

DOCUMENT NO. P112-TEN-P001 Rev. CA

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Invitation of Expression of Interest (EOI)

To Prospective Bidders

For

Replacement of In-service Pipeline Sections

Through Trenchless Method

EOI No.: AGCL/PL/RIVER CROSSING/08/2022/14 Dated 19-09-2022

PREPARED AND ISSUED ON BEHALF OF AGCL BY:



PIPELINE ENGINEERING CONSULTANTS PVT. LTD. A-56/2, First Floor Sector - 50, Noida, Gautam Buddh Nagar 201301 Uttar Pradesh, India



Expression of Interest (EOI): ForReplacement Of In-service Pipeline Section Through Trenchless Method

Pipeline Engineering Consultants Pvt. Ltd. (PLECO), on behalf of Assam Gas Company Limited (AGCL), invites Expression of Interest (EOI) from reputed and established **EPC contractors/ Micro-Tunneling/HDD execution agencies** meeting requisite criteria for executing crossing of in-service natural gas pipelines at 3 nos. major rivers viz. **Disang (Dilli) River, Putijan Nala and Teok Nala** by **Micro-Tunnelling/HDD Technique** in the state of Assam, India as per the scope of work mentioned in this EOI document.

AGCL shall arrange site visit for all 3 locations from its office at Duliajan and all survey data will be made available.

Interested parties would be required to make a detailed presentation on their past credentials and proposed execution methodology for each of the three crossings during the EOI meeting to be held at AGCL Office at Duliajan, Assam (India) on 27.09.2022 at 11:00 hrs.

Based on the presentations given by various participants, AGCL will firm up the Scope of Work and Bidder Qualification Criteria of the subsequent tendering process to be floated for the work.

Proposed Execution Methodology shall be made based on available survey data and schematics of rivers attached as Annexure –II.

A	EOI Reference No.	AGCL/PL/RIVER CROSSING/08/2022/14
В	Broad Scope of work	Replacement of in-service pipeline section through trenchless method (Micro Tunneling/HDD).
С	Site Visit	AGCL will felicitate site visit for the prospective participants on any working day before the EOI Meeting.
D	EOI Meeting Date and Venue	Venue:- Assam Gas Company Limited Head Office Duliajan-786602, Dist. Dibrugarh, Assam. (India) Date: on 27.09.2022 at 11:00 hrs.
E	Type of Submission for EOI Proposal	 Through presentation. Hard copy of the same shall be submitted to AGCL. EOI proposal and eligibility criteria shall also be mailed to following email ids:- Addressed to: <u>cnp@pleco.co.in / cnp1@pleco.co.in</u> Copy to: <u>pranjyoti.dutta@agclgas.com</u> <u>arnab.saikia@agclgas.com</u> <u>Contact Person for any technical queries:-</u> 1. Shri P.J. Dutta

1.0 TERMS OF REFERENCE (TOR) FOR EXPRESSION OF INTEREST (EOI)



EOI FOR REPLACEMENT OF IN-SERVICE PIPELINE

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	1	
		Dy. General Manager (Pipeline)
		Assam Gas Company Limited.
		Contact No.: +91-9435039847.
		2. Shri Vivek Kamboj
		Manager (Projects)
		Pipeline Engineering Consultants Pvt. Ltd.
		Contact No.: +91-7696832370.
F	Project Completion schedule	Separate Completion schedule is to be submitted by applicant for each river crossing along with EOI.
G	Publication of EOI Document	The Invitation for EOI document will be available on the website of Assam government e-procurement portal <u>https://assamtenders.gov.in/nicgep/app</u> It will also be hosted on AGCL's official website <u>www.assamgas.org</u>
		Interested Applicants are requested to download the EOI document from website/e-procurement portal.
G	Language of Proposal	Language of application shall be English. If any document is submitted by applicant in language other than English, authenticated English translation of the same shall also be submitted along with the application
Н	Eligible Criteria for	bidder
	The applicant should 10 (ten) years:-	have successfully completed the following works during the last
	Execution of minimur and minimum diamet HDD or by Micro-Tu	n one number of trenchless crossing of minimum 100 mtr. length er of natural gas/ crude oil pipeline of size 12" NB (300 mm) by nneling Technique.

2.0 PROJECT BRIEF

This document covers the scope involved in replacing existing in-service natural gas pipeline section through trenchless technology, associated hook-up works with existing pipeline, Abandoning/ dismantling of existing underground pipeline and other necessary requirements of this job.

The whole scope of work has been splitted into two sections which are to be replaced from pipelines under this project are as follows: -

SECTION-01:

1. Namrup-Lakwa pipeline of 16"NB X 58.221 Km long transporting Natural Gas. Pipeline section at Dilli (Disang) River at Ch. 3+010.48 KM to be replaced.

SECTION-02:



EOI FOR REPLACEMENT OF IN-SERVICE PIPELINE

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- 1. Lakwa-Jorhat-Golaghat pipeline of 12" NB X 116.277 Km long transporting Natural Gas. Pipeline section under Teok Nala and Road at Ch. 57+900.00 KM to be replaced.
- 2. Under the same pipeline i.e. Lakwa-Jorhat-Golaghat pipeline transporting Natural Gas. Pipeline section under Putijan Nala at Ch. 60+500.00 KM to be replaced.

Complete details mentioned in attached scope of work.

3.0 LIST OF ATTACHMENTS

Annexure-I- Scope of work

Annexure- II- Schematic



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REPLACEMENT OF IN-SERVICE PIPELINE SECTION THROUGH TRENCHLESS METHOD

BRIEF SCOPE OF WORK

Doc No: P112-SOW-P001

CA	22.07.2022	Issued for Client Approval	RK	MD	AD
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REV.	DATE	DESCRIPTION	ORG	REVIEW	APPROVED



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ABBREVIATIONS

ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
OISD	Oil Industry Safety Directorate
API	American Petroleum Institute
ASTM	American Society of Testing and Material
NFPA	National Fire protection Association
CS	Carbon steel
LSAW	Longitudinal Submerged Arc Welding
3LPE	3 Layer Polyethylene
HDD	Horizontal Directional Drilling
SMYS	Specified Minimum Yield Strength
OFC	Optical Fiber Cable
HDPE	High-Density Polyethylene
OD	Outer Diameter



BRIEF SCOPE OF WORK

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1.0 BACKGROUND

Assam Gas Company Ltd. (AGCL) is a 60 years old Natural Gas transmission and distribution company, wholly owned by the Govt. of Assam with its registered office at Duliajan, Dist. Dibrugarh, Assam 786602.

The company transports Natural Gas through its integrated pipeline infrastructure to several market segments i.e. Power, Fertilizer, Petrochemicals, Industrial, Commercial and Domestic consumers primarily located in upper Assam. The present infrastructure of the company has a transportation capacity of about 6.0 MMSCM of gas per day.

AGCL intends to replace the existing in-service pipeline sections through trenchless method.

Pipeline Engineering Consultants Pvt. Ltd. has been appointed as Engineering, Procurement and Construction Management consultant by AGCL for Engineering, Procurement, RFP Preparation, Site Supervision and Project Management for the Project.

2.0 PROJECT BRIEF

This document covers the scope of work involved in replacing existing in-service pipeline section through trenchless technology, associated hook-up works with existing pipeline, Abandoning/ dismantling of existing underground pipeline and other necessary requirements of this job.

The whole scope of work has been splitted into two sections which are to be replaced from pipelines under this project are as follows: -

SECTION-01:

1. Namrup-Lakwa pipeline Pipeline of 16" X 58.221 Km long transporting Natural Gas. Pipeline section at Dilli (Disang) River at Ch. 3+010.48 KM to be replaced.

SECTION-02:

- 1. Lakwa-Jorhat-Golaghat pipeline of 12" X 116.277" Km long transporting Natural Gas. Pipeline section under Teok Nala and Road at Ch. 57+900.00 KM to be replaced.
- 2. Under the same pipeline i.e. Lakwa-Jorhat-Golaghat pipeline transporting Natural Gas. Pipeline section underPutijan Nalaat Ch. 60+500.00 KM to be replaced.

3.0 **DEFINITIONS**

Where used in this document, the following terms shall have the meanings indicated below, unless clearly indicated by the context to this order.

PROJECT	Replacement of in-service pipeline section through trenchless method
CLIENT/ OWNER	Assam Gas Company Limited
EPMC	Pipeline Engineering Consultants Pvt. Ltd. (PLECO) the party to act for and on behalf of OWNER for the Detailed Engineering Services and Project Management.



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CONTRACTOR

Agency appointed by CLIENT/ OWNER for execution of assigned tasks

SOW Scope of work

4.0 WORK INVOVED

Work involved consists of supply of materials (other than free issue materials), detailed survey, installation of pipeline section through trenchless technology & associated hook-up works with existing pipeline, retrieval of old pipeline, testing, pre-commissioning and commissioning including gas in and all associated works as detailed below.

SECTION-01 (BY TRENCH LESS METHOD):

- Design, Engineering & Installation of 16" dia. Pipeline section through trench less Technique at Ch. 3+010.48 KM to be laid across Disang River. The width of the river is approx. 135 M.
- Detailed survey, design, engineering and installation of pipeline, testing, gauging, precommissioning of pipeline section installed within the jacked pipe, swabbing, drying, preservation (as required) and commissioning assistance.
- All Cathodic Protection work restoration for the section.
- Geo-technical investigation and hydrological survey for design and detailed engineering, verify banks and establish the proposed tunnel & crossing length and profile on ground before execution of the work is bidder responsibility.
- Localized Nitrogen Purging of existing pipelines to free from hydrocarbon particles and to make ready for hook up.
- Hook-up of new proposed pipeline crossing section with existing main line at both the ends.
- "Receiving and Taking-over" Owner supplied free issue coated line pipes from Owners Store yard and return of retrieval and remaining pipe to Owners Store shall be in Contractors Scope. Contractor to quote accordingly.
- All works related to hydro-testing and pre-commissioning including dewatering, swabbing and drying.
- Safety personal as per standard requirements shall be deputed at site during execution.
- Overall Commissioning of the pipeline and facility including supply of Nitrogen for purging. Contractor shall also provide all assistance to Owner during de-commissioning & Commissioning.
- Works related to shifting of test post, permanent cathodic protection and temporary cathodic protection, if required.
- All works related to ROW opening shall be carried out by Owner. However, Contractor to liaison with respective statutory authorities and local body.
- Contractor shall obtain mandatory permissions from respective statutory authorities. Irrigation department, Forest/ central department, Local authorities, etc., before starting the job. Payments required for such permissions shall be reimbursed by Owner's at actuals.
- Liaisoning with various authorities during ongoing work/ completion.



SECTION-02 (BY TRENCH LESS METHOD)

- Installation of 12" dia. Pipeline through Horizontal Directional Drilling Technique at Ch. 57+900.00 KM laid across Teok Nala & the Ch. 60+500.00 KM laid across Putijan Nala.
- All geotechnical investigation and Hydrological survey of all crossings.
- Opening up the existing pipeline for Hook-up, wherever required.
- Localized Nitrogen Purging of existing pipelines to free from hydrocarbon particles and to make ready for hook up.
- Hook-up of new proposed pipeline section with existing main line at both the ends.
- Hook-up welding works shall be planned for short shutdown time.
- Retrieval/ dismantling of existing16" & 12" pipeline sections including cutting, grinding, beveling of ends and handing over to client.
- Pipeline may be abandoned in places where pipe retrieval is not feasible.abandonment of sections shall require plugging at both ends and Inertization by nitrogen purging.
- "Receiving and Taking-over" Owner supplied free issue coated line pipes from Owners Store yard and return of retrieval and remaining pipe toOwners Store shall be in Contractors Scope. Contractor to quote accordingly.
- All works related to hydro-testing and pre-commissioning including dewatering, swabbing and drying.
- Safety personal as per standard requirements shall be deputed at site duringexecution.
- Overall Commissioning of the pipeline and facility including supply of Nitrogen forpurging. Contractor shall also provide all assistance to Owner during de-commissioning& Commissioning.
- Works related to shifting of test post, permanent cathodic protection and temporary cathodic protection, if required.
- Contractor shall obtain mandatory permissions from respective statutoryauthorities. Irrigation department, Forest/ central department, Local authorities,etc., before starting the job. Payments required for such permissions shall bereimbursed by Owner's at actuals.
- Liaisoning with various authorities during ongoing work/ completion.

5.0 DETAILED SCOPE OF WORK

The Contractor's Scope of Work for the work shall consist of, but not limited to, supply (as indicated in Scope of supply), installation, testing and commissioning of pipeline and all such works which though specifically not indicated here but will otherwise be required to complete the WORK in all respects.

5.1 PIPELINE CROSSING

a. Crossing Location

Company has finalized the location for river and nala crossings and the details of which are included as a part of survey data enclosed with the Contract. Contractor is advised to make site visits to

BRIEF SCOPE OF WORK



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familiarize himself with all the salient features of terrain and available infrastructure in the vicinity of crossing location. Contractor shall be deemed to have considered all constraints and eventualities on account of site conditions along pipeline route while formulating his bid. Contractor shall not be eligible for any compensation in terms of cost and/or time, on account of site conditions along pipeline route varying to any extent from whatever is described in the tender document and the drawings furnished along with the tender document. Refer relevant drawing for crossing location enclosed with tender document.

Sr. No	Name of Crossing	Chain-age (KM)	Width Bank to Bank (m)	Remarks		
Section-01						
1	Disang River	CH 3+010.480	135	NTPS, Namrup - Lakwa Pipeline section		
		Sect	ion-02			
2	Teok Nala	CH 57+900.00	20	Lakwa to Jorhat - Golaghat Pipeline section		
3	Putijan Nala,	CH 60+500.00	20	Lakwa to Jorhat - Golaghat Pipeline section		

Bidder to note that the crossing shall be carried out beyond the bank of rivers and the pipeline cover shall be as per approved Drawing and calculations. Pipeline shall be straight from bank to bank. Bidder's rate shall be on Lump Sum basis. No additional cost shall be entertained later on.

b. ROU

For pipeline construction purposes, ROU shall be made available to Contractor by the Company. Contractor shall carry out construction work within the width as made available to him with no time and cost implication to the Company.

It shall be Contractor's responsibility to make arrangement for any additional land required for Rig and their accessories, fabrication, construction, storage, office/residential camp accommodation and all other work areas.

Contractor shall note that proposed pipeline installed parallel to existing pipeline(s). Contractor shall ensure safety of existing pipeline while installing proposed pipeline. Contractor shall prepare installation procedure and take prior approval of the authorities having jurisdiction over the same.

Contractor shall clear and grade the length of ROU required for installation of on land portion and drilled river crossing portion in his scope. Contractor shall do such grading on ROU to provide access to the pipeline construction and to ensure safe construction of pipeline.

Contractor shall ensure that his construction activities shall not interfere with the normal use of land and the water course. No trees on ROU shall be cut.



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The ROU clearing and grading operations shall in no case involve damages/ changes of embankment/ structures of any type and class without prior approval of the authorities having jurisdiction over the same.

c. Environment

Intake and discharge of water required/used for line flushing and testing should not cause unacceptable environmental disturbance. Procedure for disposal of corrosion inhibited shall be prepared and submit to the Company/ Authorities for approval. During dewatering process, proper drainage arrangement shall be made to discharge the hydro-test water to avoid flooding of the nearby area.

5.2 CONSTRUCTION

A. Pipeline Laying Works

- Carrying out engineering for construction including preparation of final crossing drawings as per the requirements of applicable specifications for pipeline installation across river crossings by Horizontal Directional Drilling or by micro tunneling.
- Receiving and Taking-over" as defined in specifications of Company supplied externally corrosion coated free-issued line pipes from the Company's designated dump sites at Duliajan, Assam State, India from Company/Contractor, transportation including loading, unloading, handling, stacking, hauling and stringing of line pipes from Company designated dump site to Contractor's own stock yard(s)/ work site(s)/ workshop(s)/ pipeline right-of-way, including arranging all pipe trailers, cranes etc., arranging all necessary intermediate storage area(s) thereof till the pipes are installed in permanent installation.
- Carrying out inspection of Company supplied free-issue coated line pipe at the time of receiving and taking-over and recording of defects, etc. noticed in the presence of Company's representative and carrying out all repairs including supply of all other repair materials.
- Carrying out repairs of pipe and pipe coating not attributable to the Company including defects/damages occurring during transportation and/or handling after receiving and taking-over including supply of all materials.
- Loading, unloading, handling, stacking, storing and transportation to workshop(s)/ work site(s) of all
 materials other than corrosion coated pipes and bare pipes that may be used for the construction of
 pipeline system either supplied by Company and/or by Contractor as the case may be.
- Carrying out all geotechnical investigation, topographical survey, required for crossings during execution including preparing plan and profile drawings as directed by Engineer-in-Charge.
- Site preparation including grading, clearing, arranging required land for setting of pipe fabrication yard, lands for rigs & its accessories etc; excavation in all types of soils associated with preparation of pipeline launch way, temporary pipe supports for pipe string; repair of damages to corrosion coating; pipe string preparation including line-up, aligning, welding, NDT including radiography, field joint dirax sleeves or equivalent, holiday testing of complete pipe string; installation of one pipe joint on either sides of drilled section and capping; pre/ post installation hydrotesting of crossing section; backfilling of excavated areas and clear-up/restoration of Right of Use (ROU); supply of all materials (which are in scope of HDD Contractor), consumables and man-power that are required for pipeline installation and its associated works.



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- Idle time preservation if required of the pipeline by filling with water with required dosage of corrosion inhibitors and keeping it under a positive pressure of 5 bar (g) for the duration defined elsewhere in Contract document.
- Transportation of all surplus Company free issue materials including short length pipes to Company's designated central store at Duliajan or as directed by Engineer-in-Charge and stacking the same.
- Obtaining all necessary approvals and work permits from the concerned Authorities having jurisdiction, as applicable for performing the work.
- Providing and maintaining all lights, guard, fencing in connection with work as necessary or directed by Company.
- Company has obtained most of the clearances, No objection certificates (NOC) for laying pipeline from concerned authorities, Contractor shall obtain working permission for all crossings based on the same.
- Contractor shall also inform all local authorities in advance and obtain all necessary approvals for crossing underground utilities/ pipelines, shifting/ relocation and restoration of telephone/ electrical poles and underground pipes and other crossings & utilities wherever encountered along the pipeline route, Contractor shall be required to carry out all the works as mentioned in the work permit.
- Immediately after award of work, Contractor shall make a site visit to establish the route, missing survey stones and familiarize with the working conditions so as to plan for deployment of man and machinery.
- Contractor shall barricade the working area for safety.
- Contractor may plan to work in the Night shift. But Contractor has to plan and take approval from Engineer In charge/ Client and Concerned Authorities before start of construction. Contractor to arrange all lighting and safety precaution for the same.
- Thorough internal cleaning of all pipes to remove debris, shots, grit etc. to the satisfaction of Engineer-in-Charge
- Welding of all bends on either side of crossings/ with adjoining pipeline/ other facilities as required. Final tie-in will be done by laying contractor.
- Field weld joint coating shall be by direct heat shrink sleeve as per specification enclosed with bid package.
- Any tree uprooting in pipeline route shall be avoided. Permission is not available for cutting of tree. Tree may be shifted if permitted by authorities.
- Contractor shall be responsible for claims if any arising out of damage/ obstruction to public utilities like OFC lines of DOT, water pipelines etc. where the claims will cover repairing the damages & restoring the ROU to original condition, the restoration costs as well as loss of revenue due to down time
- Review and approval of Contractor's entire work(s) by Company shall in no way relieve the Contractor of his sole responsibility for safe and efficient installation and subsequent operation of pipeline system.
- Carrying out the work Complying to the Terms and Conditions laid down by various statutory authorities for crossing approvals, Completing the work within the permitted duration, Liaisoning with the authorities/ Land owners, completing the pipeline Crossing activities to the satisfaction of



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concerned owner / statutory authority & obtaining satisfactory performance certificate on completion. Obtaining all necessary work permits from concerned local authorities having jurisdiction during pipeline laying/Crossing.

- The Nala crossing with minimum cover 4.0 meter below Nala bed level by HDD method, bank stabilization of water course crossings as required, arranging all additional temporary land/ area required for construction purposes.
- Microtunneling shall be done within the entire limits of crossings as defined in the approved drawings. Minimum cover over top of the jacking pipe at all points across the maximum possible width of water bed (bank to bank, as per drawing) shall be 2.5 mtrs below the predicted scour profile expected during the life time of the pipeline or the actual depth as decided by concerned Authority / Engineer-incharge or as per approved crossing drawing whichever is more.
- Repair of any leaks/ burst occurring during testing of main pipeline.
- Thorough internal cleaning of all pipes to remove debris, shots, grit etc. to the satisfaction of Engineer-in-Charge
- Contractor shall engage independent third-party inspector & agency for carrying out radiographic inspection and interpretation of radiograph of welds. Third party inspector shall be approved by Company.
- Provide, maintain and operate all temporary facilities required for the construction related works and remove after completion of work.
- All works related to testing, dewatering, swabbing, purging in the contractor scope.
- HDD/ micro tunneling works shall be carried out in accordance with specification enclosed with bid package. For directionally drilled crossing, following shall be performed:
 - a. Carrying out all surveys and collection of data, as may be required for the design and construction of the crossings.
 - b. Carrying out all engineering, design calculations and preparing all construction drawings for laying of pipeline and optical fiber cable inside steel pipe as per requirements for installation of Road/ Canal/ nala/ minor river crossings by Microtunneling and HDD method.
 - c. All construction activities required for installation of the crossings viz. site preparation, preparation of pipe string, field welding, radiography, pretest of completed string, corrosion coating of field joints, drilling in all types of soil including gravel, boulders and disintegrated and hard rock, installation of pipeline, post installation hydro testing of the crossing section, capping, providing and installing markers and temporary cathodic protection of pipeline section at crossings.
 - d. Field joint coating shall be carried out by Direx heat shrink sleeves or equivalent.
 - e. Supply of 6" NB, 6.4mm W.T. API 5L Gr.B 300 micron epoxy coated steel conduit, with duct of flexible HDPE for laying of OFC cable.
 - f. Installation of pipeline and 6" NB steel conduit for OFC (together in a single drilled hole or separately in two independent drilled holes).
 - g. Incase pipeline laying by other agency is already completed, then Tie-in with main pipeline after successful installation of pipeline at river crossing.
 - h. All associated pipeline work w.r.t. temporary and permanent cathodic protection.

BRIEF SCOPE OF WORK



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- i. Clean-up and restoration of ROU to original condition as per specification and drawings to the entire satisfaction of Company and/or Authorities having jurisdiction over the same, including disposal of surplus excavated soil and other construction materials without causing any disturbance to environment and to the entire satisfaction of Company. Contractor shall arrange necessary clearance from the concerned authorities/ land owners to the effect that ROU/ ROW has been restored back to original condition.
- Preparation of as built drawings, pipe books, documents, photographs, project records as per specification and instructions of the Company including furnishing of all Test Certificates/Inspection Reports for all materials used for permanent installation.
- HDD same shall be carried out as per specification. Contractor to note that the minimum elastic bend radius to be adopted, shall be as per pipeline engineering design basis enclosed with the tender.
- All incidental and associated works and any other works not specifically listed herein but are required to be carried out to complete entire work related to pipelines and the associated facilities and making the entire pipeline system ready for operation.

B. HOOK-UP with Existing Pipeline

- Nitrogen purging of entire pipeline between upstream terminal/ Station and downstream terminal/ Station.
- Contractor shall finalize Hook-up location prior to the above, in consultation with Owner.
- Cold cutting shall be carried out by pneumatically/ air driven cold cutting machine of existing pipeline at the hook-up locations for hook-up with new pipeline. Hacksaw cutting not allowed.
- Sufficient quantity of nitrogen cylinder shall be placed at work site, for arrangement of localized purging during cutting and welding to neutralize localized hydrocarbon pockets.
- Completion of Hook up at each location shall be planned within shutdown time. Deployment of independent welding crews for each Hook up along with NDT, coating and backfilling crew.
- Contractor shall prepare a method statement along with drawing for carrying out the hook-up works and submit the same to Owner for review and approval. The hook-up work shall be carried out based on the approved methodology, drawings

6.0 SCOPE OF SUPPLY

A. MATERIALS TO BE SUPPLIED BY COMPANY AS FREE ISSUE

- a. Company shall make available the following materials to the Contractor at an appropriate time during the execution stage as free issue materials. All free issue coated line pipes shall be made available by the Company at designated dump sites located at Duliajan, Assam State, India
 - 1. Required quantity of 3 Layer PE externally coated pipe
 - 2. LR bend

B. MATERIALS TO BE SUPPLIED BY CONTRACTOR

Contractor shall procure and supply all materials other than Company supplied materials, required for permanent installation of pipeline system in sequence and at appropriate time. All equipment, materials, components etc. shall be suitable for the intended service. For items which are not

BRIEF SCOPE OF WORK



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covered in the vendor list, Contractor shall obtain Company's prior approval for the vendor. Necessary details i.e. data sheets & specifications for the items in the Contractor's scope of supply, as required, shall be enclosed with the bid package.

The procurement and supply, in sequence and at the appropriate time, of all materials and consumables required for completion of the WORK as defined in this tender document except the materials specifically listed above para (A) above as Company free-issue material, shall be entirely the Contractor's responsibility. The rates quoted for the execution of the WORK shall be inclusive of supply of all these materials. All materials supplied by the Contractor shall be strictly in accordance with the requirements of relevant applicable Company Material Specifications enclosed with the tender document. All materials, consumables, components etc. shall be new and specifically purchased for this job from Company approved vendors, duly inspected by third party inspection agency (Only manufacturer s certificates shall not be adequate). As a minimum, such materials to be supplied by the Contractor shall include, but not limited to, the following:

All materials (other than those mentioned in clause A above), consumables, equipment required for completion and successful commissioning of entire pipeline system shall be procured and supplied by the Contractor

As a minimum, the materials to be supplied by Contractor shall, but not limited by any way, be as follows:

- All materials supplied by the Contractor shall be strictly in accordance with the requirements of relevant Company material specifications enclosed with the tender document.
- All valves, assorted pipes, flanges & fittings dish end for hydrotest header, all size Casing Pipes, required for permanent installation in the system.
- All stud bolts, nuts, jack screws, all type of gaskets (metallic spiral wound / ring type / non-metallic gaskets) in required quantities for all sizes and ratings of flanges and flanged valves, equipment etc.
- All consumable such as welding electrodes, oxygen, acetylene, inert gases, all types of welding electrodes, filler wires, solder wires, brazing rods, flux etc. for welding/cutting and soldering purposes.
- Direx or equivalent field joint coating material for HDD works.
- All materials including consumables required for hook-up with adjoining pipeline section or wherever required.
- All temporary materials and consumables required for filling and pressurizing in connection with hydrostatic testing, dewatering, swabbing and pre-commissioning activities, etc. including pipes, flanges, fittings, gaskets, bolts, nuts, etc. required for fabrication of temporary pig traps and /or test headers.
- All pigs for cleaning, gauging, de-watering, of the pipeline.
- Pumps and water to be used for hydrostatic testing/ flushing. All materials & consumables such as Corrosion inhibitor, oxygen scavengers and bactericides, required during hydro testing and idle time preservation, as required.
- CS conduit pipe for optical fiber cable (OFC) conduits in required quantities. Size of carbon steel conduit for OFC shall be as follows:
- 168 mm OD, 6.4mm WT, API 5L Gr-B/ IS:1239 steel conduit with HDPE duct for laying of OFC at crossings.



- All consumables and equipment's required for all types of tests and NDT such as radiography, ultrasonic testing, magnetic particle, dye penetrant examination etc. including radiography film etc.
- All safety tools and tackles, devices, apparatus, equipment, personal safety gazettes to be used as personal protective equipment (such as helmets, safety belts, safety shoes, etc.) including ladders and scaffolding etc. complete as recommended by Engineer-in-Charge as per relevant safety standards.
- Required quantities of Nitrogen for idle time preservation,
- Corrosion resistant straps required for strapping CS/ HDPE conduit with mainline at crossings of water bodies and other crossings.
- All materials, equipment and personnel required for videography and all associated works.
- Any other material not specifically listed herein, but required for successful completion of the Work.
- All material, equipment & consumables for laying/crossing by Microtunneling.
- CONDITIONS FOR COMPANY SUPPLIED MATERIAL
- The Contractor shall be responsible for taking over of the material and subsequent handling, hauling, transportation to the actual work site(s)/fabrication yard(s) and storage & safe keeping of the materials.
- The Contractor shall inspect all Company supplied free issue materials at the time of taking over from the Company and defects noticed, if any, shall be brought to the notice of Company/Company representative and jointly recorded. Once the material has been taken over by the Contractor, all the responsibility for safe keeping of the materials and repair of damage/ defects to pipe & pipe coating shall rest with the Contractor.
- Rebuffing of dents in bevels less than 1 mm in depth shall be carried out by Contractor ahead of welding in the field at no extra cost to Company.
- On completion of the works Contractor shall submit a "Material Appropriation Statement" for all materials supplied by the Company as free issue materials.
- Every month the Contractor shall submit to the Company an account for the material issued to the Contractor in the Performa prescribed by Engineer-in-Charge.
- For the purpose of accounting of pipes all cut pieces in length of 2 m and above when returned to the Company's storage point shall be considered as serviceable material. All pipes measuring less than 2 m shall be treated as scrap/wastage.
- All unused pipes and serviceable/ scrap material shall be the property of the Company and shall be returned by Contractor to Company at Company's designated storage point(s)
- Return of surplus bare & coated line pipes at warehouse to Company's designated storage yard is
 installation Contractor's scope including loading, transportation, unloading, handling, stacking of
 pipes at company's storage yard and getting the pipes inspected from Company's representative at
 storage yard.
- Repair of Coating
- Any repairs to 3-layer polyethylene coating shall be carried out by Contractor using suitable material compatible with parent coating system and meeting the requirements of coating system specified in specification attached with the Bid Package. The coating repair material and procedure for application shall be submitted to Company for approval prior to start of construction.



- Repair of PE coated pipes in field shall be carried out as follows in accordance with bid specification.
- Damages caused to coating by handling such as scratches, cuts, dents, gouges, not picked up during holiday test, having a total reduced thickness on damaged portion not less than 2.0 mm and an area not exceeding 20 cm2 shall be rebuild by heat shrink patch only and without exposing to bare metal.
- Defects of size exceeding above mentioned area or holidays of width less than 300 mm shall be repaired with heat shrink repair patch by exposing the bare metal surface.
- Defects exceeding the above and in number not exceeding 2 per pipe and linear length not exceeding 500mm shall be repaired using heat shrinkable.

C. STORAGE OF MATERIALS:

- a. All materials shall be preserved against deterioration and corrosion due to poor or improper storage while under the custody of the Contractor.
- b. All materials shall be duly protected by the Contractor at his own cost with the appropriate preservatives like primer, lacquer, coating, grease etc. and shall be covered with suitable material to prevent them from direct exposure to sun, rain, wind and dust.
- a. Pipes shall be stacked according to the identification marks and stacks shall be arranged on sleepers/ sand bags at least 300 mm above ground.

As far as possible materials shall be transported to the site of erection only just prior to the actual erection and shall not be left around indefinitely on ground but kept on packing/sleepers etc. to maintain the minimum distance from the ground as specified and/or as per directions of Engineer-in-Charge.

7.0 OTHER CONDITIONS OF BID

a. Pipeline Burial

The pipeline minimum cover at river/ waterways crossing shall be as given below.

SI. No.	Location	Minimum Cover (m)
1.0	HDD crossing of canals (below lowest bed)	4
2.0	River crossings below scour depth	2.5

b. Work Permits

Contractor shall obtain the necessary approvals from authorities, statutory permits for all works, from other authorities, before the actual works are taken up.

All stipulations/ conditions/ recommendations of the said authorities shall be strictly complied with at no extra cost to Owner. Owner may, however assist the Contractors for obtaining such permission to the extent of issuing recommendation letters only.

c. Safety

- The Contractor shall provide all safety appliances, gas detectors, fire screens required during execution of the work.
- The structure/ electric poles etc. existing in the vicinity of proposed area shall be properly taken care so that the stability of structure is not affected during installation.



- All engineers and workers shall have safety training.
- Use all health & safety appliance for manpower during working.
- Approved dress/ Dungaree/ safety dress, safety boots & helmet shall be worn during the work period.
- Obtaining all necessary approvals and work permits from Company/ Concerned authorities including hot work permit as applicable for performing the work in existing terminal facilities.
- The Contractor is cautioned to exercise extreme care and take necessary precautions to prevent damage to the existing pipeline(s), facilities, electrical and other cables during HDD.

d. Statutory Permissions

Company shall arrange in-principle approvals from statutory authorities for installation of pipeline segment across the Rivers. The responsibility of the Company shall end with providing in-principle approvals. Further responsibility for obtaining all necessary approvals and work permits from concerned authorities having jurisdiction, as applicable for performing the work including shifting / relocation and restoration of telephone / electrical poles, hume pipes and underground pipes and other utilities etc., as required by local authorities and as directed by Company. Contractor shall inform all local authorities in advance and obtain all necessary approvals and work permits from concerned authorities having jurisdiction for crossing underground utilities / pipelines wherever encountered along the pipeline route. Contractor shall be required to carry out all the works as mentioned in the work permit. The scope of Contractor would include implementation of all the conditions of statutory approval.

e. Soil Investigation

Soil testing of the crossing location need to be carried out by contractor. It shall be contractor responsibility to familiarize himself with sub-soil conditions along the pipeline route, and workout the lengths of pipeline to be laid in different subsoil conditions, if required.

f. Dismantling

Contractor to perform complete work of excavation and dismantling of the underground existing pipe section between the two hook-up points. All excavated pipe shall be cut near welded joints and a ring of 50 mm along with weld shall be discarded, pipe both end shall be beveled, damage coating shall be repaired and shall be returned to Owner designated store yard. Transportation of the same shall be in Contractors scope. In case where pipe cannot be retrieved, pipe shall be plugged at both ends by end cap.

g. Installation of Conduits for Optical Fiber Cable at Crossings

For all crossings by HDD, CS conduit shall be strapped with carrier pipe for bundle pulling or a separate drilling shall be performed for CS conduit. Required HDPE conduit shall be installed inside CS conduit. For micro tunneling 2HDPE shall be installed along the pipeline.

h. Corrosion Inhibitor

Only one of the following products shall be used for corrosion inhibition of the water used for hydrotesting/ idle time preservation.

- a) REMIDOL 4000 of M/s Chemtreat India Pvt. Ltd., New Mumbai
- b) HIBITOL 2000 of M/s Renkal Chemical, New Mumbai



- c) INDION 175 of M/s Ion Exchange India Ltd., Hyderabad
- d) VISCO 3900 of M/s ONDEO NALCO, Kolkata
- e) NEVAMINE of M/s Navdeep Chemicals, Mumbai

Recommended doses levels are as follows:

- 300 mg/l for preservation up to 1 month.
- 500 mg/l for preservation up to 6 months from the date of completion of hydrotesting.
- 750 mg/l for preservation beyond 6 months from the date of completion of hydrotesting.

Contractor (not the inhibitor manufacturer) shall get the inhibitor tested for corrosion inhibition and microbiological control efficiency from competent Govt./ PSU Laboratory. The test report shall be submitted to company for approval prior to undertaking hydrotesting works.

i. Hydrostatic Testing, Dewatering, Swabbing and Commissioning

I. Pipeline

The pipeline shall be hydrostatically Pre-tested before installation and final test after installation to the minimum test pressure as specified below.

Pipe Size (Inch)	Thickness (mm)	Minimum Hydrotest Pressure (kg/cm ² g)				
Pipeline Section-01						
16"	16" 7.1 1.4 x 27kg/cm ² g					
Pipeline Section-	Pipeline Section-02					
12" 6.4 1.4 x 31 kg/cm ² g						

Hydrotest shall be done with corrosion inhibitor and dosage of corrosion inhibitor shall be suitable for 3 months. The highest point of the test section shall be subjected to the minimum test pressure as specified above. The maximum hydrotest pressure for any section shall not cause stress exceeding 90% of SMYS of the lowest wall thickness of that section.

In case any class location is upgraded due to requirements, the hydrotest pressure shall be governed by the actual class/ population density.

Pipes/prefabricated assembly used for such tie-in shall be pretested to a test pressure specified for the pipeline. All materials required for the fabrication of the test headers shall be provided by the Contractor at no extra cost to Company. After successful completion of hydrostatic testing, the Contractor shall de water the pipeline as per the directions of Engineer-in-charge

II. Dewatering and Swabbing

Dewatering of pipeline HDD section after hydrostatic testing shall be taken up by Contractor only when Contractor is ready for swabbing operations. The Contractor shall swab such sections till touch dry and fill the section with nitrogen at a pressure of 2 bar (g) with residual content of oxygen less than 1% v/v at no extra cost to the Company.

In no case shall the pipeline section be kept empty i.e. without nitrogen filling.

III. Drying



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In order to remove the remaining water after swabbing at low points in the pipeline, drying of pipeline system shall be performed. The drying shall be carried out by super dry air or evaporations method. Digital dew point meter shall be used for checking the dryness. Wet bulb with dry ice is not acceptable.

IV. Commissioning

Overall commissioning of the pipeline section which was isolated earlier shall becarried out by Owner. However, all assistance including supply of manpower,temporary equipment, tools and tackles etc. during commissioning shall be provided by Contractor. Contractor shall retain minimum manpower required to rectify theworkmanship defects, if any, noted during commissioning. Nitrogen for Purging shallbe supplied by the contractor.

8.0 CONTRACTOR'S RESPONSIBILITIES

Contractor's responsibilities, besides the scope of work to be performed by him defined earlier,

- a. If any additional land is temporarily required, for execution of construction activities, the same shall be arranged by the Contractor at his own cost and initiative. No additional compensation shall be payable for working in the restricted stretches of ROW.
- b. Company has provided the available information and survey data along pipeline route and crossings. Company gives no guarantee or warranty as to the accuracy or completeness of the information provided. It is the Contractor's sole responsibility to obtain sufficient information/ data along pipeline route and crossings to allow safe and sound design and installation of the proposed pipeline.
- c. Interpretation and verification of data/information furnished by Company in respect of pipeline crossing details, contained in the bid package. Any additional information/ data/ surveys etc. required by Contractor for detailed engineering and execution of the works, shall be obtained by him. Company may assist him in obtaining such information/ data by issuing recommendatory letters.
- d. HDD Procedure shall be reviewed and approved by company.
- e. Providing schedules, progress reporting, organization chart at construction site, quality assurance plan and developing quality control procedures, as per requirements of the bid package.
- f. Provide office and office support services/ facilities for Company's Personnel at Contractor's office for review and approval of documents as per the requirement of the bid package.
- g. Review and approval of Contractor's entire work(s) by Company shall in no way relieve the Contractor of his sole responsibility for safe and efficient design, engineering, installation and subsequent operation of pipeline system.
- h. Contractor shall depute independent third-party inspector for carrying out radiographic inspection/ UT and interpretation of radiograph/ UT of welds. Third party inspector shall be approved by Company.
- i. Contractor shall carry out all testing and inspection of materials, equipment etc. in independent testing institutions, laboratories, if so desired by Company.
- j. Disposal and treatment of treated hydro-testing water, excavated materials, residual materials used during HDD work, surplus materials etc. as per local authority's requirements.



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BRIEF SCOPE OF WORK

Page 18 of 18

k. Any other work not specifically listed but required for successful completion of entire pipeline system.



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STATEMENT OF REFERENCE BORE HOLE								
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BH-8A	673268.907	2986875.	043	20m				
BH-8B	673319.924	2986880.	15m					
BH-8C	673348.458	2986919.	20m					
CLIENT:	A	GCL/GLPL/RM-04	ł					
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ROUTE MAP

ALIGNMENT SHEET

REF. DRAWING

SURVEY OF PIPELINE ROUTE AND STATIONS FOR

GOLAGHAT TO BCPL LAKWA GAS PIPELINE PROJECT

SECTION: GOLAGHAT TO LAKWA PIPELINE

SURVEY CONSULTANT								SURVEY DETAILS	SHEET No.	REV.
S.K.P. PROJECTS PVT. LTD. VADODARA – 390013.	0	03.02.22	ISSUED FOR CLIENT APPROVAL	HC	ΜV		DISANG RIVER CROSSING BETWEEN TP510 & 19510/1		0	
	VADODARA -390013.	NO.	DATE	REVISION	ΒY	СН	APPD	CH.104+429.49KM	AGCL/GLPL/CS-135	0

SCALE: 1:500



SURVEY OF PIPELINE ROUTE AND STATIONS FOR

GOLAGHAT TO BCPL LAKWA GAS PIPELINE PROJECT

SECTION: GOLAGHAT TO LAKWA PIPELINE

STATEMENT OF REFERENCE BORE HOLE									
BH NO	EASTING	NORTHIN	BH DEPTH						
BH-9A	686523.528	2991659.337		20m					
BH-9B	686572.118	2991634.	15m						
BH-9C	686603.907	2991651.5	15m						
BH-9D	686662.291	2991625.	20m						
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ROUTE MAP

ALIGNMENT SHEET

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