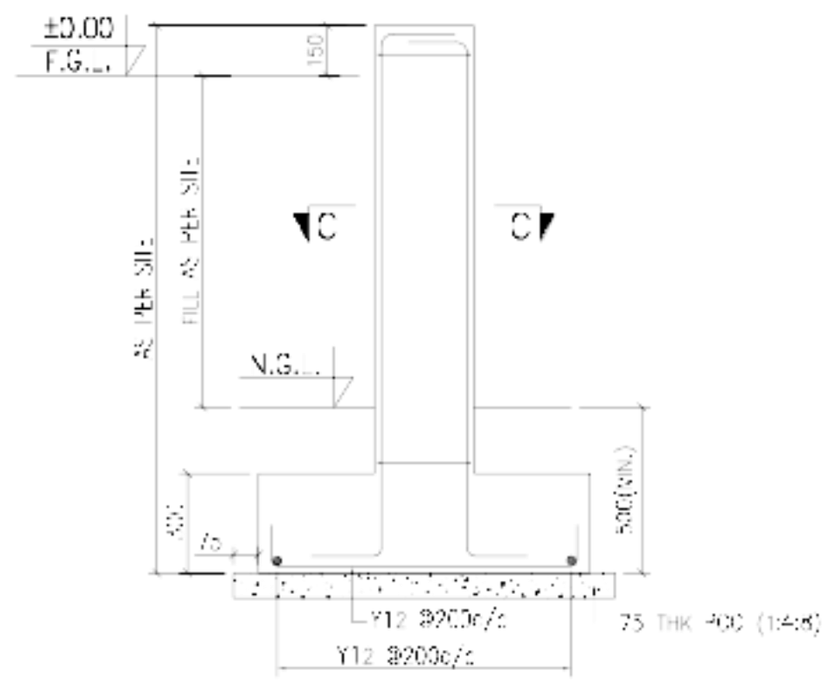
RESONANCE ENERGY PVT. LTD.

Size	Scale	Sheet	Rev.
A3	NTS	01 of 01	0

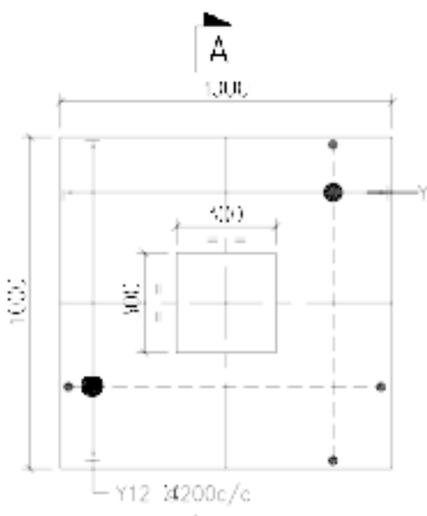
Drawing No.:-REPL/CUGL/FTD-016

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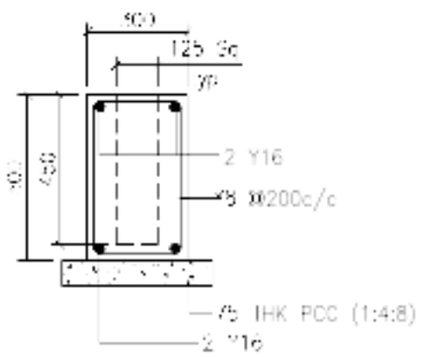




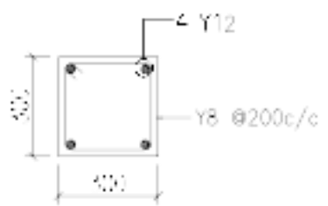
SECTION A-A



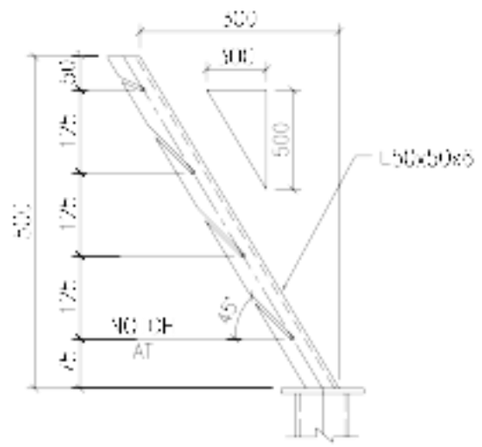
PLAN



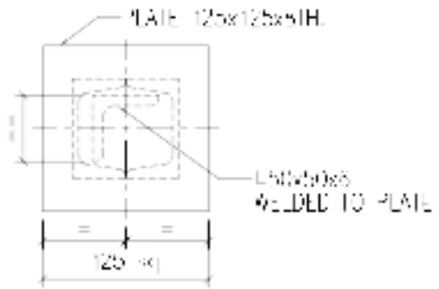
SECTION B-B



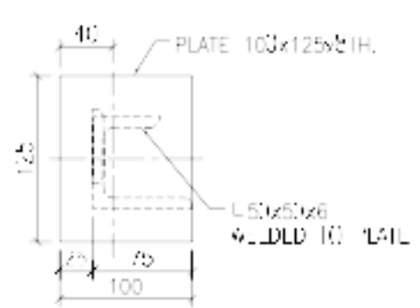
SECTION C-C



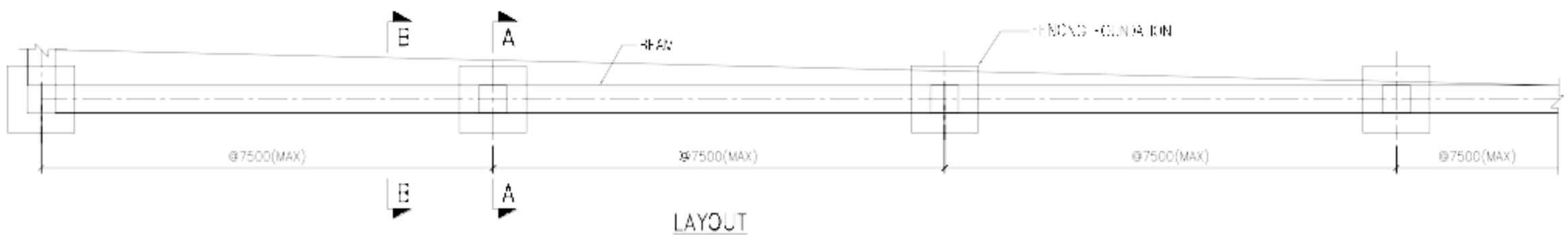
DETAIL X



SECTION J-J



SECTION E-E



LAYOUT

NOTES:
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE.

Rev	D M Y	Details	Drawn	Checked	Approved
0	15.07.2024	Issued for Tender	AS	VS	BS

SUBJECT:- TYPICAL DETAILS OF FENCING

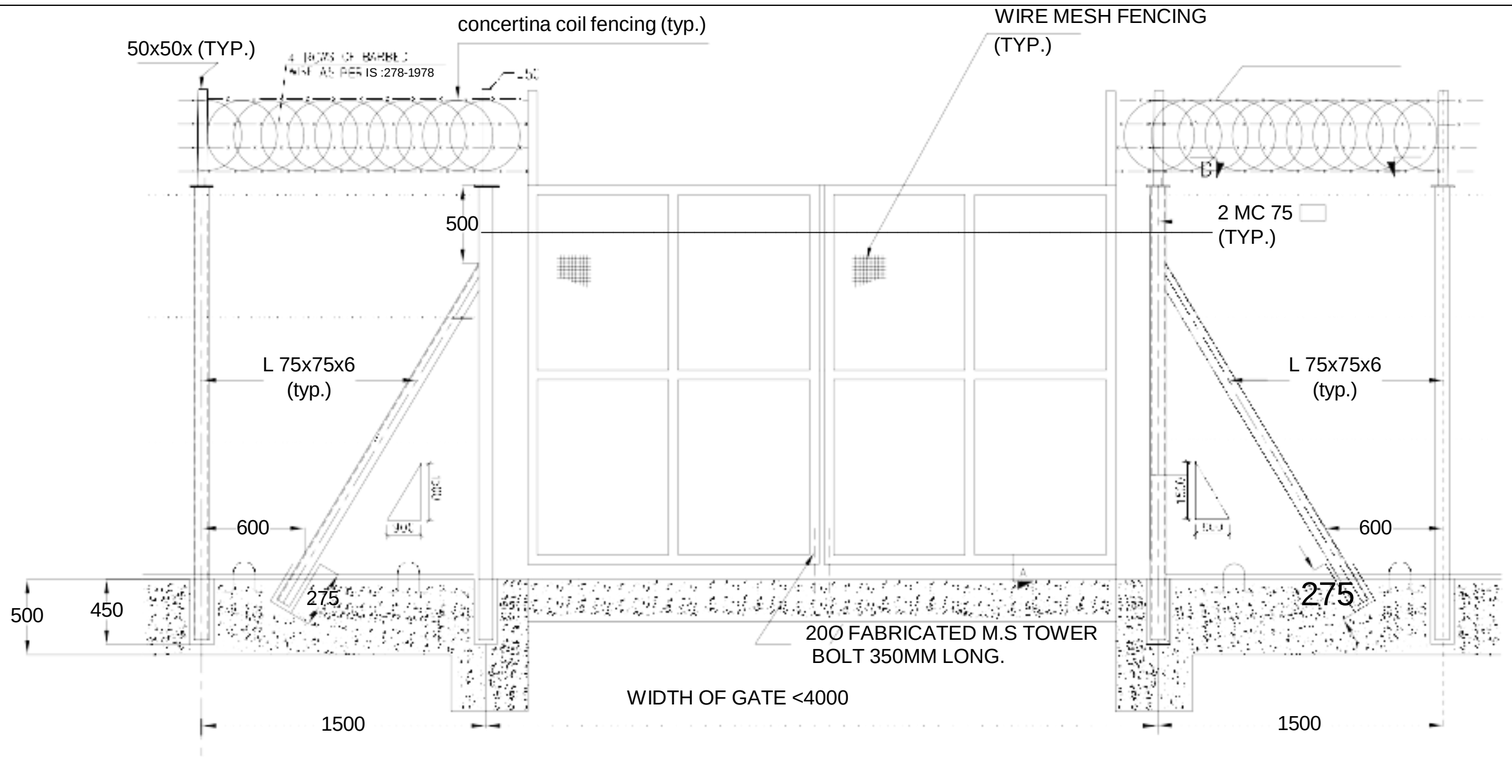
PROJECT:- CENTRAL UP GAS LIMITED

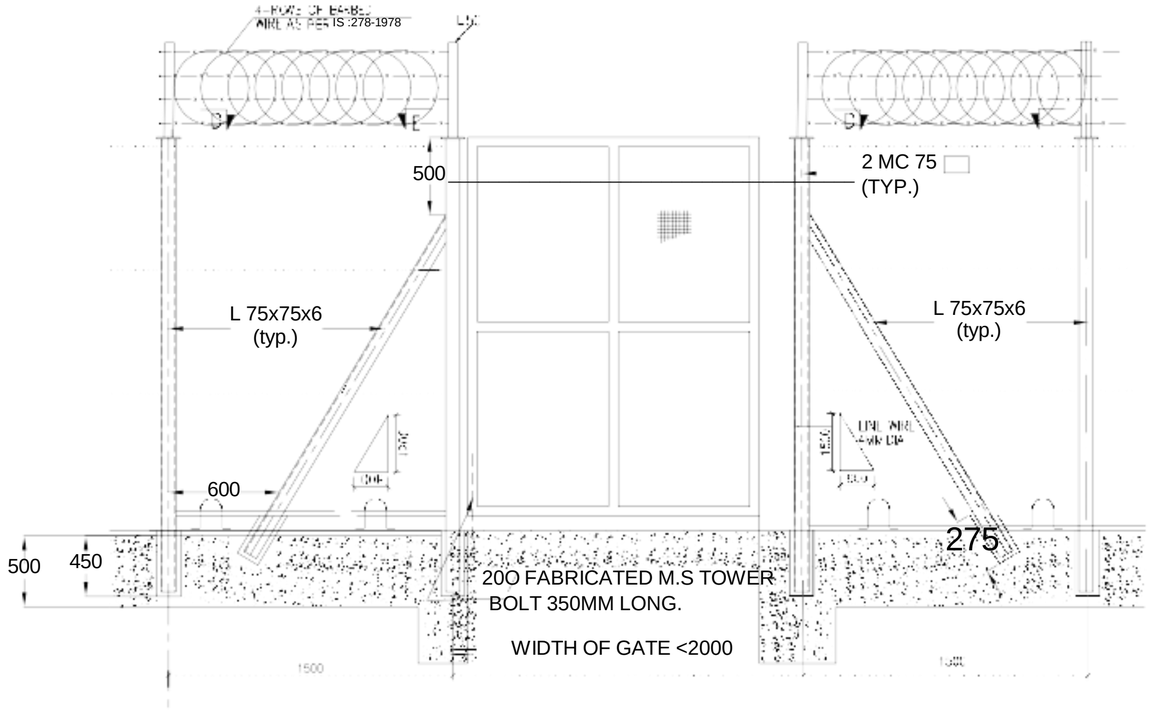
RESONANCE ENERGY PVT. LTD.

Size	Scale	Sheet	Rev.
A3	NTS	01 of 01	0

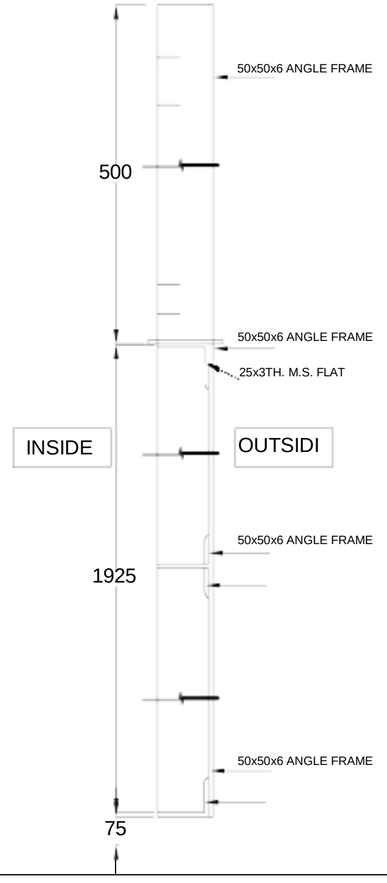
Drawing No.- RESP_/CUGL/STD/CS-0017

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GATE DETAIL



NOTES:
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DIMENSIONS

Rev.	D M Y	MODIFICATIONS	Drawn By	Checked By	Approved By
0	16.07.2024	Issued for Tender	AS	VS	GSJ

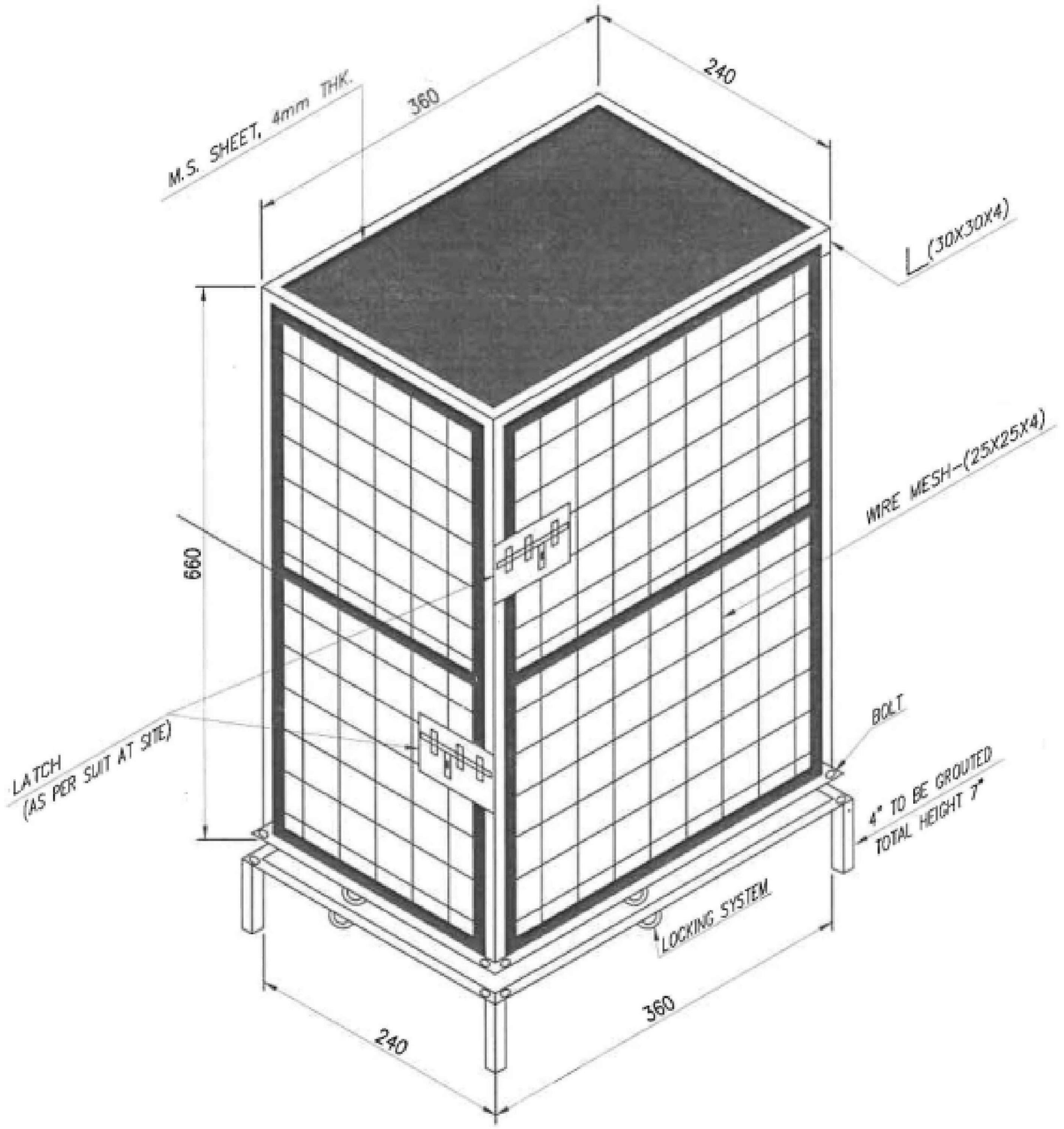
SUBJECT: - TYPICAL DETAILS OF GATE

PROJECT:- CENTRAL UP GAS LIMITED

RESONANCE ENERGY PVT. LTD.

SIZE	Scale	Sheet	Rev.
A1	NTS	01 of 01	0

Drawing No.:-REPL/CUGL/STD/CS-016



NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. 40MM GROUTING WITH NON-SHRINKAGE COMPOUND SHALL BE PROVIDED AT BOTTOM OF SERVICE REGULATOR.
3. WIRE MESH AND MS ANGLE/PLATES SHOULD BE PAINTED WITH PRIMER & GOLDEN YELLOW PAINT OF REPUTATED MAKE.

Rev.	D M Y	Modifications	Drawn By	Checked By	Approved By
0	16.07.2024	ISSUED FOR TENDER	AS	VS	GSJ

CUSTOMER: CENTRAL UP GAS LIMITED

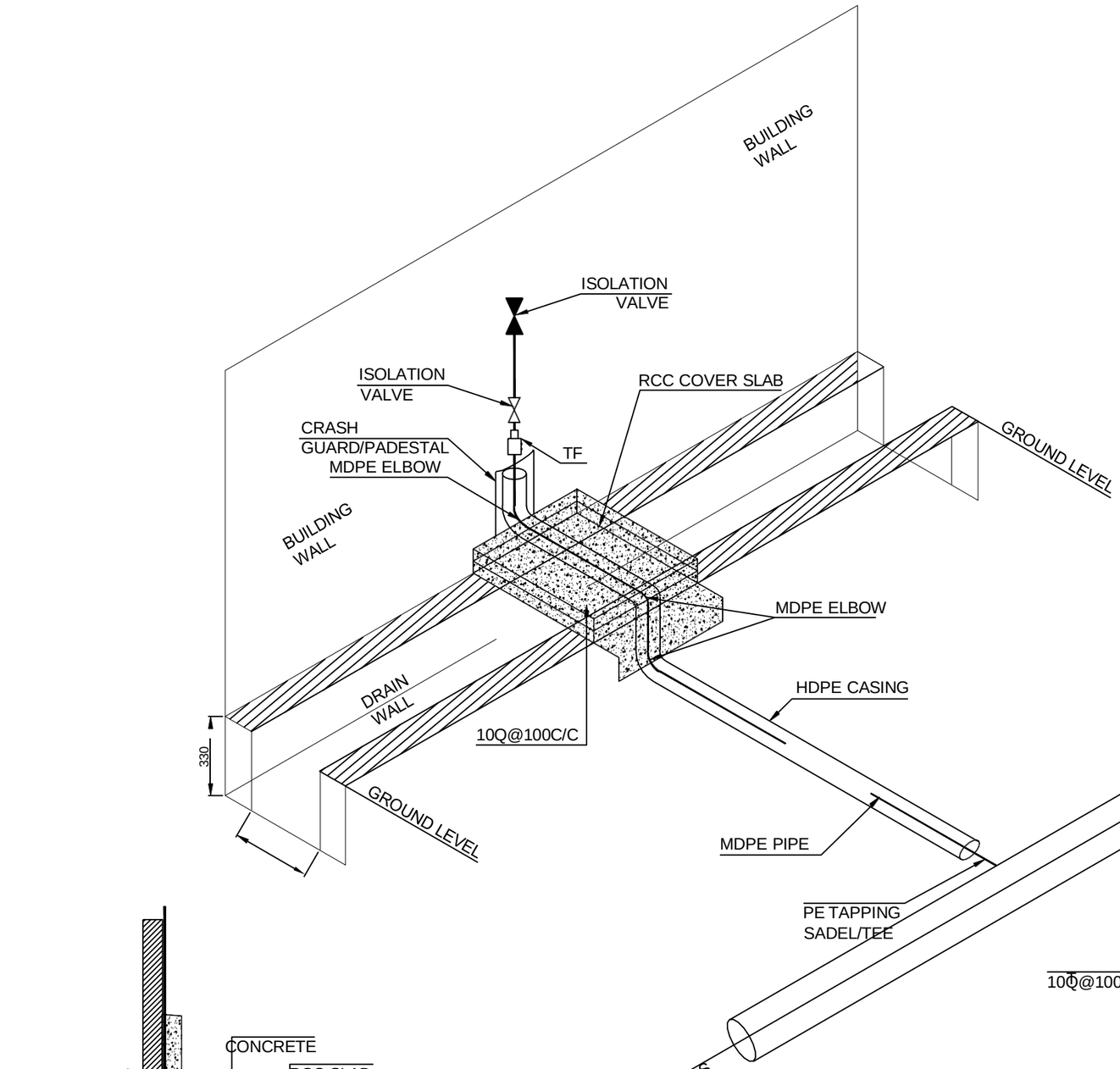
PROJECT: CITY GAS DISTRIBUTION PROJECT

SUBJECT: **SCHEMATIC DIAGRAM OF HOUSING FOR SINGLE SERVICE REGULATOR**

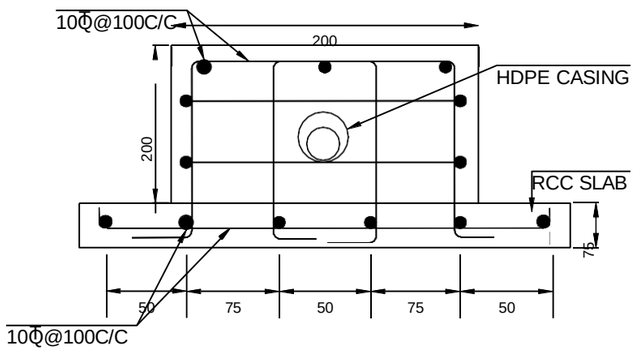
Resonance energy pvt ltd

Size	Scale	Sheet	Rev.
A1	NTS	01 of 01	0

Project No.	Discipline Code	System Code	Serial No.
P.014714	D	20749	018



SIDE VIEW SCHEME



TYPICAL SECTION OF COVER SLAB

REFERENCE DOCUMENTS

S.NO.	DOCUMENTS TITLE	DOCUMENTS NUMBER

NOTES:-

1. ALL DIMENSION ARE IN MM UNLESS NOTED OTHERWISE.
2. THE GRADE OF CONCRETE FOR RCC WORKS SHALL BE M25 CONFIRMING TO IS-456.
3. REINFORCEMENT SHALL BE HYSD BAR OF GRADE FE 415 CONFIRMING TO IS-1786.

REV.	DATE	DESCRIPTION	PREP.	CHKD.	APPD.
0	09.09.25	ISSUED FOR REVIEW	AS	TBS	GSJ

CLIENT: **CENTRAL U.P. GAS LIMITED**

PMC: **M/S RESONANCE ENERGY PRIVATE LIMITED**

PROJECT: **CITY GAS DISTRIBUTION PROJECT**

TITLE: **DRAIN CROSSING FOR LAYING OF SERVICE LINES**

SCALE:	NTS	SHEETS:	1 OF 1
SIZE	DRAWING NUMBER		REV.
	REPL-CUGL-CV-DC-001		0