**ASSAM ELECTRICITY GRID CORPORATION LIMITED**

OFFICE OF THE DEPUTY GENERAL MANAGER

T&T CIRCLE, JORHAT.



(E-Tender)

**TENDER DOCUMENT**

**NOTICE INVITING TENDER NO: AEGCL/DGM/TTC/JRT/O&M/33VCB/T-31/2025/453 Dated: 29.07.2025**

**Name of work**

Supply of 06 nos. of 33KV Vacuum Circuit Breaker 02 nos. each for Mariani Division, Nazira Division and T&T Division, Golaghat under T&T Circle Jorhat.

Tender cost amounting to

Deposited in the form of …………………..

Vide ………………….

Issued to …………………..

Address ………………….

Signature of Contractor/Firm

Deputy General Manager

T&T Circle, AEGCL,

Garmur,Jorhat-07

**Tender fee: Rs. 1000.00 EMD: Rs. 59,000.00**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **INFORMATION TO BIDDER:** | | |
|  |  | NAME OF WORK: Supply of 06 nos. of 33KV Vacuum Circuit Breaker 02 nos. each for Mariani Division, Nazira Division and T&T Division, Golaghat under T&T Circle Jorhat. | | |
|  |  | **LOCATION OF WORK:- 220kV Mariani GSS, 132kV Nazira GSS and T&T Division, Golaghat.** | | |
|  |  | **TENDER ADDRESS:- OFFICE OF THE DGM, T&T Circle, AEGCL, Garmur, Jorhat-07.**  **ESTIMATED VALUE FOR THE WORK:-Rs. 29,45,280.00 (Rupees Twenty Nine Lakhs Forty Five Thousand Two Hundred and Eight )only including taxes.**  **Fund: O&M HQ (UAR) for FY 2025-26.** | | |
|  |  |  | | |
|  |  | **BIDDING PROCEDURE**:-   1. The bidders must register themselves at <https://assamtenders.gov.in> as per the guidelines laid in the website. 2. The bidders have to submit scanned copies of the relevant documents through the e-Tender Portal. 3. The bid must be submitted online through e-tendering portal <https://assamtenders.gov.in> . 4. Bidders may obtain further information from the office of the Dy. General Manager, T&T Circle, AEGCL, Jorhat, Assam [e-mail: dgmttc.jorhat@aegcl.co.in; Web site: [www.aegcl.co.in](http://www.aegcl.co.in). 5. To participate in the tender the interested bidders may visit https://assamtenders.gov.in for all the relevant documents and information required to participate in the tender. | | |
|  |  | **KEY DATES**:- | | |
|  |  | Bid Submission Start Time & date:- | 12.00 Hrs. of 30/07/2025 |  |
|  |  | Bid Submission End Time & date:- | 14.00 Hrs. of 19/08/2025 |  |
|  |  | Techno-Commercial Bid Opening Time &date:- | 14.30Hrs. of 19/08/2025 |  |
|  |  | **TENDER PAPER COST AND MODE OF PAYMENT:-** | | |
|  |  | The Bidder shall bear all costs associated with the preparation and submission of its Bid, AEGCL shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.  Bidder has to pay Non-Refundable tender processing fee of **Rs.1,000.00 (Rupees One Thousand)** only via e-tender portal [www.assamtenders.gov.in](http://www.assamtenders.gov.in). | | |
|  |  | **BID SECURITY/EARNEST MONEY AND MODE OF PAYMENT:-** | | |
|  |  | For participation in bidding procedure, participants must compulsorily pay the Bid Security of **Rs. 59,000.00 (Rupees Fifty Nine Thousand)** only via e-tender portal [www.assamtenders.gov.in](http://www.assamtenders.gov.in). | | |
|  |  | The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security. | | |
|  |  | The bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder’s furnishing of the performance security. | | |
|  |  | The bid security may be forfeited: - | | |
|  |  | If a Bidder withdraws its bid during the period of bid validity period. | | |
|  |  | If the successful Bidder fails to sign the Contract within the specified period. | | |
|  |  | If the successful Bidder fails to furnish a performance security within 15 (Fifteen) days’ time of issue of LOA/NOA. | | |
|  |  | **VALIDITY OF BID:-** | | |
|  |  | Bid shall remain valid for the period of 180 days after the submission deadline date prescribed by AEGCL. In exceptional circumstances, prior to the expiration of the Bid validity period, AEGCL may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. | | |
|  |  | **TIME OF COMPLETION:-** | | |
|  |  | The allotted time of completion for the work is 180 days from the issue of work order. | | |
|  |  | **DISCLAIMER:-** | | |
|  |  | AEGCL is not committed contractually in any way to those Bidders whose Bid are accepted. The issue of this Bid does not commit or otherwise oblige AEGCL to proceed with any part or steps of the process. | | |
|  |  | **LANGUAGE OF BID:-** | | |
|  |  | The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and AEGCL, shall be written in the English and / or Assamese language. | | |
|  |  | **NEGOTIATION WITH BIDDER:-** | | |
|  |  | The AEGCL reserve the right to hold negotiations with lowest bidder if AEGCL feels the quoted rates of particular item(s) are unreasonably high. The bid must be valid, eligible and technically acceptable and considered for award of contract. | | |
|  |  | **VERIFICATION OF DOCUMENTS:-** | | |
|  |  | AEGCL reserves the right to verify the documents submitted by the bidders with issuing authority and if any abnormalities are observed in the same, their bids will be rejected. | | |
|  |  | **RIGHT TO REJECT:-** | | |
|  |  | AEGCL reserves the right to reject any or all the bids without assigning any reason thereof and AEGCL further reserves the right to split up the work order in favour of more than one Contractor. AEGCL also reserves the right to reject the lowest or any other price without assigning any reason. The clauses which are not appearing in this Bid document will be as per The General Condition of Supply and Erection 2009 of AEGCL. The General Condition ofSupply and Erection 2009 of AEGCL is available in the AEGCL’s website [www.aegcl.co.in](http://www.aegcl.co.in). | | |
|  |  | **ELIGIBILITY QUALIFICATION.** | | |
|  |  | **ELIGIBLE BIDDERS:-** | | |
|  |  | A Bidder may be a private entity or a government-owned entity or any combination of such entity with the intent to enter into an agreement supported by a letter of intent or under an existing agreement in the form of a joint venture, consortium or association. | | |
|  |  | A Bidder, and all partners constituting the Bidder, shall have Indian nationality. | | |
|  |  | **EVALUATION CRITERIA:** | | |
|  |  | The Techno-Commercial Evaluation will be done on the basis of technical qualification, Financial qualifications and fulfilment of the legal conditions. | | |
|  |  | The Price Bid of only Responsive Techno-Commercial Bidders will be opened and intimation will be issued in due course. | | |
|  |  | **TECHNICAL QUALIFICATION:** | | |
|  |  | In order to qualify technically for this Bid, the bidders have to furnish experience of work executed in 33 KV level and above within the last 7 years at any Govt. Deptt., PSU etc. conforming to **either of** the following requirements:   |  |  |  | | --- | --- | --- | | **Sl No** | **Description** | **Amount not less than (Rs)** | | 1 | 3 (three) similar completed works | Rs. 9,00,000.00 | | 2 | 2 (two) similar completed works | Rs. 13,00,000.00 | | 3 | 1 (one) similar completed work | Rs. 25,00,000.00 | | | |
|  |  | **FINANCIAL QUALIFICATION:-** | | |
|  |  | Minimum average annual turnover of **30% (Rs.** 8.83,584.00**)** only calculated as total certified payments received for contracts in progress or completed, within the last 3 (Three) Years, ending 31st March of the previous financial year. Certified Balance sheet must be furnished as a proof of annual turnover. | | |
|  |  | Current bank solvency certificate must be submitted to show the bidder’s financial position. | | |
|  |  | The contractor shall make good at his own cost and to the satisfaction of AEGCL all defects, or other faults which may appear during the defect liability period.  In default, AEGCL may employ and pay other agency or persons to amend and make good such damages. Losses and expenses consequent thereon or incidental thereto shall be made good and borne by the contractor, failing which the same shall be recoverable from the payment due to the contractor and performance guarantee. In the event of amount due and performance guarantee being insufficient, the balance amount will be recovered from the contractor from the amount due or retained for other works executed in AEGCL. | | |
|  |  | **ACCEPTANCE OF BID AND CONTRACT AGREEMENT:-** | | |
|  |  | An agreement shall have to be drawn on non-judicial stamp of appropriate value with AEGCL by the selected Contractor in AEGCL’s General Conditions of Supply and Erection 2009 of contract within 10 (ten) days from the date of issue of the LOI.  Wherever there is any variation in between the conditions of AEGCL’s General Conditions of Supply and Erection 2009 and the above terms & conditions, this bid conditions will supersede the conditions of AEGCL’s General Conditions of Supply and Erection 2009. | | |
|  |  | **PAYMENT TERMS:-** | | |
|  |  | No advance/Mobilization advance shall be made in this contract. | | |
|  |  | No claim for interest shall be entertained by AEGCL. | | |
|  |  | Final bill must contain the original site register. | | |
|  |  | Final payment shall be released to the contractor only after completion of the work in all respect and final acceptance by AEGCL. | | |
|  |  | Payment is subject to availability of specific fund. | | |
|  |  | The Bidder / Firm will have to be submitted the following Net Banking details.   * Banker’s Name & Branch * Account No * Banker’s address * Banker’s IFSC Code * Banker’s RTGS Code | | |
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|  |  | **WARRANTY:-** | | |
|  |  | The term period of warranty by the Supplier and Manufacturer shall be for a period of 18 months from the date of supply of the equipments or 12 month from the date of installation of the equipments, whichever is earlier.  The successful Bidder, to whom the work is awarded, shall be required to furnish a Manufacturer’s Authorization, in the form attached with the Bidding Document in favour of the AEGCL. | | |
|  |  | **EXTENSION OF TIME:-** | | |
|  |  | Time is the essence of the contract. No extension of time shall normally be allowed except on valid and genuine ground.  **PERFORMANCE SECURITY(Contract Performance Guarantee)**   * 1. As a Contract Performance Security, the successful Bidder, to whom the work is awarded, shall be required to furnish a Performance Guarantee from a Nationalized Bank, in the form attached with the Bidding Document(Appendix-4)in favourof the AEGCL. The guarantee amount shall be equal to ten percent (10%) of the Contract Price and it shall guarantee the faithful performance of the contract in accordance with the terms and conditions specified in these documents and specifications. The guarantee shall be valid upto 90(ninety) days after the end of Warranty Period.   2. In case the bidder fails to submit the Performance Security in the form of Bank Guarantee, an amount equivalent to 10% of the Contract Price shall be retained as Security Deposits which shall be retained up to 90 (ninety) days after the end of Warranty Period.   3. The performance guarantee shall cover additionally the following guarantees to the owner:   4. The successful Bidder guarantees the successful and satisfactory operation of the equipment furnished and erected under the contract, as per the specifications and documents.   5. The successful Bidder further guarantees that the equipment/material provided and installed by him shall be free from all defects in design, material and workmanship and shall upon written notice from the Owner fully remedy.   6. The Contract performance Guarantee will be returned to the Contractor without any interest at the end of warranty period and written request from the contractor. | | |
|  |  | **CONTRACTUAL FAILURE, LIQUIDATED DAMAGE AND PENALTY:-** | | |
|  |  | Liquidity Damages 1.0% (one percent) of the amount of delayed work per week subjected to the maximum 10 % of the contract value. | | |
|  |  | **TERMINATION OF CONTRACT:-** | | |
|  |  | If the performance of the contract is not satisfactory and not corrected within 15 days of receiving notice, then employer shall be at liberty to terminate the contract and get the work executed through other means at the risk and cost of the Contractor. | | |
|  |  | **FORCE MAJEURE CONDITION** | | |
|  |  | Force Majeure condition shall be considered as any circumstances beyond reasonable control of the party claiming relief, including but not limited to strikes, lockout, civil commotion, riot insurrection, hostilities, mobilization, war, fire, flood, earthquake, malicious damage or accidents could entitle contractor to extension time. Any such delay should intimated within 10 (ten) days from the beginning of such delay to consider/approved, any claim without prior information may not be considered under force Majeure. | | |
|  |  | **SETTLEMENT OF DISPUTE AND ARBITRATION:-** | | |
|  |  | Any dispute arising out of the contract will be first settled bilaterally between AEGCL and Contractor. In case, dispute cannot be settled bilaterally, it will be referred to arbitration. The contractor shall not stop the work during settlement of any dispute. All disputes shall be subjected to the jurisdiction of District Court of respective District of work. | | |
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**VACUUM CIRCUIT BREAKERS**

**SPECIFICATION OF 36 KV OUTDOOR TYPE PORCELAIN CLAD VACUUM CIRCUIT BREAKERS (PCVCB)**

15. **GENERAL TECHNICAL REQUIREMENTS**

15.1. **INTRODUCTION**

The circuit breakers should be complete in all respects with insulators, bimetallic connectors, interrupting chamber, operating mechanism control cabinet, interlocks, auxiliary switches indicating devices, supporting structures, accessories, etc., described herein and briefly listed in the schedule of requirements. The scope of supply shall also include necessary special tools and plants required for erection as indicated, if any.

15.2**. STANDARDS**

The circuit breaker shall conform in all respects to the requirements of latest issue of IS/IEC specifications except for modifications specified herein. The equipment manufactured according to any other authoritative standards which ensure an equal or better quality than the provision of IS/IEC specifications shall also be acceptable. The salient point of difference between the proposed standard and provision of these specification shall be clearly brought out in the tender. A copy of English version of such specifications shall be enclosed with the tender.

The list of standards mentioned in this specification and to which the circuit conform is given below:

|  |  |  |
| --- | --- | --- |
| 1. | IEC-62271-100 | High Voltage A.C. Circuit Breakers |
| 2. | IEC-60137 | Bushing for alternating Voltages above 1000 volts |
| 3. | IEC-60071 | Insulation Co-ordination |
| 4. | IEC-60694 | Common clauses for high voltages switchgear and control gear  standards |
| 5. | IEC-60815 | Specification for Creepage distances |
| 6. | IS-13118 | Specifications for high voltage alternating current circuit breakers |
| 7. | IS-2099 | High voltages porcelain bushings |
| 8. | IS-4379 | Identification of the contents of industrial gas cylinders |
| 9. | IS-3072 | Installation and maintenance of switchgear |
| 10. | IEC-60267 | Guide for testing of circuit breakers with respect to out of phase  switching |
| 11. | IS-802 | Code of practice for use of structural steel in overhead transmission lines |
| 12. | IEC-17A Study  Group Dec.198 1 | Sealing of interrupters / breakers |
| 13. | IS-1554 | PVC insulated cables upto and including 1000 volts |
| 14. | IS-5 | Colors for ready mixed paints and channels |
| 15. | Ref. Standard IES | Internal Electro-Technical Commission Bureau Central Data  Commission, Elecro Technique International, 1, Rue de Verembe, Geneva, Switzerland |
| 16. | IS | Indian Standard Bureau of India Standard, Manak Bhawan 9,  Bahadurshah ZafarMarg, New Delhi – 110 002, India |

## SERVICE CONDITONS CLIMATIC CONDITONS

breakers and accessories to be supplied against this specification shall be suitable for satisfactory continuous operation as per section-I.

## AUXILIARY POWER SUPPLY

Auxiliary electrical equipment shall be suitable for operation on the following supply system.

1. Power Devices (like motors) :415 V, 3 phase 4 wire 50 hz, neutral grounded AC supply
2. DC Alarm, Control and Protective Devices : 220/110 V DC, ungrounded 2 wire (Substation wise exact details shall be furnished by the successful bidder after survey)
3. Lighting : 240 V, single phase 50 Hz AC supply

              Bidder’s scope includes supply of interconnecting cables, terminal boxes, etc. The above supply voltage may vary as indicated below and all devices shall be suitable for continuous operation over the entire range of voltages

1. AC Supply Voltage + 10% -15% Frequency ±5%
2. DC Supply -15% to + 10%

15.3. **GENERAL REQUIREMENT OF 36 KV/OUTDOOR VACUUM CIRCUIT BREAKERS.**

The vacuum type circuit breaker shall have vacuum interrupters, designed to provide a long contact life at all currents up to rated making and breaking current during switching operation. The vacuum interrupters sealed for life shall be encapsulated by porcelain insulators for outdoor installation requirement of the circuit breakers. The offered breakers shall be suitable for outdoor operation under climatic conditions specified without any protection from sun, rain and dust storm.

The vacuum interrupters of each phase shall be housed in a separate porcelain insulator. The three identical poles shall be mounted on a common base frame and the contact system of three poles should be mechanically linked to provide three pole gang opening/closing for all type of faults.

1. The offered equipment shall be practically maintenance free over a long period.

2. All mechanical parts and linkages shall be robust in construction and maintenance free, over at least 10,000 switching operations, except for lubrication of pins/articulated joints at interval of 5 years or 5000 operations.

3. 2 separate DC source input shall be provided for 2 trip coils.

4. Similar parts shall be strictly interchangeable without special adjustment of individual fittings. Parts requiring maintenance shall be easily accessible, without requiring extensive dismantling of adjacent parts.

5. The operating mechanism will be self-maintained and of proper operation endurance not less than the mechanical life of circuit breaking unit. It shall be spring operated type described hereinafter.

6. The circuit breaker shall be supplied complete with all auxiliary equipment, meant necessary for the safe operation, routine and periodic maintenance. All internal wiring including those of spare auxiliary contacts shall be complete and wired up to terminal blocks.

7. The breaker shall be totally re-strike free under all duty conditions. The details of any device incorporated to limit or control the rate of rise of re-striking voltage across the circuit breaker contacts shall be stated.

8. The breaker shall be reasonably quiet in operation and the noise level shall not exceed 140 decibels.

9. The breaker shall be suitable for three phase re-closing operation.

10. An operation counter, visible from the ground level even with the mechanism housing closed shall be provided.

11. Suitable platform with ladder shall be provided for proper manual operation/maintenance of the breaker.

12. Breaker ON and OFF indication, spring charge indication shall be provided. Necessary provision for AC and DC supply healthy/fail status shall be provided.

13. Breaker shall be suitable for capacitor bank duty.

15.4. **FIXED AND MOVING CONTACT**

The fixed and moving contacts of the breaker have to ensure permanent full contact during closing. All making and breaking contacts shall be hermetically sealed and free from atmospheric effects.

The main contacts should have low contact resistance.

15.5. **RECOVERY VOLTAGE AND POWER FACTOR**

The circuit breaker shall be capable of interrupting rated power with recovery voltage equal to the rated maximum line to line service voltage at rated frequency and at a power factor equal to or exceeding 0.15. In case of multiple break circuit breaker, devices/method adopted for ensuring uniform voltage distribution across all the breaks shall be indicated and actual voltage distribution recorded during interruption tests shall be furnished with the bid.

15.6. **RESTRIKING RECOVERY**

The complete data for the phase factor, amplitude factor, etc., for rate of rise of re-striking voltage shall be furnished in the tender.

15.7. **LINE CHARGING INTERRUPTING CAPACITY**

The circuit breaker shall be designed so as to be capable of interrupting line charging currents without undue rise in the voltage on the supply side without re-strike and without showing sign of undue strains.

The maximum permissible switching over voltage shall not exceed 2.5 p.u. The guaranteed over voltage, which will not be exceeded while interrupting the rated line charging current for which the breaker is designed to interrupt shall also be stated. The results of the tests conducted along with the copies of the oscillographs to prove ability of the breakers to interrupt the rated as well as lower values of the line charging current shall be furnished with the tender.

15.8. **TRANSFORMER CHARGING CURRENT BREAKING CAPACITY**

The breaker shall be capable of interrupting inductive currents, such as those occurring while switching off unloaded transformers, without giving rise to undue over voltage and without re-strikes. The maximum over voltage value, which will not be exceeded under such conditions shall be stated in the tender

15.9. **BREAKING CAPACITY FOR SHORTLINE FAULTS**

The interrupting capacity of the breaker for short line faults shall be stated in the tender. The details of the test conducted for proving the capability of the breaker under a short line fault occurring from one phase to earth conditions shall also be stated in the tender. The rated characteristics for short line faults shall be in accordance with stipulation contained in clause 4.105 of IEC 62271-100.

15.10. **AUTOMATIC RAPID RECLOSING**

36 kV circuit breaker shall be suitable for 3 pole rapid re-closing.

15.11. **OUT OF PHASE SWITCHING**

The circuit breaker shall be capable of satisfactory operation even under conditions of phase opposition that may arise due to faulty synchronization. The maximum power that the breaker can satisfactorily interrupt under “Phase Opposition” shall be stated in the bid”.

15.12. **TEMPERATURE RISE**

The maximum temperature attained by any part of the equipment when in service at side and under continuous full load conditions and exposed to the direct rays of the sun shall not exceed the permissible limits fixed by IEC. When the standards specify the limits of temperature rise these shall not be exceeded when corrected for the difference between ambient temperature specified in the approved specification.

The limits of temperature rise shall also be corrected for altitude as per IEC and stated in the bid.

15.13. **INSULATORS SUPPORTS AND HOUSING**

The porcelain used shall be homogenous, free from cavities and other flaws. The insulators shall be designed to have ample insulation, mechanical strength and rigidity for satisfactory operation under conditions specified above. The puncture strength of bushing shall be greater than the flash over value. The design of bushing shall be such that the complete bushing in a self-contained unit and no audible discharge shall be detected at a voltage up to a working voltage (Phase Voltage) plus 10%. The support insulator shall conform to IEC-60137. Minimum clearance between phases, between live parts and grounded objects shall be as per IS-3072-1975 and should conform to Indian Electricity Rules-1956. The minimum creepage distance for severely polluted atmosphere shall be 31 mm/KV as per IEC-815-1985.

The details for atmospheric pollution of various sub-stations where these breakers are to be installed shall be as per Clause 1.3.1 of this specification. The air clearance of bushing should be such that if the bushings were tested at an altitude of less than 1000 meters, air clearance would withstand the application of higher voltages (IS-2099-1973 para 6.1). In order to avoid breakdown at extremely low pressures the support insulators should not be covered by moisture and conducting dust. Insulators should therefore be extremely clean and should have antitracking properties. Sharp contours in conducting parts should be avoided for breakdown of insulation. The insulators shall be capable to withstand the seismic acceleration of 0.5 g in horizontal direction and 0.6g in vertical direction.

15.14. **OPERATING MECHANISM GENERAL REQUIREMENTS**

The operating mechanism shall be stored energy type and capable of giving specified duty of the breaker (sequence of opening and closing) as specified under O-0.3 sec-CO-3 min-CO. The breaker shall also pass the operational test which ascertains the capabilities of operating mechanism. The operating mechanism shall be capable to perform the following functions efficiently.

1. To provide means where the circuit breaker can be closed rapidly, at all currents from zero to rated making current capacity.

2. To hold the circuit breaker in closed position by toggles or latches till the tripping signal is received.

3. To allow the circuit breaker to open without delay immediately on receiving tripping signal.

4. To perform auto re-closure duty cycle.

5. To perform the related functions such as indication, contacts, etc.

Operating mechanism should also be suitable for three phase auto re-close duty. The closing spring shall be automatically charged by motor immediately after closing operation. In case of failure of supply to the spring charging motor, the spring shall be chargeable by hand-crank.

1. TRIPPING/CLOSING COILS

The circuit breakers shall be provided with two trip coils and one closing coil per breaker. First trip coil shall be utilized for tripping the breaker on main protection fault detection. Whereas second trip coil shall be used to trip the breaker when first trip coil fails to trip the breaker and backup protection comes into operation and shall also be used to trip the breaker on command. Provision shall be given for trip circuit supervision both in pre close and post close condition of the breaker. All the breakers shall have provision for independent electrical operation of trip coils from local as well as remote through local/remote selector switch.

2. TRIP FREE FEATURES

When the breaker has been instructed to close by manual instructions using push button, the operating mechanism will start operating for closing operations. If in the meantime a fault has taken place, the relay provision shall be such that it should close the trip circuit simultaneously interrupting the live circuit of closing coil which has been instructed for close command.

The trip free mechanism shall permit the circuit breaker to be tripped by the protective relay even if it is under the process of closing. An anti-pumping device to prevent the circuit breaker from reclosing after an automatic opening shall be provided to avoid the breaker from pumping i.e., anti-pumping relay should interrupt the closing coil circuit.

3. Controls

The circuit breaker shall be controlled by a control switch located in the control cabinet. The control arrangement shall be such as to disconnect the remote-control circuits of the breaker, when it is under test. Local control devices, selector switch and position indicator shall be located in weather and vermin-proof cabinet with degree of protection not less than IP-55. The circuit breaker control scheme shall incorporate trip circuit supervision arrangement. Local/remote selector switch shall be provided for all breakers for selection of “Local” control/remote control.

Provision shall be made for local manual, electrical and spring controls. Necessary equipment’s for local controls shall be housed in the circuit breaker cabinet of weather-proof construction. In addition to this, a hand closing device for facilitating maintenance shall also be provided.

Each circuit breaker shall have a mechanical open/closed and spring charge indicator in addition to facilities for provisions for semaphore indicators for breakers which are required for the mimic diagram in the control room. Lamps for indicating, `close/open’ position of the breaker shall also be provided.

The contact pressure spring and tripping spring shall be chargeable during closing operation to ensure the breaker is ready to open. Mechanically ON/OFF indicator, spring charged indicator and operation counter shall be provided on the front of the control cubicle. For tripping, the spring provided shall ensure the trippings

Mechanical indicator, to show the ‘open’ and ‘close’ position of the breaker shall be provided in a position where it will be visible to a man standing on ground with mechanism housing open. An operation counter, visible from the ground even with the mechanism housing closed, shall be provided. Electrical tripping of the breaker shall be performed by shunt trip coils.

Closing coil shall operate correctly at all value of voltage between 85% and 110% of the rated voltage. Shunt trip coils shall operate correctly under all operating conditions of the circuit breaker upto the rated breaking capacity and at all values of supply voltage between 85% and 110% of rated voltage. The variation in A.C. supply voltage shall be –15%to +10% while variation in frequency shall be ±3. Working parts of the mechanism shall be non-corrosive material. Bearings which require grease shall be equipped with pressure type fillings.

Bearing pins, bolts, nuts and other parts shall be adequately pinned or locked to prevent loosening or changing adjustment with repeated operation of the circuit breaker. It shall be possible to trip the circuit breaker even in the event of failure of power supply.

Operating mechanism and all accessories shall be enclosed in control cabinet. A common marshalling box for the three poles of the breaker shall be provided, along with supply of tubing, cables from individual pole operating boxes to the common marshalling box, local.

15.15. **SPRING OPERATED MECHANISM**

The motor compressed spring mechanism shall consist of a closing spring which is wound or compressed by an electric motor immediately after the breaker closes.

After the breaker has tripped, the tripping spring shall remain in the released position as long as the breaker is open, but the closing spring shall remain wound and ready for closing operation. The operating mechanism shall have all the necessary auxiliaries, apparatus for operation and supervision, like motor starter with thermal overload release, one closing coil, two trip coils, push button for local electrical operation, local/remote control selector switch, push button for direct mechanical tripping, auxiliary switches, anti-pumping contactors, operation counter, socket for inspection, lamp and heater with switch. Spring charging motor shall be standard single phase universal motor suitable for 220 volts supply.

1. Operating voltages for closing/tripping coils shall be 220/110/48/24 Volts DC or as per actual DC voltage available at existing substations which is to be verified by supplier after award of contract.

2. Operating voltages for heater elements shall be 220V AC 50 HZ. Other features of the spring-operated mechanism shall be as follows.

1. The spring operating mechanism shall have adequate energy stored in the operating to close and latch the circuit breaker against the rated making current and also to provide the required energy for tripping mechanism in case the tripping energy is derived from the operating mechanism.

2. The mechanism shall be capable of performing the rated operating duty cycle of O-0.3Sec-CO-3 Min- CO...

3. The spring charging motor shall be AC or DC operated and shall not take more than 30 sec., to fully charge the closing spring made for automatic charging. Charging of spring by the motor should not interfere with the operation of the breakers.

4. The motor shall be adequately rated to carry out a minimum of one duty cycle. Also, provision shall be made to protect the motor against overloads.

5. In case of failure of power supply to spring charging motor, the mechanism shall be capable of performing one open-close-open operation.

6. Mechanical interlocks shall be provided in the operating mechanism to prevent discharging of the closing springs when the breaker is already in closed position. Provision shall be made to prevent a closing operation to be carried out with the spring partially charged.

7. Facility shall be provided for manual charging of closing springs.

8. Spare contact of spring charge indication shall be provided.

15.16. **CONTROL CABINET**

The switchgear operating mechanism, the control equipment such switch for closing and tripping the breakers, various control relays, anti-pumping device, a set of terminal blocks for wiring connections, MCB’s for disconnecting the control auxiliary power supplies including relays, etc., shall be enclosed in a cabinet to be mounted on a suitable structure at a convenient working height at the end of the breaker in the outdoor switchyard. The supporting structure and the enclosure shall be capable of withstanding the typical tropical climatic conditions, change of ambient temperature, severe dust-storms, very high relative humidity those are prevailing at the site of location of switchgear.

1. ENCLOSURE

The enclosure shall be made out of stretched level steel plates not less than 3 mm thick and of light section structural steel (CRCA). It should be weather proof as well as vermin proof.

The enclosure shall provide protection against dust and foreign objects. Each cabinet section shall have full width and full-length hinged doors mounted on the front that swing fully open. The doors shall be provided with latches to securely hold it with the cabinet. Doors shall be of sturdy construction, with resilient material

covering, fully perimeterically contacting the cabinet frame to provide dust protection and prevent metal to metal contact except at the latch points. Filtered ventilation shall be provided along with the rigid supports for control and other equipment, measuring instruments, mounting cabinet members and equipment shall not restrict easy access to terminal blocks for terminating and testing external connection or to equipment for maintenance.

All screws and bolts used for assembling and mounting wire and cable termination, supports, devices and other equipment shall be provided with lock washers or other locking devices. All metal parts shall be clean and free of weld splatter, rust and mill scale prior to application of double coat of zinc chromate primer which should be followed by an under coat to serve as base and binder for the finishing coat. The shade of exterior and interior shall be as per GTR. The mounting structure shall be galvanized and shall be as per IS- 802-II-1978.

2. HEATERS

Suitable heaters shall be mounted in the cabinet to prevent condensation. Heaters shall be controlled by thermostat and shall be provided with ON/OFF switches and fuses. Heaters shall be suitable for 240 V AC supply voltage.

3. LIGHTING

At least one 13-watt CFL fixture and lamp working on 240 V 50 c/s AC supply shall be provided in each switchgear control cubicle section and shall be located suitably to provide adequate interior lighting of the cubicle. A single-pole 6 Amp. lighting switch shall be provided for each cubicle along with 5/15 amp.

The lighting and convenient outlet circuits shall be completely wired in conduit and terminated on cubicle terminal blocks.

4. WIRING AND CABLING

1. Unless otherwise specified control wire shall be stranded tinned armoured copper switchboard wire with 1.1 kV PVC insulation conforming to the requirements of IS-1554.

2. All the control circuit and secondary wiring shall be wired completely and brought out to terminal block ready for external connections in the control cabinet. The cross-section of control wire shall not be less than 2.5 mm2 copper (14 SWG).

3. All spare auxiliary contacts of the circuit breaker shall be supplied wired up to terminal block. Each terminal in terminal block shall be suitable for at least 2 x 2.5 mm2 copper conductor.

4. All wiring termination on terminal blocks shall be made through lugs.

5. All wires shall be identified with non-metallic sleeve or tube type markers at each termination.

6. Terminal blocks shall be made up of moulded non-inflammable plastic material with blocks and barriers moulded integrally have white marking strips for circuit identification and moulded plastic covers. Disconnecting type terminal blocks will be provided.

5. GROUNDING

A ground bus of GS bar not less than 10 mm by 50 mm shall be provided for grounding the cabinet.

15.17. **ACCESSORIES**

Each circuit breaker assembly shall be supplied with the following accessories.

1. Line and earthing terminals and terminal connectors.

2. Control housing with:

1. One auxiliary switch with adequate number of auxiliary contacts, but not less than 24 nos. (12 NO + 12 NC) for each breaker. These shall be over and above the No. of contacts used for closing, tripping and re-closing and interlocking circuit of the circuit breaker. All auxiliary contacts shall be capable of use as “Normally closed” or “Normally open” contacts. Special auxiliary contacts required for the re- closing circuit if any, shall also be provided. There shall be provision, to add more auxiliary contacts at a later date, if required.

2. Operation counter

3. Position indicator (Close/Open)

4. Necessary cable glands

5. Fuses

6. Manual trip device and local test push buttons

7. Terminal blocks and wiring for all control equipment and

8. Adequate number of heaters for continuous operation to prevent moisture condensation in the housing of operating mechanism

9. Selector switch for local/remote control.

15.18. **SUPPORTING STRUCTURE**

The circuit breakers shall be supplied complete with necessary galvanized steel supporting structures, foundation and fixing bolts, etc., the galvanizing shall be as per IS. The mounting of the breaker shall be such as to ensure the safety of the operating staff and should conform to Indian Electricity Rules, 1956. Minimum ground clearance of live part from ground level shall be 4000 mm from finished ground level.

The bidder shall submit detailed design calculations and detailed design calculations and detailed drawings in respect of supporting structures suitable for the equipment offered.

All material for making connections between the circuit breaker and its control shall also be included in the scope of supply. Facility to earth the circuit breaker structure at two points shall be provided.

15.19. **SURFACE FINISH**

All interiors and exteriors of tanks, control cubicles and other metal parts shall be thoroughly cleaned to remove all rust, scales, corrosion, greases or other adhering foreign matter. All steel surfaces in contact with insulation oil, as far as accessible, shall be painted with not less than two coats of heat resistant, oil insoluble, insulating paint.

All metal surfaces exposed to atmosphere shall be given two primer coats of zinc chromate and two coats of epoxy paint with epoxy base thinner. All metal parts not accessible for painting shall be made of corrosion resisting material. All machine finished or bright surfaces shall be coated with a suitable preventive compound and suitably wrapped otherwise protected. All paints shall be carefully selected to withstand tropical heat and extremes of weather within the limits specified. The paint shall not scale off or wrinkle or be removed by abrasion due to normal handling.

All ferrous hardware, exposed to atmosphere, shall be hot dip galvanized.

15.20. **GALVANISING**

All ferrous parts including all sizes of nuts, bolts, plain and spring washers, support channels, structures, shall be hot dip galvanized conforming to latest version of IS:2629 or any other equivalent authoritative standard.

15.21. **CABLE TERMINATION**

Suitable cable glands for terminating the multicore cable, shall be provided wherever required.

15.22. **TERMINAL CONNECTIONS AND EARTH TERMINALS**

Each circuit breaker connected with incoming and outgoing feeders shall be provided with solder less clamp type connectors suitable for ACSR conductor.

Each circuit breaker pole and control cabinet shall be provided with appropriate number of grounding terminals and clamps for receiving ground connections.

Each circuit breaker pole and control cabinet shall be provided with appropriate number of grounding terminals and clamps for receiving ground connections.

15.23. **INTERLOCKS**

Necessary interlocks to prevent closing or opening of the breaker under low pressure of the contact spring and devices for initiating alarm shall be provided. The detailed interlocking scheme based upon single line diagram as applicable for the substation shall be provided by the contractor

Requirement of interlock shall be as given below:

1. Isolator should not be operated unless the associated breaker is in open position.

2. The circuit breaker shall close only after all isolators associated with it have been in closed position.

In case of double bus bar arrangement following additional requirement for interlocking shall be provided.

1. One bus bar selector isolator of any bay excepting the bus coupler bay shall close only when,

1. The circuit breaker of corresponding bay is open and locked.

2. The other bus isolator of that bay is open.

2. When one bus isolator of any bay excepting the bus coupler bay is closed. The other shall close only when the bus coupler circuit breaker and both the bus isolators are closed.

3. Bus isolator of bus coupler bay shall operate only when the bus coupler breaker is open.

4. The bypass isolator of feeder shall close when the feeder circuit breaker and its adjoining isolators are closed.

15.24. **EARTHING SYSTEM**

All switchgear enclosures should be bolted metal to metal and should carry the full earth return current. Connection between phases at the earthing points shall be dimensioned for carrying full earth return current i.e., actual service current not rated current.

15.25. **VACUUM INTERRUPTER ASSEMBLY**

Each pole of the circuit breaker shall be provided with vacuum interrupter, one for each phase, hermetically sealed for life and encapsulated by ceramic insulators. The interrupter shall be provided with steel chromium are chamber to prevent vaporized contact material being deposited on the insulating body. A further shield giving protection to the metal bellows shall also follow the travel of the moving contacts to seal the interrupter against the surroundings atmosphere.

It shall have high and consistent dielectric strength of vacuum unaffected by environment and switching operations. Bronzed joints should ensure retention of vacuum for life time. It shall have low and stable contact resistance due to absence of oxidation effects and shall ensure low power loss. The arcing voltage shall be low and minimum contact erosion.

15.26. **GUARANTEED TECHNCIAL PARTICULARS**

Guaranteed and technical particulars as called for in Section-II shall be furnished along with the tender. Particulars which are subject to guarantee shall be clearly marked.

15.27. **TESTS TYPE TESTS**

Each circuit breaker shall comply with requirements of type tests prescribed in IEC publication No. 62271- 100

1. Short time and peak withstand current test.

2. Short circuit breaking capacity and making capacity.

3. Capacitive current switching test: Cable charging current breaking test (Ur less than or equal to 52

kV).

4. Dielectric test i.e., power frequency withstand and impulse withstand test

5. Temperature rise test.

6. Mechanical Endurance Test at ambient temperature.

7. Measurement of resistance of the main circuit.

**ROUTINE TESTS**

Routine Tests as per IEC- 62271-100 shall be carried out on each breaker in presence of purchaser’s representative at the manufacturer’s expenses at his works except, where agreed to otherwise. All test reports should be submitted and should be got approved from the purchaser before despatch of the equipment.

SITE TESTS ON CONTROL AND AUXILIARY CIRCUIT

The following tests shall be conducted at site.

1. Voltage tests on control and auxiliary circuit.

2. Measurements of resistance of the main circuit.

3. Mechanical Operation Tests.

15.28. **NAME PLATE**

Equipment should be provided with name plate giving full details of manufacture, capacities and other details as specified in the relevant ISS or other specification stipulated.

|  |  |  |  |
| --- | --- | --- | --- |
| **S. NO.** | **DESCRIPTION** |  | **VALUES** |
| i) | Rate voltage (KV rms) | **:** | 36 KV |
| ii) | Rated frequency (Hz) | **:** | 50 |
| iii) | System neutral earthing | **:** | Solidly grounded system |
| iv) | Type of arc quenching medium | **:** | Vacuum |
| v) | Rated normal current at site conditions (Amps) | **:** | 1250 Amps |
| vi) | Number of poles | **:** | 3 |
| vii) | Installation | **:** | Outdoor type |
| viii) | Temperature rise | **:** | As per IEC 56 (Table-4) Page-19 |
| ix) | Rated short circuit | **:** |  |
|  | a) Interrupting capacity at 36 KV | **:** | 31.5 |
|  | b) The percentage DC components | **:** | As per IEC-62271-100 |
|  | c) Duration of short circuit | **:** | 3 Sec. |
| x) | Rated short circuit making | **:** | 78.75 KA |
| xi) | First pole to clear factor | **:** | 1.5 |
| xii) | Rated short time current | **:** | 31.5 KA |
| xiii) | Rated duration of short circuit | **:** | 3 Seconds |
| xiv) | Total break time for any current upto the rated breaking current with limiting condition of operating and quenching media  pressure (ms) | **:** | < 80 ms |
| xv) | Closing time (ms) | **:** | < 150 ms |
| xvi) | Mounting | **:** | Hot dip galvanized lattices steel support structured bolted  type |
| xvii) | Phase to phase spacing in the switch yard i.e,  interpole spacing for breaker (min) in mm | **:** | 470±10 |
| xviii) | Required ground clearance from the lowest line terminal if both the terminals are not in same  horizontal plane (mm) | **:** | 4000 |
| xix) | Height of concrete plinth (mm) | **:** | 150 |
| xx) | Minimum height of the lowest part of the  support insulator from ground liner (mm) | **:** | 3194 |
| xxi) | Minimum creepage distance of support  insulator (mm) | **:** | 1116 |

## TECHNICAL PARAMETERS 36 KV CIRCUIT BREAKERS

|  |  |  |  |
| --- | --- | --- | --- |
| **S. NO.** | **DESCRIPTION** |  | **VALUES** |
| xxii) | Minimum corona extinction voltage (kvrms) | **:** | 92 |
| xxiii) | Standard value of rated transient recovery  voltage for terminal fault | **:** | As per IEC-56 |
| xxiv) | Standard value of rated line Characteristics for  short line faults | **:** |  |
|  | RRRV | **:** | KV/ms=0.214 |
|  | Surge Peak Factor |  | K=1.6 A |
|  | Impedance | **:** | 450 |
| xxv) | Rated operating duty cycle | **:** | O-0.3 Second  - CO-3 Minutes-CO |
|  | b) Auto reclosing | **:** | Suitable for three phase  Auto reclosing duty |
| xxvi) | Rated insulation level under heavy pollution condition 1.2/50 micro second lightening  Impulse withstand voltage (KV peak)to earth | **:** | 170 KV |
| xxvii) | Power frequency withstand voltage KV (rms) to  earth (KV rms) | **:** | 70 KV |
| xxviii) | Rated characteristic for out of Phase breaking | **:** |  |
|  | a) Out of phase breaking capacity | **:** | 25% of rated breaking capacity |
|  | b) Standard values of transient recovery | **:** | As per IEC-56 |
|  | c) Operating mechanism | **:** | Spring operated, Anti pumping  and Trip free mechanism |
|  | d) Power available for operating mechanism | **:** | Three phase 415 Volts 50 C/S or single phase 50 C/S 240  volts |
| xxix) | a) Rated supply voltage of closing and operating devices and auxiliary circuits | **:** | 1. 220 V DC/110V VDC 2. 240 Volts AC 50 C/S single phase 3. 415 volts 50 Hz three phase |
|  | b) Permissible voltage variation | **:** | 1. In case of DC Power supply voltage variation shall be between 85% to 110% of normal voltage. 2. In case of AC power supply voltage variation shall be of the normal voltage as per IS-15% to   +10%. |
|  | c) Permissible frequency | **:** | ±3% from normal 50 Hz as per IS  2026 part-I 1977 para 4.4 |
|  | d) Combined variation of frequency and  voltage | **:** | ±10% |
| xxx) | Auxiliary contacts (number & rating) | **:** | 12 NO and 12 NC on each pole having continuous current rating of 10 Amps. DC breaking rating  capacity shall be 2 Amps with circuit time constant less than 20 ms at 220/30 volts DC |
| xxxi) | Number of trip coils | **:** | Two trip coils and 1 close coil with anti-pumping arrangement |
| xxxii) | Rated terminal load | **:** | 100 kg. Static.  The breaker shall be designed to withstand the rated terminal load, wind, load, earthquake load and short circuit forces |
| xxxiii) | Noise level of the equipment | **:** | Not exceeding 140 db |
| xxxiv) | Class of breaker | **:** | M2-E2-C2 |

|  |
| --- |
|  |

15.29. **DRAWINGS AND INSTRUCTION MANUALS**

Following drawings for each item are to be supplied as part of the contract.

1. General outline drawings, showing dimensions, front and side elevations and plan of the circuit breaker and its local control panel.

2. Outline drawing of bushings showing dimensions and number of sheds and creepage distance.

3. Assembly and sub-assembly drawings with numbered parts.

4. Sectional views showing the general constructional features, operating mechanism and are extinguishing chamber, etc.

5. Dimension and assembly of important auxiliaries.

6. Detailed drawings of operating mechanism. And inter-phase mechanism.

7. Test certificates.

8. Detailed drawings of mounting structure.

9. Spare parts and catalogue

10. Wiring diagram showing the local and remote-control scheme of breaker including alarms indication devices instruments relay and timer wiring.

11. Write up on working of control schematic of breaker.

12. Foundation plan including weights of various components and impact loadings for working foundation design. Three copies for each pkg. of the above drawings and instruction manuals covering instructions for installations, operation and maintenance shall be supplied by the contractor(s) without any extra cost.

**PRICE BID**

**PRICE SCHEDULE**

***(To be submitted in the Part-II, ‘Price bid’ to be submitted online)***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SL no.** | **Name of the Item** | **Unit** | **Qty.** | **Rate (Rs.)** | **Amount (Rs.)** |
| 1 | 33kV, 1250A Gang operated Vaccum Circuit Breaker with mounting structure and accessories including terminal connectors etc. ( including F&I) | Nos. | 6 |  |  |
| A | Total, Rs = | | | |  |
| B | GST @18% = | | | |  |
| C | Total(incl. GST)(C=A+B),Rs = | | | |  |
|  |  |  |  |  |  |
|  | **(Rupees…………………………………………………..) Only** | | | |  |

Signature of the Bidder.

Appendix-1

**Documents to be submitted:**

* 1. PAN card
  2. Up-to-date GST return.
  3. IT return (last 3 years).
  4. Audited balance sheet of last 3 years (CA certified).
  5. Supervisor license (if any).
  6. Experience of the organisation.
  7. Annual Turnover as per format.
  8. ID proof.
  9. Contractor License.
  10. Solvency certificate.
  11. Bank Guarantee.
  12. Manufacturer’s authorization.
  13. Manufacturer’s warranty & Supplier’s warranty.

***Appendix-2***

**COVERING LETTER (ON THE BIDDERS LETTER HEAD)**

To,

The Dy. General Manager,

T&T Circle, AEGCL,

Garmur, Jorhat-07

Sub: Submission of Tender.

Ref: -

1. NIT No:
2. Name of work:-

Sir,

Having examined the terms & conditions, technical specifications, detailed items of work etc. as well as acquainting myself/ourselves with site of work, surroundings to get the required materials etc. I am/we are to submit herewith my/our tender for the above mentioned work. My/our rates are quoted as per the specification laid down in the schedule of items of work.

I /We clearly understand that all materials, tools and plants, machineries, labours, testing of material, storage, haulage etc. required in the work shall have to be arranged by me/us from my/our own resources in the events of allotment of the work to me/us.

I /We also clearly understand that in the event of acceptance/approved of my/our tender, the work shall have to be executed strictly as per specifications and the same shall have to be completed in all respects within the stipulated time failing which I am/We are liable to be penalized as per rules laid down in Tender document as well as agreement thereof.

***Appendix-3***

**PROFILE OF THE BIDDER**

Hard copy of the following documents to be submitted with Techno-Commercial Bid.

|  |  |  |
| --- | --- | --- |
| Sl. No. | Particulars | To be filled by Bidder |
|  | Name of the Bidder | :- |
|  | Registration with Memorandum of Association | :- |
|  | PAN | :- |
|  | GST Registration number along with upto date GST to be submitted | :- |
|  | Postal Address | :- |
|  | House No. | :- |
|  | Lane | :- |
|  | Street | :- |
|  | Town/Village | :- |
|  | Post Office | :- |
|  | P.S. | :- |
|  | District | :- |
|  | Pin code | :- |
|  | Telephone Number | :- |
|  | Mobile No. | :- |
|  | E-Mail Address | :- |
|  | Website | :- |
|  | Name(s) of the Owners / Directors/Partners | :- |
|  | Name of the Banker with Address and Telephone Number | :- |
|  | Contact Person Details  *(Furnish here name of that person with whom AEGCL may get in touch for more information or clarifications)* | Name: -  Designation: -  Mobile Number: -  Email Address:- |

## Appendix-4

## Form-BG

**Form of Bid Security (Bank Guarantee)**

WHEREAS, *[Name of Bidder]* (hereinafter called "the Bidder") has submitted his bid dated *[Date]* fortheconstructionof *[Name of Contract]*(hereinaftercalled"theBid").

KNOW ALL MEN by these presents that We *[Name of Bank]* of

*[Name of Country]* having our registered office at(hereinafter called "the Bank) are bound unto

*[NameofEmployer]*(hereinaftercalled"theEmployer")inthesumof

for which payment will and truly to be made to the said Employer the Bank binds himself, his successorsand assigns by these presents.SEALEDwiththeCommonSealofthesaidBankthisday of\_25.

## THE CONDITIONS of this obligationare:

1. If the bidder withdraws his Bid during the period of bid validity specified in the Form of Bid:

Or

1. If the Bidder refuses to accept the correction of errors in his Bid;

Or

1. If the Bidder, having been notified of the acceptance of his Bid by the Employer during the period of Bid validity;
   1. Fails or refuses to execute the Form of Contract Agreement in accordance with the Instructions to Bidders, if required ;or
   2. Fails or refuses to furnish the Performance Security, in accordance with the Instructions to Bidders;

we undertake to pay to the Employer up to the above amount upon receipt of its first written demand, without the Employer having to substantiate its demand, provided that in its demand the Employer will note that the amount claimed by it is due to it owing to theoccurrenceofoneorallofthethreeconditions,specifyingtheoccurredconditionorconditions.

This Guarantee will remain in force up to and including the date 180 days after the deadline for submission of bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank isherebywaived.AnydemandinrespectofthisGuaranteeshouldreachtheBanknotlaterthantheabovedate.

DATE SIGNATUREOFTHEBANK

WITNESS SEAL

(Signature, Name,and Address