NOIDA METRO RAIL CORPORATION (NMRC) LIMITED

REQUEST FOR PROPOSAL (RFP)

E-Tender No. NMRC/PSI/TESTING/240/2023

Tender Document

RFP for Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years

JANUARY 2023

Issued by:

Noida Metro Rail Corporation (NMRC) Limited
Block-III, 3rd Floor,
Ganga Shopping Complex, Sector-29, Noida -201301,
District Gautam Budh Nagar, Uttar Pradesh, India

Disclaimer

This Request for Proposal (RFP) Document (or "Tender") for "Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years" contains brief information about the scope of work and selection process for the Bidder ('the Contractor" or "the Tenderer"). The purpose of the Document is to provide the Bidders with information to assist the formulation of their Bidding Documents.

While all efforts have been made to ensure the accuracy of information contained in this RFP Document, this Document does not purport to contain all the information required by the Bidders. The Bidders should conduct their own independent assessment, investigations and analysis and should check the reliability, accuracy and completeness of the information at their end and obtain independent advice from relevant sources as required before submission of their Bid/s. Noida Metro Rail Corporation Ltd. ("NMRC" or "the Corporation" or "the Purchaser") or any of its employees or advisors shall incur no liability under any law, statute, rules or regulations as to the accuracy or completeness of the RFP Document.

NMRC reserves the right to change any or all conditions/information set in this RFP Document by way of revision, deletion, updating or annulment through issuance of appropriate addendum as NMRC may deem fit without assigning any reason thereof.

NMRC reserves the right to accept or reject any or all Bids without giving any reasons thereof. NMRC will not entertain or be liable for any claim for costs and expenses in relation to the preparation of the Bid/s to be submitted in terms of this RFP Document.

Glossary

a) "**Addendum / Amendment**" means any written amendment / addendum /corrigendum to this RFP, from time to time issued by NMRC to the prospective bidders
b) **"Agreement"** means the Contract Agreement to be executed between NMRC and the Selected Bidder
c) **"Applicable Laws"** means all the laws including local, state, national or other laws, brought into force and effect by Govt. of India, State Governments, local bodies, statutory agencies and any other, and rules / regulations / notifications issued by them from time to time. It also include judgments, decrees, injunctions, writs and orders of any court or judicial authority as may be in force and effected from time to time
d) **"Bidder"** or **"Tenderer"** means any entity which is a sole proprietorship firm, a partnership firm or a company, in title and assigns which is submitting its bid pursuant to RFP Documents
e) **"Bid Due Date" means** Bid Submission end date and time given in the tender
f) **"Earnest Money Deposit (EMD)"** means the refundable amount to be submitted by the Bidder along with RFP documents to NMRC
g) **"Performance Bank Guarantee/ Security Deposit"** means interest free amount to be deposited by the Contractor with NMRC as per terms and conditions of Contract Agreement as a security against the performance of the Contract agreement
h) **"NMRC"** means Noida Metro Rail Corporation Limited (or "Corporation" or "Purchaser" or "Employer")
i) **"Party"** means Contractor or Corporation (together they are called **"Parties"**)
j) **"Re. or Rs. or INR"** means Indian Rupee
k) **"Selected Bidder"** means the bidder who has been selected by NMRC, pursuant to the bidding process for award of Contract

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto hereinabove.

Data Sheet

1	Name of the Bid	RFP for Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years
2	Approximate Cost of Work	**Rs. 69,71,204.00 (**Rupees Sixty Nine Lakh Seventy One Thousand Two Hundred Four Only**)** (including GST)
3	Time-period of contract	Two (2)Years
4	Method of selection	Cost Based Selection (Lowest –L1)
5	Bid Processing Fee	**Rs.5,900/-** (including GST)(Rupees Five Thousand Nine Hundred only) through DD/RTGS/NEFT only payable in favour of Noida Metro Rail Corporation Limited.
6	Earnest Money Deposit (EMD)	**Rs. 1,39,500/-** (Rupees One Lakh Thirty Nine Thousand Five Hundred only) (Including GST)
7	Financial Bid to be submitted together with Technical Bid	Yes
8	Name of the Corporation's official for addressing queries and clarifications	**GM (Technical)** Noida Metro Rail Corporation Ltd. Block-III, 3rd Floor, Ganga Shopping Complex, Sector- 29, Noida 201301 Email: nmrcnoida@gmail.com nmrcjgmelectrical@gmail.com Website:www.nmrcnoida.com, http://etender.up.nic.in
9	Bid Validity Period	180 days
10	Bid Language	English
11	Bid Currency	INR
12	**Schedule of Bidding Process**	
	Head	Key Dates
	Uploading of Bid	25.01.2023, Wednesday
	Pre-bid Meeting	03.02.2023, 11:00 hrs (IST), Friday
	Last date of submission of Queries	08.02.2023, 16:00 hrs (IST), Wednesday
	Last date of issuing amendment/clarifications, if any	15.02.2023, 17:30 hrs (IST), Wednesday
	Last Date of Bid Submission	22.02.2023, 17:30 hrs (IST), Wednesday
	Date of Technical Bid Opening	24.02.2023, 11:00 hrs (IST), Friday
13	Consortium to be allowed	No
14	Account details	**For Bid Processing Fee & EMD** State Bank of India (04077) – Sector 18, Noida Gautam Budh Nagar, Uttar Pradesh - 201301 IFSC Code: SBIN0004077 **A/c No. 37707840592** **Noida Metro Rail Corporation Ltd.**

Contents:

Section 1: General Information and Scope

1.1. Basic Information

a. Noida and Greater Noida are being developed as the satellite towns to New Delhi and more and more people from Delhi and other areas are shifting to these towns in search of fresh air, greenery and better infrastructure. There is a need of providing an efficient, reliable and comfortable transportation system for the population intending to settle in these towns and also the public coming to these areas for education, service and business.

b. Noida Metro Rail Corporation is a Special Purpose Vehicle (SPV) formed by Noida and Greater Noida Authorities for planning and executing urban transport projects in Noida, Greater Noida regions. The Corporation desires to provide a world-class Public Transportation System with state-of-the-art technology. As such, the overarching criterion for setting up of the Corporation is to help create an efficient, safe, reliable, economical and affordable public transport system.

c. NMRC invites Bids for selection of Contractor for "Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years".

   In this regard, the Corporation now invites **open Tender for e-bidding** as per provisions of this RFP Document.

d. NMRC will shortlist the Bidders on the basis of evaluation criteria mentioned in this RFP Document. On the basis of the minimum evaluation criteria, qualified Bidders will be shortlisted and financial proposal of only qualified Bidders will be opened.

1.2. About Metro Location

The metro corridor is 29.7 km long and is known as Noida Greater Noida Metro Rail Corridor. It comprises 21 metro stations starting from Sector 51 in Noida and ends up at Depot Station in Greater Noida. The map is in **Appendix 1: Metro Alignment**

Also there are two receiving substation (RSS), situated near NSEZ metro station and Sec-148 metro station.

1.3. Communication

All communications should be addressed to -

GM/Technical
Noida Metro Rail Corporation (NMRC) Limited
Block-III, 3rdFloor, Ganga Shopping Complex, Sector-29,
Noida -201301
District GautamBudh Nagar, Uttar Pradesh

Email: nmrcnoida@gmail.com

nmrcjgmelectrical@gmail.com

2. Section 2: Terms of Reference

Objective

Execution of Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department located in Noida Greater Noida corridor, for Two Years provided in tender with suitable uniformed trained manpower, consumables, spare parts, equipment & machinery etc. The Tenderer is to carry out their self-assessment in respect of their capacity in terms of manpower, maintenance, machine, spare parts and finance. The Bidder should be able to take up additional similar work at short notice. Similarly the scope of work may also be reduced on account of poor performance and contractor shall have no right for any claims due to reduction in scope of work.

2.1 General

The works shall be done in accordance with Employer's Requirements and the other requirements of the Contract.

The work shall be executed to the highest standards available using proven up-to-date good Engineering practices. Tenders are called from the electrical contractor having valid contractor license.

2.2 Scope of Works

The work covered in the tender:

- Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department located in Noida Greater Noida corridor, for Two Years.

All activities to be carried out as per the Schedule of work given in 'Bill of Quantity' as per 'Special conditions of contracts' and as other terms & conditions of tender documents.

Other miscellaneous items shall be as per instructions of engineer in charge.

- The potential bidders should have requisite knowledge of design, working, functioning, operation & maintenance of OEM M/s CGL make Power Transformer (Both auxiliary and Traction Transformer). The firm should have adequate experiences of attending/servicing of Power Transformer during breakdown.
- The contractor should have requisite knowledge and experience of testing of relays and Calibration of testing kits.
- NMRC is an ISO-14001 & OHSAS 18001 certified Organization for Environment, Health & safety. The work is to be carried out as per International Norms/Standards and in such a manner that all premises always look Neat & Clean. Similarly, the waste disposal is also carried out in totally sealed manner without affecting the Environment.
- All Standards, Technical Specifications and Codes of practice referred to shall be latest editions including all applicable official amendments and revisions. The Contractor shall make available at site all relevant Indian Standard Codes of practice as applicable.

It is to be noted:

2.2.1.1 The contractor shall plan & execute the work in such a way that the work proceeds smoothly to the satisfaction of engineer. It may also include night shifts (Non- revenue hour).

2.2.1.2 The Contractor shall attend regular coordination meetings convened by the employer / engineer for interface and adhere to the decisions taken in the meeting.

2.2.1.3 Access will be provided to the staff appointed by the contractor for carrying out their works and bringing materials and equipments at site. However, the security of materials and equipments brought at the site will be the responsibility of the Contractor.

2.2.1.4 The Contractor shall take all necessary precautions to ensure safety of the staff, adjoining structures, materials & equipments and the work in progress as per the directions of engineer- in-charge.

2.2.1.5 Manpower (Electrician & Helper) shall be deployed as specified in the tender documents. They shall be adequately qualified & shall be authorized to carry out the Electrical Work. All the staff to be deployed after giving the safety training and police verification. Only authorized staff of contractor having proper identity card shall be permitted to enter in metro stations for execution of work.

2.2.1.6 All incidental arrangements for safe transport of Material, machine, tools etc. shall be the responsibility of the contractor. All expenditure to be incurred in this connection shall be borne by contractor.

2.2.1.7 Log book in hard and soft copy detailing work carried out by Contractor which mentioning date, details of work completed, complaints if any etc. will be maintained and signed both by NMRC and contractor officials.

2.2.1.8 In case of discrepancy among Standard codes of Practice, Technical Specifications and provision in sub-clauses in this NIT, the order of precedence will be as below:

- Provision in NIT/BOQ
- Technical Specifications
- Standard Code of Practice

3. Section 3: Instructions to Bidders

3.1. General instructions

a. A tenderer shall submit only one bid in the same tendering process, individually as a tenderer. A tenderer who submits or participates in, more than one bid will cause all of the proposals in which the tenderer has participated to be disqualified. No tenderer can be a sub-contractor while submitting a bid individually in the same bidding process. A tenderer, if acting in the capacity of subcontractor in any bid, may participate in more than one bid, but only in that capacity.

b. The Bidder shall initiate, and actively pursue and involve itself in all investigations and enquiries, Corporation feedbacks, information, convening of and attendance at meetings, and in any other activities as are or may be necessary for producing high quality work as per the requirements.

c. The Bidder shall carry out the services in compliance with the provisions of this Agreement. Any and all changes necessary to ensure that the Bidder's documents conform to the intent and purpose set out in the Agreement, shall be made at the Bidder's own expense. The Bidder represents that it is a professional and experienced company, and hereby agrees to bear full responsibility for the correctness and technical merit of the services performed.

d. Bidders shall be evaluated on the basis of the Evaluation Criteria specified in this document. Bidders shall be deemed to have understood and agreed that no explanation or justification for any aspect of the Selection Process will be given and that NMRC's decisions are without any right of appeal whatsoever.

e. Any entity which has been barred by the Central/State Government in India or by any entity controlled by them, from participating in any project, and the bar subsists as on the date of Bid, would not be eligible to submit an e - Bid.

f. Bidders are encouraged to inform themselves fully about the assignment and the local conditions before submitting the e-Bid by paying a visit to the Corporation and/or by sending written queries to NMRC before the last date for receiving queries/clarifications.

g. NMRC shall not be liable for any omission, mistake or error on the part of the Bidder in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to e-Bid or the Selection Process, including any error or mistake therein or in any information or data given by NMRC.

h. The currency for the purpose of the Proposal shall be the Indian Rupee (INR).

i. Tenderers shall not have a conflict of interest. All Tenderers found to have a conflict of interest shall be disqualified. Tenderers shall be considered to have a conflict of interest with one or more parties in this bidding process, if:

   i. A tenderer has been engaged by the Employer to provide consulting services for the preparation related to procurement or implementation of the project;

   ii. A tenderer is any associates/affiliates (inclusive of parent firms) mentioned in subparagraph above; or

   iii. A tenderer lends, or temporarily seconds its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for an implementation of the project, if the personnel would be involved in any capacity on the same project.

Cost of Bid Document / e-Tender processing Fee

a. The tenderer shall bear all costs associated with the preparation and submission of its e-Bid and Noida Metro Rail Corporation Ltd. ("NMRC" or "the Corporation"), will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the e-Bid process.

b. This tender document is available on the web site http://etender.up.nic.in or on NMRC website (www.nmrcnoida.com) to enable the tenderers to view, download the e-Bid

document and submit e-Bids online up to the last date and time mentioned in e-Tender notice/e-tender document against this e-Tender. The tenderers shall have to pay cost of bid document/ e- Tender processing fee of as mentioned in **Data Sheet** through RTGS/NEFT only payable in **favour of "Noida Metro Rail Corporation Limited"** in the A/c No. mentioned in **Data Sheet**. The scanned copy of RTGS/NEFT receipt with transaction Id certified by the same bank must be enclosed along with the e-Bid. This cost of bid document/ e-Tender processing fee as mentioned in **Data Sheet** will be non-refundable. Tender without cost of bid document/ e-Tender processing fee in the prescribed form, will not be accepted.

c. Conditional Bid shall be rejected outright & shall not be considered.

Acknowledgement by Bidder

It shall be deemed that by submitting the e-Bid, the Bidder has:

a. Made a complete and careful examination of the e-Bid;
b. Received all relevant information requested from NMRC;
c. Acknowledged and accepted the risk of inadequacy, error or mistake in the information provided in the e-Bid or furnished by or on behalf of NMRC;
d. Satisfied itself about all matters, things and information, necessary and required for submitting an informed Application and performance of all of its obligations there under;
e. Acknowledged that it does not have a Conflict of Interest; and
f. Agreed to be bound by the undertaking provided by it under and in terms hereof.

Availability of Bid Document

This Bid document is available on the web site http://etender.up.nic.in or on Noida Metro website www.nmrcnoida.com to enable the Bidders to view, download the e-Bid document and submit e-Bids online up to the last date and time mentioned in e-Bidder notice/ e-Bid document. The Bidder`s shall have to pay e-Bid document fee and EMD as mentioned in Data sheet through RTGS/ NEFT on addresses given in data sheet. The scanned copy of RTGS/ NEFT with transaction ID certified by the same bank must be enclosed along with the e-Bid. This e-Bid document fee will be non-refundable. Bid without Bid fee in the prescribe form will not be accepted.

Clarifications of e-Bid

a. During evaluation of e-Bid, NMRC may, at its discretion, ask the Bidder for a clarification of his/her e-Bid. The request for clarification shall be in writing.

b. Any queries or request for additional information concerning this RFP shall be submitted in writing or by fax and e-mail to the **GM technical**, NMRC **only before or during Pre-Bid Meeting** held at NMRC. The envelopes / communication shall clearly bear the following identification / title: **"Queries/ Request for Additional Information:** RFP for Execution of Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years**"**. The responses will be posted to all such queries on the official Website www.nmrcnoida.com. NMRC reserves the right not to respond to any questions or provide any clarifications, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring NMRC to respond to any question or to provide any clarification.

c. A pre- submission meeting shall be called on the date mentioned in **Data Sheet** at NMRC Office. Any change corresponding to date, if any, shall be communicated to the Bidder vide NMRC/ e- Tendering website.

d. In case the Bidder seeks for any queries, he shall send letter or e-mail to the correspondence address given in Data Sheet.

e. However, NMRC shall not entertain any correspondence from the Bidders during the period of e- Bid opening to selection of the successful Bidder. Any wrong practice shall be dealt under Fraud and Corrupt Practices.

f. The Tenderer is advised to visit and examine the Site of Works and its surroundings and obtain for himself on his own responsibility all information that may be necessary for preparing the Tender and entering into a contract for the proposed work. The costs of visiting the Site shall be

borne by the Tenderer. It shall be deemed that the Contractor has undertaken a visit to the Site of Works and is aware of the site conditions prior to the submission of the tender documents.

g. The Tenderer and any of his personnel will be granted permission by the Employer to enter upon his premises and lands for the purpose of such inspection, but only upon the express condition that the Tenderer, and his personnel, will release and indemnify the Employer and his personnel from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of the inspection.

Amendment of e-Bid Document

a. At any time prior to the deadline for submission of e-Bid, NMRC may, for any reason, whether at its own in interactive or in response to a clarification requested by a prospective Bidder, modify the e-Bid document by amendments. Such amendments shall be uploaded on the e-procurement website http://etender.up.nic.in or NMRC's website www.nmrcnoida.com. The relevant clauses of the e-Bid document shall be treated as amended accordingly.

b. It shall be the sole responsibility of the prospective Bidder to check the web site http//etender.up.nic.in or NMRC's website www.nmrcnoida.com from time to time for any amendment in the e-Bid documents. In case of failure to get the amendments, if any, NMRC shall not be responsible for it.

c. In order to allow prospective e-Bids a reasonable time to take the amendment into account in preparing their e-Bids, NMRC, at the discretion, may extend the deadline for the submission of e-Bids. Such extensions shall be uploaded on the e-procurement website http://etender.up.nic.in or NMRC's website www.nmrcnoida.com.

3.2. Preparation and submission of Bids

Language of e-Bid

The e-Bid prepared by the Bidder, as well as all correspondence and documents relating to the e-Bid exchanged by the Bidder and NMRC shall be written in English language. Only English numerals shall be used in the e-Bid. The correspondence and documents in any other language must be accompanied by transcripts verified by the Embassy of Home Country or equivalent.

Documents constituting the e-Bid

The e-Bid prepared by the Bidder shall comprise the following components:
Technical e-Bid- Technical e-Bid will comprise of -

a) **Fee details -** Details of Bid processing fee and prescribed EMD

b) **Eligibility details-** Includes copies of required documents in PDF format justifying that the Bidder is qualified to perform the contract if his/her bid is accepted and the Bidder has financial & technical capability necessary to perform the contract and meets the criteria outlined in the Qualification requirement and technical specification and fulfill all the conditions of the contract.

c) **Technical evaluation-** Details of all documents needed for Technical evaluation as mentioned in this RFP.

Financial e-Bid -

Price bid –Bill of Quantities in XLS format to be filled in after downloading from the e-Procurement website for this e-tender. There shall be a single quote.

Documents establishing Bidder's Qualification

a) The Bidder shall furnish, as part of its technical e-Bid, documents establishing the Bidder's qualification to perform the contract if its e-Bid is accepted. The documentary evidence should be submitted by the Bidder electronically in the PDF format.

b) The documentary evidence of Bidder's qualification to perform the contract if its e-Bid is accepted shall be as per qualification requirements specified in e-Bid document.

E-Bid form -

The Bidder shall complete the e-Bid form and the appropriate price schedule/BOQ furnished in the e-Bid document.

E-Bid Currency -

Prices shall be quoted in Indian Rupees only.

Formats and Signing of e-Bid -

a) The Bidder shall prepare one electronic copy of the technical e-Bid and financial e-Bid separately.

b) The e-Bid document shall be digitally signed, at the time of uploading, by the Bidder or a person or persons duly authorized to bind the Bidder to the contract. The later authorization shall be indicated by a scanned copy of written power-of attorney accompanying the e-Bid. All the pages/documents of the e-Bid that are to be uploaded shall be digitally signed by the person authorized to sign the e-Bid.

c) Bidders should provide all the information as per the RFP and in the specified formats. NMRC reserves the rights to reject any proposal that is not in the specified formats.

d) In case the Bidders intends to provide additional information for which specified space in the given format is not sufficient, it can be furnished in duly stamped and signed PDFs.

Deadline for submission of e-Bid -

E-Bid (Technical and financial) must be submitted by the Bidder at e-procurement website http://etender.up.nic.in not later than the time specified on the prescribed date (as the server time displayed in the e-procurement website). NMRC may, at its discretion, extend this deadline for submission of e-Bid by amending the e-Bid document, in which case all rights and obligations of NMRC and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

Submission of e-Bid -

a) The bid submission module of e-procurement website http://etender.up.nic.in enables the Bidders to submit the e-Bid online in response to this e-Bid published by NMRC.

b) Bid submission can be done only from the bid submission start date and time till the bid submission end date and time given in the e-Bid. Bidders should start the bid submission process well in advance so that they can submit their e-Bid in time.

c) The Bidder should submit their e-Bid considering the server time displayed in the e-procurement website. This server time is the time by which the e-Bid submission activity will be allowed till the permissible time on the last/end date of submission indicated in the e-Bid schedule.

d) Once the e-Bid submission date and time is over, the Bidders cannot submit their e-Bid. For delay in submission of e-Bid due to any reasons, the Bidders shall only be held responsible.

The Bidders have to follow the following instructions for submission of their e-Bid:

a) For participating in e-Bid through the e-Biding system it is necessary for the Bidders to be the registered users of the e-procurement website http://etender.up.nic.in. The Bidders must obtain a user login Id and password by registering themselves with U.P. Electronics Corporation Ltd., Lucknow, if they have not done so previously for registration.

b) In addition to the normal registration, the Bidder has to register with his/her digital signature certificate (DSC) in the e-Biding system and subsequently he/she will be allowed to carry out his/her e-Bid submission activities. Registering the digital signature certificate (DSC) is a one-time activity. Before proceeding to register his/her DSC, the Bidder should first log on to the e-Biding system using the user login option on the home page with the login Id and password with which he/she has registered.

For successful registration of DSC on e-procurement website http://etender.up.nic.in the Bidder must ensure that he/she should possess class-2/class-3 DSC issued by any certifying authorities approved by controller of certifying authorities, Government of India, as the e-procurement website http://etender.up.nic.in is presently accepting DSC issued by these authorities only. The Bidder can obtain user login Id and perform DSC registration exercise given above even before the e-Bid submission date starts. NMRC shall not be held responsible if the Bidder tries to submit his/her e-Bid at the moment before end date of submission but could not submit due to DSC registration problem.

c) The Bidder can search for active Bids through "search active tenders" link, select a Bid in

which he/she is interested in and then move it to 'My Tenders' folder using the options available in the e-Bid submission menu. After selecting and the Bid, for which the Bidder intends to e-Bid, from "My tenders" folder, the Bidder can place his/her e-Bid by clicking "pay offline" option available at the end of the view Bid details form. Before this, the Bidder should download the e-Bid document and price schedule/bill of quantity (BOQ) and study them carefully. The Bidder should keep all the documents ready as per the requirements of e-Bid document in the PDF format except the price schedule /bill of quantity (BOQ) which should be in the XLS format (excel sheet).

d) After clicking the 'pay offline' option, the Bidder will be redirected to terms and conditions page. The Bidder should read the terms & conditions before proceeding to fill in the Bid fee and EMD offline payment details. After entering and saving the Bid fee and EMD details form so that "bid document preparation and submission" window appears to upload the documents as per technical (fee details, qualification details, e-Bid form and technical specification details) and financial (e-Bid form and price schedule/BOQ) schedules/packets given in the Bid details. The details of the RTGS/NEFT should tally with the details available in the scanned copy and the date entered during e-Bid submission time otherwise the e-Bid submitted will not be accepted.

e) Next the Bidder should upload the technical e-Bid documents for fee details (e-Bid fee and EMD), Qualification details. Before uploading, the Bidder has to select the relevant digital signature certificate. He may be prompted to enter the digital signature certificate password, if necessary. For uploading, the Bidder should click "browse" button against each document label in technical and financial schedules/packets and then upload the relevant PDF/XLS files already prepared and stored in the Bidder's computer. The required documents for each document label of technical (fee details, qualification details, e-Bid form and technical specification details) and financial (e-Bid form and price schedule/BOQ) schedules/packets can be clubbed together to make single different files for each label.

f) The Bidder should click "Encrypt" next for successfully encrypting and uploading of required documents. during the above process, the e-Bid document are digitally signed using the DSC of the Bidder and then the documents are encrypted/locked electronically with the DSC's of the bid openers to ensure that the e-Bid documents are protected, stored and opened by concerned bid openers only.

g) After successful submission of e-Bid document, a page giving the summary of e-Bid submission will be displayed confirming end of e-Bid submission process. The Bidder can take a printout of the bid summary using the "print" option available in the window as an acknowledgement for future reference.

h) NMRC reserves the right to cancel any or all e-Bids without assigning any reason.

Late e-Bid

a) Bids received by NMRC after the specified time on the Bid Due Date shall not be eligible for consideration and shall be summarily rejected.

b) The server time indicated in the bid management window on the e- procurement website http://etender.up.nic.in will be the time by which the e-Bid submission activity will be allowed till the permissible date and time scheduled in the e-Bid.

c) Once the e-Bid submission date and time is over, the Bidder cannot submit his/her e-Bid. Bidder has to start the bid submission well in advance so that the submission process passes off smoothly. The Bidder will only be held responsible if his/her e-Bid is not submitted in time due to any of his/her problems/faults, for whatsoever reason, during e-Bid submission process.

Withdrawal and resubmission of e-Bid

a) At any point of time, a Bidder can withdraw his/her e-Bid submitted online before the bid submission end date and time. For withdrawing the Bidder should first log in using his/her login id and password and subsequently by his/her digital signature certificate on the e-procurement website http://etender.up.nic.in. The Bidder should then select "My bids" option in the bid submission menu. The page listing all the bids submitted by the Bidder will be displayed. Click "View" to see the details of the bid to be withdrawn. After selecting the "bid withdrawal" option the Bidder has to click "Yes" to the message "Do you want to withdraw this bid?" displayed in the bid information window for the selected bid. The Bidder also has to enter the bid withdrawing reasons and upload the letter giving the reasons for withdrawing before

clicking the "Submit" button. The Bidder has to confirm again by pressing "OK" button before finally withdrawing his/her selected e-Bid.

b) No e-Bid may be withdrawn in the interval between the deadline for submission of e-Bids and the expiration of period of e- bid validity. Withdrawal of an e-Bid during this interval may result in the forfeiting of Bidder's e-Bid security.

c) The Bidder can re-submit his/her e-Bid as when required till the e-Bid submission end date and time. The e-Bid submitted earlier will be replaced by the new one. The payment made by the Bidder earlier will be used for revised e-Bid and the new e-Bid submission summary generated after the successful submission of the revised e-Bid will considered for evaluation purposes. For resubmission, the Bidder should first log in using his/her login Id and password and subsequently by his/her digital signature certificate on the e-procurement website http://etender.up.nic.in. The Bidder should then select "My bids" option in the bid submission menu. The page listing all the bids submitted by the Bidder will be displayed. Click "View" to see the detail of the e-Bid to be resubmitted. After selecting the "bid resubmission" option, click "Encrypt & upload" to upload the revised e-Bids documents.

d) The Bidder can submit their revised e-Bids as many times as possible by uploading their e-Bid documents within the scheduled date & time for submission of e-Bids.

e) No e-Bid can be resubmitted subsequently after the deadline for submission of e-Bids.

NMRC's right to accept any e-Bid and to reject any or all e-Bids.

a) Notwithstanding anything contained in this e-Bid, NMRC reserves the right to accept or reject any Bid and to annul the Selection Process and reject all Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof.

b) NMRC reserves the right to reject any Bid if:

- At any time, a material misrepresentation is made or uncovered, or
- The Bidder does not provide, within the time specified by NMRC, the supplemental information sought by NMRC for evaluation of the e-Bid.

c) Such misrepresentation/ improper response may lead to the disqualification of the Bidder. If such disqualification /rejection occurs after the e-Bid have been opened and the highest ranking Bidder gets disqualified / rejected, then the NMRC reserves the right to consider the next best Bidder, or take any other measure as may be deemed fit in the sole discretion of NMRC, including annulment of the Selection Process.

Period of validity of e-Bid

a) E- Bid shall remain valid for 180 days after the date of e-Bid opening prescribed by NMRC. An e- Bid valid for a shorter period shall be rejected by NMRC as non-responsive.

b) In exceptional circumstances, NMRC may solicit the Bidder's consent to an extension of the period of e-Bid validity. The request and the response thereto shall be made in writing.

Correspondence with the Bidder

a) Save and except as provided in this e-Bid, NMRC shall not entertain any correspondence with any Bidder or its Technical Partners in relation to acceptance or rejection of any e-Bid.

b) No Bidders or its Technical Partners shall contact NMRC on any matter relating to his e-Bid from the time of Bid opening to the time contract is awarded.

c) Any effort by the Bidder or by its Technical Partners to influence NMRC in the Bid evaluation, Bid comparison or contract award decisions, may result in the rejection of his Bid.

3.3. Earnest money deposit (EMD)

a) The tenderer shall furnish, as part of its e-Bid, an e-Bid security/ EMD as stated in Data Sheet in form of RTGS/NEFT only in favour **Noida Metro Rail Corporation Limited** in the A/c No. mentioned in **Data Sheet**. The scanned copy of RTGS/NEFT receipt of Security/ EMD with transaction Id certified by the same bank must be enclosed along with the e-Bid. Tender without Earnest Money in the prescribed form, will not be accepted.

b) Any e-Bid not secured in accordance with above shall be treated as non-responsive and rejected by NMRC.

c) Unsuccessful Bidder's EMD will be returned within 45 days of opening of the Price Bid in case of Conclusion or discharge of the tender through written request.

d) No interest will be paid by the Employer on the Earnest Money Deposit.

e) The successful Bidder's e-Bid EMD will be adjusted with Performance Bank Guarantee, if applicable, to be submitted by the Bidder upon signing the contract.

f) The EMD may be forfeited:-

1. If Bidder (a) withdraws its e-Bid during the period of e-Bid validity specified by the Bidder on the e- bid form: or (b) does not accept the correction of errors or (c) modifies its e-Bid price during the period of e-Bid validity specified by the Bidder on the form.

2. In case of a successful Bidder, if the Bidder fails to sign the contract with the Corporation.

3.4. Opening and Evaluation of E-Bids

Opening of technical e-Bid by NMRC

a) NMRC will open all technical e-Bids, in the presence of Bidder`s representatives who choose to attend on the prescribed date of opening at NMRC Office. The Bidder's representatives who are present shall submit the letter to NMRC on the letter head of the company stating that the representative (name) is authorized to attend the meeting (Please note – The representative is required to carry a copy during pre-bid and other related meetings as well). He / She shall sign a register evidencing their attendance at NMRC. In the event of the specified date e-Bid opening being declared a holiday for the Corporation, the e –bids shall be opened at the appointed time and place on the next working day.

b) The Bidder who is participating in e-Bid should ensure that the RTGS/NEFT of Bid Processing Fee and EMD must be submitted in the prescribed account of NMRC within the duration (strictly within opening & closing date and time of individual e-Bid) of the work as mentioned in Bid notice, otherwise, in any case, e-Bid shall be rejected.

c) The Bidders names and the presence or absence of requisite e-Bid security and such other details as NMRC at its discretion may consider appropriate, will be announced at the opening.

Opening of financial e-Bid

a) After evaluation of technical e-Bid, through the evaluation committee NMRC shall notify those Bidders whose technical e-Bids were considered non-responsive to the conditions of the contract and not meeting the technical specifications and qualification requirements indicating that their financial e-Bids will not be opened.

b) NMRC will simultaneously notify the Bidders, whose technical e-Bids were considered acceptable to the Corporation. The notification may sent by e-mail provided by Bidder.

c) The financial e-Bids of technically qualified Bidders shall be opened in the presence of technically qualified bidders who choose to attend. The date and time for opening of financial bids will be communicated to the technically qualified Bidders subsequently after completion of technical bids evaluation through e-mail provided by the Bidder.

Correction of Errors

a) Financial Bids determined to be responsive will be checked by NMRC for any arithmetic errors. Where there is a discrepancy between the rate quoted in the Financial Bid, in figures and in words, the amount in words will prevail over the amounts in figures, to the extent of such discrepancy.

b) The amount stated in the Financial Bid will be adjusted by NMRC in accordance with the above procedure for the correction of errors and shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected quoted rate of e-Bid, his e-Bid will be rejected, and his Bid Security shall be liable for forfeiture.

Examination of e-Bid document

The NMRC will examine the e-Bid to determine if:

1. They are complete;
2. They meet all the conditions of the contract;
3. The required e-Bid Processing fee, EMD and other required documents have been furnished;
4. The documents have been properly digitally signed; and
5. The e-Bids are in order.

Any e-Bid or e-Bids not fulfilling these above requirements shall be rejected.

Contacting NMRC

a) No Bidder shall contact NMRC on any matter relating to his/her e-Bid, from the time of the e-Bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of NMRC, he/she can do so in writing.

b) Any effort by a Bidder to influence NMRC in its decisions on e-Bid evaluation, e- bid comparison or contract award may result in rejection of the Bidder's e-Bid.

c) In the event of any information furnished by the Bidder is found false or fabricated, the minimum punishment shall be debarring /blacklisting from Noida Metro works and legal proceeding can also be initiated. EMD of such bidders will be forfeited.

Confidentiality

a. Information relating to the examination, clarification, evaluation, and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising NMRC in relation to or matters arising out of, or concerning the Bidding Process. Any effort by a Bidder to exert undue or unfair influence in the process of examination, clarification, evaluation and comparison of Proposal shall result in outright rejection of the offer, made by the said Bidder.

b. NMRC shall treat all information, submitted as part of Bid, in confidence and shall require all those who have access to such material to treat the same in confidence. NMRC may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or NMRC or as may be required by law or in connection with any legal process.

3.5. Award of Contract

- **Award Criteria**

1. NMRC will award the contract as per evaluation criteria stated in the RFP Document.
2. NMRC will award the contract to the successful Bidder whose bid has been determined to be responsive to all the conditions of the contract and meeting the eligibility requirement of the bidding document.

- **Notice of Award (NOA)**

1. Prior to the expiration of the period of e-Bid validity, NMRC will notify the successful Bidder in writing, by letter/e-mail/fax, that its e-Bid has been accepted.
2. The acceptance of NOA will constitute the formation of the contract.

- **Signing of contract**

  At the same time as NMRC notifies the successful Bidder that it's e-Bid has been accepted, the successful Bidder shall have to sign the contract agreement with relevant document as mentioned in the RFP. The agreement draft along with other related terms and conditions will be same as furnished in this e-Bid. Any refusal will not be allowed. The Bidder need not download and submit in hard copies of these documents.

- **NMRC's right to accept any e-Bid and to reject any or all e-Bids**

  NMRC reserves the right to accept or reject any e-Bid, and to annul the e-Bid process and reject all e- Bids at any time prior to contract award, without thereby incurring any liability to the affected tenderer or tenderers.

Tenure

The Corporation intends to appoint a Contractor to NMRC for a period of **2 (Two) years.**

4. Section 4: Qualification, Evaluation and Selection Process

4.1. Eligibility Criteria

The Bidder's competence and capability is proposed to be established by the following parameters. The Bidder should meet all the criteria given in this section.

a. The Bidder should be Sole proprietorship/ partnership firm/ public limited company/ private limited company. The firms and the companies should be registered in India. **Joint Ventures or Consortiums are not allowed to participate in the tender**.
b. The Bidder should have completed in India during last **7 (Seven) years** period ending last day of month previous to the one in which the bids are invited should be either of the following:
    1. One completed work of similar nature of value not less than **Rs. 55.77 Lakh** (Rupees Fifty Five Lakh Seventy Seven Thousand only) or
    2. Two completed work of similar nature of value not less than **Rs. 34.86 Lakh** (Rupees Thirty Four Lakh Eighty Six Thousand only) each or
    3. Three completed work of similar nature of value not less than **Rs. 27.88 Lakh** (Rupees Twenty Seven Lakh Eighty Eight Thousand only) each.

    Similar work" for this contract shall be "Testing and commissioning / maintenance of power transformer and relays feeding 33 KV and above electrical sub station" in NMRC/ any other Metro Organization/ Central govt./ State govt./PSU's/ Private sector companies.
c. The Bidder should have minimum average annual turnover of **Rs. 69.71 Lakh** (Rupees Sixty Nine Lakh Seventy One Thousand only) in the last 3 (three) Financial Years (2019-20, 2020-21, 2021-22) preceding the Bid Due Date.
d. The bidder should not be black listed /debarred/declared ineligible for corrupt and fraudulent practices by any government/ government undertaking/Semi government/ government-controlled institutions in India and should not have any disciplinary proceedings pending against the bidder in last five financial years.
e. The Bidder should be registered with the Goods and Services Tax Authority.
f. The Profit of bidder before tax during any of the financial year should be positive during immediately preceding 3 financial years.

NMRC, if required, may seek clarification from bidders during the technical evaluation.

The Bidder shall also furnish the following:

a. For above criteria 4.1a
    i. Statutory proof of existence as the legal entity
    ii. PAN certificate as per legal entity
    iii. Valid Electrical Contractor License
    iv. GST Registration Certificate as per legal entity

b. For above criteria 4.1b
    i. A statement as in Form 4: Work experience with Work Order/ Signed Contracts/ Completion Certificates, clearly indicating the value and nature of experiences

c. For above criteria 4.1c,f
    i. Form 5: Financial Capability Details
    ii. A copy of the Audited balance sheets and Profit and Loss Statements for the last 3 (three) financial years
    In case the Financial Statements for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor/chartered accountant shall certify the same. In such a case, the Bidder shall provide the Audited Financial Statements for 2 (two) years preceding the year for which the Audited Financial Statement is not being provided. Also, pertaining to latest financial year, the bidder shall submit an affidavit certifying that "The Annual Accounts have not been audited so far. We are submitting the CA certified provisional accounts, which shall be substantiated by the Audited Accounts, when prepared."
    iii. Self attested copy of ITR for the last 3 (three) financial years

d. For above criteria 4.1d

- Form 7: Undertaking

e. For above criteria 4.1e

- Copy of GST registration

Notes:

a) The tenderer shall submit details of works executed by them in the Performa of Form-4 for the works to be considered for qualification of work experience criteria. Documentary proof of completion certificates from client clearly indicating the nature/scope of work, actual completion cost and actual date of completion for such work should be submitted. The offers submitted without this documentary proof shall not be evaluated. In case the work is executed for private client, copy of work order, bill of quantities, bill wise details of payment received certified by C.A., T.D.S certificates for all payments received and copy of final/last bill paid by client shall also be submitted.

b) Value of successfully completed portion of any ongoing work up to last day of the month previous to the month of tender submission will also be considered for qualification of work experience criteria.

c) For completed works, value of work done shall be updated to last day of the month previous to the month of tender submission price level assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the submission date of tender.

d) If the above work(s) (i.e. “Similar work” comprise other works, then client’s certificate clearly indicating the amount of work done in respect of the “similar work” shall be furnished by the tenderer in support of work experience along-with their tender submissions.

Bid Capacity Criteria:

Bid Capacity: The tenderers will be qualified only if their available bid capacity is more than the approximate cost of work as per NIT. Available bid capacity will be calculated based on the following formula: Bid capacity will be calculated based on the following formula:

Available Bid Capacity = 2*A*N – B

Where,

A = Maximum of the value of work executed in any one year during the last three financial years (updated to the last day of the previous month of tender submission price level assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year).

N = No. of years prescribed for completion of the work (for four month duration N should be 0.3)

B = Value of existing commitments (as on the last day of the previous month of tender submission) for on-going works during period of 24 months w.e.f. from the first day of the month of tender submission.

Notes:

- Financial data for latest last three financial years has to be uploaded by the tenderer in Form-5 of Tender along with audited financial statements. The financial data in the prescribed format shall be certified by the Chartered Accountant with his stamp and signature in original along with UDIN & membership no.
- Value of existing commitments for on-going works during period of 24 months w.e.f. from the first day of the month of tender submission has to be uploaded by the tenderer in Form-4 of Tender. These data shall be certified by the Chartered Accountant with his stamp and signature in original along with UDIN and membership no.
- The tender submission of tenderers, who donot qualify the minimum eligibility criteria stipulated in the clauses above, shall not be considered for further evaluation and therefore rejected. The mere fact that the tenderer is qualified as mentioned in above shall not imply that his bid shall automatically be accepted. The same should contain all technical data as required for consideration of tender prescribed in the RFP.

4.2. Qualification of Service Engineer

The Service engineer deployed by the contractor should be minimum diploma holder in Engineering & should be well versed with the functioning & fault finding of these Power transformer so that there

will be minimum downtime of power transformer after arriving of contractor's service engineer. The prolonging of time period in detecting the fault and subsequent rectification on part of inept Service Engineer will not be tolerated & a penalty deemed suitable by NMRC will be levied on the firm for the unnecessary working days loss of that particular Transformer.

UNDERTAKING:

1. We confirm to deploy competent service engineer.
2. The repair / breakdown work will be attended in consonant with OEM's design, circuit and specification.

4.3. Deputation of Service Engineer

Contractor shall be required to depute his service engineer on such day as informed by **Dy. HOD of Electrical department** or his representative in advance. The payment for these visits of service engineer shall also be payable at accepted rates as mentioned in schedule of rates and quantities of the contract. The service charges of service engineer shall include lodging/ boarding and any other incidental charges.

4.4. Compliance with Technical Specifications

The Bidders must comply with the stipulated technical specifications as mentioned in the tender documents

4.5. Information of the Technical and Financial Proposal

a. The Bidder satisfying technical and financial eligibility criteria under Clause4.1 shall be considered as technically and financially qualified.

b. The financial proposal of only technically qualified Bidders shall be opened for evaluation.

c. The Bidder with the lowest quoted amount for Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years, in the financial quote (L1 bidder) shall be selected for the award of contract.

4.6. Selection of Bidder

After the above evaluation process, the Technically Qualified Bidder, who is declared as L1 (lowest quoted price) may be declared as the selected Bidder ("Selected Bidder") for the Project.

a. In case, two or more technically qualified bidders quote the same rate in the Commercial Bid, and become Lowest (i.e. L1), then the tender would be awarded to the bidder who has the highest / higher Average Annual Turnover from 'Similar Works' (as per Minimum Eligibility Criteria defined in Section 4 under "Definition of Similar Work") during the last 3 years ending on the last day of the month preceding the month in which the tender has been floated.

b. Prior to the expiry of the period of bid validity, NMRC will notify the successful bidder in writing, either through Notice of Award (NOA), that his bid has been accepted.

c. The NOA would be sent in duplicate to the successful bidder, who will return one copy to NMRC duly acknowledged, signed and stamped on each page by the authorized signatory of the bidder, as an unconditional acceptance of the NOA, within 10 (ten) days from the date of issue of NOA.

d. No correspondence will be entertained by NMRC from the unsuccessful bidders.

4.7. Notice of Award and Execution of Contract Agreement

a. NMRC will notify the Successful Bidder by a NOA that its bid has been accepted.
b. The Selected Bidder shall, within 10 (ten) days of the receipt of the NOA, sign and return the duplicate copy of the NOA in acknowledgement thereof along with letter of acceptance of NOA. In the event, the duplicate copy of the NOA duly signed by the Selected Bidder and letter of acceptance of NOA is not received by the stipulated date, NMRC may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as mutually agreed genuine pre-estimated loss and damage suffered by NMRC on account of failure of the Selected Bidder to acknowledge the NOA
c. The Successful Bidder shall execute the Contract Agreement within 30 (thirty) days of the letter of acceptance of NOA or such extended period as may be decided by the Corporation.

d. Failure of the Successful Bidder to comply with the requirement of acknowledgement of NOA shall constitute sufficient grounds for the annulment of the NOA, and forfeiture of the bid security.

e. **NMRC reserves the right to increase or decrease the quantity up to 25% of the quantity offered by the successful tenderer. The bidder is bound to accept the increase or decrease in the tendered quantity up to 25% under this clause without any change in unit price.**
In case the variation in individual items or the group of items as stipulated above, is more than 25% on plus side, the rate for the varied quantity beyond 25% shall be negotiated between the NMRC and the Contractor and mutually agreed rates arrived at before actual execution of the extra quantity. In case the contractor executes the extra quantity without written approval of the NMRC with specific instructions to execute pending the finalization of rates, the payment shall be made at contract rate only. In the event of disagreement, the Engineer shall fix such rates of price as are, in his opinion appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on account payments to the Contractor. Alternatively, in the event of disagreement, the Contractor shall have no claim to execute extra quantities/new items and the Engineer shall be free to get such additional quantities beyond 25% new items executed through any other agency. However, if the Engineer or the Employer so directs the Contractor shall be bound to carry out any such additional quantities beyond the limits stated above original quantities and or new items and the disagreement or the difference regarding rates to be paid for the same shall be settled in the manner laid down under the conditions for the settlement of dispute.

4.8. Performance Bank Guarantee / Security Deposit

a. To fulfill the requirement of performance bank guarantee during the implementation period, the Successful Bidder (herein referred to as the “Contractor”) shall deposit **10 % of the Contract Price** in form of FDR/ DD or unconditional and irrevocable Bank Guarantee bond issued by a scheduled bank in favor of Noida Metro Rail Corporation Limited, which may be reduced for balance years on completion of each year, within 30 days from Notice of Award. Non submission shall attract penalties as per GCC Clause 4.2.1. EMD amount of successful bidder shall be adjusted in the performance bank guarantee, if applicable. For unsuccessful bidder, EMD shall be refunded without any interest. The Performance Guarantee should be valid for a period of 06 (six) months beyond the completion of warrantee period. The Bank Guarantee must be issued by a bank branch located in Delhi, NCR, Noida and Greater Noida regions only.

b. It is to note that if contract value increases by more than 25% of the original contract value, the performance bank guarantee shall be increased accordingly.

c. A Contract agreement will have to be signed by the Contractor at his cost on proper stamp paper. Without performance guarantee by Contractor, Contract agreement shall not be signed.

d. NMRC reserves the right for deduction of NMRC dues from Contractor’s Performance Bank Guarantee/ Security Deposit (interest free) for –
   i. Any penalty imposed by NMRC for violation of any terms and conditions of agreement committed by the Contractor.
   ii. Any amount which NMRC becomes liable to the Government/Third party due to any default of the Contractor or any of his director/ employees/ representatives/ servant/ agent, etc.
   iii. Any payment/ fine made under the order/judgment of any court/consumer forum or law enforcing Contractor or any person duly empowered in his behalf.
   iv. Any outstanding payment/ claims of NMRC remained due after completion of relevant actions as per agreement.

e. Once the amount under above Clause is debited, the Contractor shall replenish the Security Deposit/ Performance Bank Guarantee to the extent the amount is debited within 15 days period, failing which, it shall be treated as Contractor Event of Default and will entitle NMRC to deal with the matter as per the provisions of RFP and Contract Agreement.

4.9. Contract during Proposal Evaluation

a. Proposals shall be deemed to be under consideration immediately after they are opened and until such time NMRC makes official intimation of award/ rejection to the Bidders. While the Proposals are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain from contacting by any means, NMRC and/ or their employees/ representatives on matters related to the Proposals under consideration till the time Contract is awarded.

b. Any effort by a Bidder to influence NMRC in its decisions on Bid evaluation, Bid comparison or contract award may result in rejection of the Bidder's Bid.

c. In the event of any information furnished by the Contractor is found false or fabricated the minimum punishment shall be debarred/ blacklisting and the legal proceeding may also be initiated.

d. If the Bidder wishes to bring additional information to the notice of NMRC, he/she can do so in writing. All correspondence/ enquiry should be submitted to the following in writing by fax/ post/courier:

GM/Technical
Noida Metro Rail Corporation (NMRC) Limited
Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29,
Noida -201301
District Gautam Budh Nagar, Uttar Pradesh
Email: nmrcnoida@gmail.com
nmrcjgmelectrical@gmail.com

e. No interpretation, revision, or other communication from NMRC regarding this solicitation is valid unless in writing and signed by the competent authority from NMRC.

4.10. Other Instruction

a. Canvassing in connection with the tenders is strictly prohibited and the tenders, submitted by Bidder, who resort to canvassing, are liable to be rejected. EMD will be forfeited of those tenders who will be found non serious and if it is felt by the tender committee that the Bidders submitted their tender only to influence the tendering process.

b. On acceptance of the tender, the name of the accredited representative of the Contractor, who would be responsible for taking instructions from the NMRC or the official deputed by NMRC, shall be communicated to the NMRC or the official deputed by NMRC in writing.

4.11. Project Financial Terms

Payment Terms

a. The payment for items given in Bill of Quantity/Pricing Document shall be made on the basis of actually executed quantities however stages of payment shall be as per SCC clause 23.

b. The payment will be made only for the work actually carried out as per the schedule of work (Bill of Quantity) completed & handed over to the user and with the satisfaction of Engineer-in-charge.

c. Income Tax is deductable at source while effecting payment of bills at the prescribed percentage as per the orders of the government.

d. GST, if claimed, will be reimbursed only if the GST registration number is mentioned in the invoice and GST is duly paid by the contractor and it is reflected on the GST Portal. In the absence of GST registration number and GST payment by contractor, GST will not be reimbursed.

e. Quote PAN and GST on all correspondence, Bills, Vouchers and other documents otherwise TDS at higher of the prescribed rate will be deducted.

f. All payments to the contractors will be made by e-Payment /Account Payee Cheques. Quarterly payment shall be made on receipt of the bill complete & correct in all respect along with the supporting documents subject to deduction of statutory charges/taxes/duties/levies etc.

g. Bills, correct in all respect, shall be submitted to Engineer-In-Charge, in duplicate along with supporting documents, who will arrange payment through Departments, NMRC

h. No advance of any type shall be paid.

i. TDS on quarterly invoice of tenderer is deducted while processing quarterly bills as per Govt. Guidelines.

5. Section 5: Special Conditions of Contract (SCC)

SCC Clause	Reference to GCC Sub-Clause No.	Description
1	**Sub-Clause 3.2**	**Functions of Engineer** In addition to the duties mentioned in Clause 3.2 of General Conditions of Contract: (i) Shall watch and inspect the Works, monitor and examine any material to be used and workmanship employed by the Contractor in connection with the Works; (ii) Shall carry out such duties and exercise such powers vested in the Engineer in accordance with the provisions of the Contract; (iii) Shall issue instructions which in his opinion are necessary for the execution of the Works; and (iv) May issue any other instruction which in his opinion is desirable in connection with the Works. In case The Engineer is employee of any agency hired by the Employer, the Engineer shall take the approval of the Employer for all technical and financial matters otherwise he shall be deemed to have taken the approval of the Employer.
2	**Sub Clause 4.2.1**	**Performance Security** The amount of Performance Security for this contract will be 10% of contract value. If the contract value increases by more than 25% of the original contract value, the Performance Security will be increased accordingly for complete revised value on every increase. Performance security should be submitted within 30 days from date of issue of LOA. Non compliance will attract penalty as per GCC Clause 4.2.1.
3	**Sub-Clause 4.4**	**Coordination with other Contractors** The contractor for this package shall plan and execute work in coordination and in co-operation with other contractors working for adjacent/other packages
4	**Sub-clause 4.5**	**Sub-contractors** The work should not be sublet without the written approval of Engineer in-charge.
5	**Sub-Clause 4.10**	**Sufficiency of Tender** The Tenderer shall be entirely responsible for sufficiency of rates quoted by him in his tender. The Contractor (Successful Tenderer) shall be paid for only at quoted/accepted rates for the items of works executed as per BOQ.
6	**Sub-Clause 4.11**	**Access Route** All operations for the execution of the Works shall be carried out so as not to interfere unnecessarily with the convenience of the public or the access to public or private roads or footpaths or properties owned by the Employer or by any other person. The Contractor shall select routes, choose and use vehicles so that movement of Contractor's Equipment, Plant and Materials from and to the Site is limited so that traffic is not delayed and damage to highways and bridges is prevented. If there is any delay or damage or injury, the cost of rectification or reconstruction of highways or bridges shall be borne by the Contractor. The Contractor shall indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters
7	**Sub-Clauses 5.3**	**Manufacture, Installation and Construction Methods**

SCC Clause	Reference to GCC Sub-Clause No.	Description
		The Contractor shall submit complete documents and information pertaining to the methods of manufacture, installation and construction which the Contractor proposes to adopt or use, (and if applicable such calculations of stresses, strains and deflections and the like that will or may arise in the Works or to the other works comprising the Project or any parts thereof during installation from the use of such methods). The Engineer will then check to see whether, if such methods are adhered to, the Works can be executed in accordance with the Contract and without detriment to the Works (when completed) and to other works comprising the Project and in a manner which minimizes disruption to road and pedestrian traffic. The Engineer shall inform the Contractor in writing within 21 days after receipt of the above information; (a) that the Contractor's proposed methods of manufacture, installation and construction have the consent of the Engineer; or (b) in what respects, in the opinion of the Engineer the Contractor's proposed methods of manufacture, installation and construction: (i) fail to comply with the Employer's Requirements and/or the Definitive Design and/or the Final Design; (ii) would be detrimental to the Works and/or to the other works comprising the Project; (iii) do not comply with the other requirements of the Contract; (c) as to the further documents or information which are required to enable the Engineer to properly assess the proposed methods of manufacture, installation and construction. In the event that the Engineer does not give his consent, the Contractor shall take such steps or make such changes in the said methods or supply such further documents or information as may be necessary to meet the Engineer's requirements and to obtain his consent. The Contractor shall not change the methods of manufacture, installation and construction which have received the Engineer's consent without further review and consent in writing of the Engineer. Notwithstanding the foregoing provisions of this Clause, or that certain of the Contractor's proposed methods of manufacture, installation and construction may be the subject of the consent of the Engineer, the Contractor shall not be relieved of any liability or obligation under the Contract.
8	**Sub-Clauses 4.16 and 6.7**	**Safety Precautions** The Contractor is required to make himself aware of all the requirements of the Employer's Safety, Health and Environmental Manual in this regard and comply with them. The Site Safety Plan shall include detailed policies, procedures and regulations which, when implemented, will ensure compliance with Sub-Clauses 4.16 and 6.7 of General Conditions of Contract. The Contractor shall, from time to time and as necessary or required by the Engineer, produce supplements to the Site Safety Plan such that it is at all times a detailed, comprehensive and contemporaneous statement by the Contractor of his site safety and industrial health obligations, responsibilities, policies and procedures (under the laws of India) or as stated in the Contract or elsewhere relating to work on Site If at any time the Site Safety Plan is, in the opinion of the Engineer, insufficient or requires revision or modification to

SCC Clause	Reference to GCC Sub-Clause No.	Description
		ensure the security of the Works and the safety of all workmen upon, and visitors to the Site, the Engineer may instruct the Contractor to revise the Site Safety Plan. The Contractor shall, within 14 days, submit the revised plan to the Engineer for review. **The contractor shall provide necessary barriers warning signals and other safety measures to avoid accidents**. He shall also indemnify department against claims for compensation arising out of negligence in this respect. Nothing in these specifications shall be construed to relieve the contractor of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with applicable statutory regulations and safety codes in force from the safety angle.
9	**Sub-Clause 4.17**	**Protection of the Environment** The Contractor shall maintain ecological balance by preventing deforestation, water pollution and defacing of natural landscape. The Contractor shall, so conduct his cleaning operations, as to prevent any avoidable destruction, scarring or defacing of natural surroundings in the vicinity of work. In respect of ecological balance, the Contractor shall observe the following instructions (a) Where destruction, scarring, damage or defacing may occur as a result of operations relating to construction and maintenance activities, the same shall be repaired, replanted or otherwise corrected at Contractor's expense. All work areas shall be smoothened and graded in a manner to confirm to natural appearance of the landscape as directed by the Engineer. (b) All trees and shrubbery, which are not specifically required to be cleared or removed for cleaning purposes, shall be preserved and shall be protected from any damage that may be caused by Contractor's cleaning operations and equipment. The removal of trees or shrubs will be permitted only after prior approval by the Engineer. Trees shall not be used for anchorage. The Contractor shall be responsible for injuries to trees and shrubs caused by his operations. The term "injury" shall include, without limitation, bruising, scarring, tearing and breaking of roots, trunks or branches. All injured trees and shrubs shall be restored as nearly as practicable, without delay, to their original condition at Contractor's expenses. (c) The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer and the Employer to monitor and conduct tests to verify that the Site Environmental Plan is being properly and fully implemented
10	**Sub-Clause 4.18**	**Electricity and Water** Electricity and water shall be arranged by the contractor on his own and at his cost. If available, the Employer may provide Water supply and Electricity on chargeable basis. The contractor shall make his own arrangements to tap the Electricity from the nominated and existing sockets/ points. The contractor shall tap the Electricity as per IE Rules & IE Act (Latest) duly complying all safety precautions and under following conditions: (a) The contractor shall submit full scheme for the requirement of Electricity & water. If scheme mentions Electricity requirement which is beyond the capacity of the Employer, in that case the contractor shall make his own arrangements/ alternative arrangements. (b) The Contractor should make his own arrangements to draw the water from the available water point to the working place without affecting the premises.

SCC Clause	Reference to GCC Sub-Clause No.	Description
11	**Sub-Clause 4.19**	**Employer Supplied Machinery and Materials** The Employer will not provide any machinery or materials under the Contract.
12	**Sub Clause 4.27**	**Security of the Site** The Contractor shall take all measures necessary to ensure such security, including exercising control over all persons and vehicles which are employed or engaged on the Site or in connection with the Works or the other works comprising the Project and with the security arrangements applicable to any other site within the Project. The Contractor shall arrange the issue of passes for the admission of all persons and vehicles to the Site or to any part thereof and may refuse admission to or remove from the Site any person or vehicle failing to show an appropriate pass on demand to any duly authorised person. If required by the Engineer, the Contractor shall submit a list identifying all persons to whom passes have been issued together with two photographs of each person and all entities to which a pass has been issued in respect of any vehicle and shall satisfy the Engineer of the bonafides of any such person or entity. The Contractor shall not, without the written permission of the Engineer or otherwise in accordance with the Contract, allow access to the Site to any person unless the presence on Site of such person is necessary in connection with the execution of the Works or with the discharge of the duties of any relevant authority. For the purposes of this Clause only, "Site" shall include off-Site places of manufacture or storage and the Contractor's Work Areas and shall include, areas provided to the Contractor by others.
13	**Sub-Clause 5.3**	**Submission of Documents** The Contractor shall submit the drawings and documents, test certificates, warranty certificates, calibration certificates of items wherever required or as required by the contract or Engineer in charge & No Objection Certificate from UP Electrical safety department. This submittal shall be made sufficiently before the Works are to be carried out to give the Engineer and the Employer reasonable time to examine the drawings or other documents, to prepare comments and for any changes to be accommodated by the Contractor. Where the consent of the Engineer is required, the Engineer shall notify the Contractor in writing of his decision either within such period as may expressly be stipulated in the Contract or otherwise within a reasonable time.
14	**Sub-Clause 6.0**	**Training of Contractor's Employees / Staff / Workers** Contractor shall provide a training / workshop on Safety, Health & Environment (SHE) to all its workers/ employees/ sub-contractors at the time of induction as per required of condition of contract on Safety, Health and Environment. Before posting any of his workers/ staff/ employees/ sub-contractors, the contractor shall give a certificate that the said person had undergone the requisite SHE training.
15	**Sub-Clause 6.4**	**Labour Laws :** (a) The Contractor shall, if required by the Employer, deliver to the Engineer or to his office; a return in detail, in such form and at such intervals as the Employer may prescribe, showing the number of labour employed in different categories by the Contractor for the entire work.

SCC Clause	Reference to GCC Sub-Clause No.	Description
		The contractor must ensure compliance of all the statuary labour laws including labour license and registration of workers as per BOCW Act. (b) In case of death of staff, the agency is required to pay₹2,00,000/- for heir apparent as immediate relief to his/her dependent. Subsequently agency should facilitate compensation on priority. ***Violation of these basic provisions shall attract a penalty of 5% of contract value*** and repeated violations shall lead to termination of contract.
16	**Sub-Clause 6.6**	**Housing Facilities** The Contractor shall have to make his own arrangements for housing facilities for his staff.
17	**Sub-Clause 6.7**	**Health and Safety** Contractors are required to have tie-up with well equipped reputed hospitals having facilities of MRI, CT Scan, Ultrasound, Blood Bank, specialist Doctors like neurosurgeon, orthopedic as mandatory requirement and fire station located in the neighborhood for attending to the casualties promptly and emergency vehicle kept on standby duty during the working hours for the purpose.
18	**Sub Clause 7.0**	**Quality Control** The Contractor shall appoint a suitably qualified and experienced person, not otherwise engaged in the performance of the Contract, to act as manager of the quality assurance system and shall provide such other personnel and resources as required to ensure effective operation of the quality assurance system. The said manager shall carry out audits of the application of the quality assurance system, and ensure effective quality control and delivery of quality assurance. The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer to carry out surveillance visits both on and off the Site to verify that the quality assurance system is being properly and fully implemented. No extra payment shall be made in this regard and the cost of the Work under this element shall be deemed to be included in the Contract Price.
19	**Sub Clause 8.5**	**Liquidity damages** 0.5% of the contract value per week of delay.
20	**Sub-Clause 11.1** **Sub-Clause 11.1.1** **Sub-Clause 11.1.4**	**Contract Price & Payment** **In respect of All Inclusive Contract** The Contract Price, subject to any adjustment thereto in accordance with the contract conditions, shall be all inclusive (including all taxes, duties, royalties etc.) **Change in Taxes Duty** (a) "Change in Taxes/Duties/Levies" means the occurrence or coming into force of the following, at any time after the date of submission of tender. (i) Any new tax which is imposed on Composite Works Contractors applicable on Metro Project. (ii) Change in the rate of GST on Composite Works Contractors applicable on Metro Project as Per GST Act. (b) The Contract Price shall be adjusted due to any of the above two conditions. Adjustment in contract price will be applicable up to the stipulated date of completion of work including the extended period of completion where such extension has been granted under sub clause 8.4.1 of GCC or it is specifically mentioned that extension is with adjustment for changes as stated above. (c) If the extension of contract period is on account of contractor's fault

SCC Clause	Reference to GCC Sub-Clause No.	Description
		under Sub-clause 8.4.3 of GCC, no compensation shall be made towards upward revision towards "change in Taxes/Duty (taking place during the said extended contract period)" as mentioned at Sl. No. (a) (i) & (ii) above, during the original contract period or extended contract period shall be on employer's account. (d) Any other changes (except on account of clause (a) (i) & (ii) above) in existing taxes/new taxes on supply of materials/services/works etc. will not be considered and its impact shall be considered covered in the price variation clause provided in the Contract and in Contract where Price Variation clause s not provided, the impact on any other change (except on account of clause (a) (i) & (ii) above in existing taxes/new taxes on supply of materials/services/works etc. will be deemed to be included in the quoted contract price. (e) Also, the contract price shall not be adjusted on account of fluctuations in the rates of exchange between the foreign currencies of the contract and Indian rupees from the last date of submission of tender.
21	**Sub clause 11.1.3**	**Price Variation** This is a fixed price contract and no Price Variation is admissible in this contract.
22	**Sub-Clause 11.2**	**Advance** No Advance is admissible in this contract.
23	**Sub-Clause 11.6**	**Payment** For the purpose of On-account payment, the contractor shall submit detailed activities carried out as per BOQ recorded in Measurement sheets, Abstract sheets along with recorded bill for the item actually executed for checking and payment. Payment will be effected based on unit rates as approved in the Bill of Quantities. The payment shall be made generally on a Quarterly basis for the activities carried out as per the work orders in that time period. At the end of a quarter, the contractor shall submit necessary documents & Bill in the standard format for payment. The payment will be done only after verification by the NMRC representative. Payment should be followed strictly as per terms and conditions of Tender Documents and Tax.
24	**Sub-Clause 15.0**	**Insurance** (a) All of the contractor's employees drawing monthly wages up to ₹21,000/- or as applicable as per the enhanced limit, shall have to be covered under ESI. The Contractor shall take insurance policy as specified in the Employee's Compensation Act only for those employees who are not covered by ESI. (b) The contractor shall insure against liability to third parties in the joint name of the Employer and the contractor for any loss, damage, death or injury which may occur to any physical property (except things insured otherwise) or any person (except person insured by employer, staff of other contractor working in the premises, contractor's staff under sub clause above which may arise out of the performance of the contract. The insurance shall be at least for the amount of ₹7,50,000/- for each incident. (c) Insurance cover for Contractor's All Risk shall be full value of Contract price.
25	**Sub-Clause 18.1**	**Notices and Instructions** The Contractor shall furnish to the Employer/Engineer the postal address of his office at Delhi NCR. Any notice or instructions to be given to the Contractor

SCC Clause	Reference to GCC Sub-Clause No.	Description
		under the terms of the contract shall be deemed to have been served on him if it has been delivered to his authorized agent or representative at site or if it has been sent by registered post to the office, or to the address of the firm last furnished by the Contractor. The Contractor shall establish an office in the Delhi NCR in consultation with the in charge for planning, co-ordination and monitoring the progress of the Work and intimate the same in writing to in charge. In addition, the Contractor may set up field offices at convenient and approved locations for co-ordination and for monitoring the progress of fieldwork at his own cost.
26		**Penalty and Recoveries** The contractor shall depute service engineer for attending breakdown maintenance of Power Transformer within 12 hours from information given by TPC/JE (In charge) /JE(Stores) to the contractor through written fax/ telex/ phone/ email and receipt of any letter. If the service engineer is not deputed by the contractor within the above stated period, deduction @25% of the visiting charge accepted rates on per day basis which shall be upto maximum equal to twice the visiting charges of one day per occasion. In the event of failure on account of bad workmanship/ non adherence to quality norms as required, a token penalty of Rs. 5000/- shall be imposed on per occasion & no payment will be made for attending the same. Repetition of similar type of failures will not be accepted, which depicts the ineptness of Service engineer deployed/ substandard spare part supplied by the contractor. For which a suitable penalty @ Rs.5000/- per occasion will be charged for these repeated failures & no payments will be made for attending them. The contractor has to submit the breakdown report duly verified by NMRC representative, containing all the information related to breakdown (cause of breakdown, corrective action taken for closure of the complaint etc.)
27		**Warranty** Spare parts supplied by contractor will be on paid basis. All the spare parts, except wear and tear items and consumables items will be warranted for a period of 09 (Nine) months from the date of supply & 06 (Six) months from the date of fitment, whichever is earlier, against any manufacturing defects and poor workmanship. If any spare part fails during warranty period, the same has to be replaced free of cost with new one by the contractor & the replaced spare parts will also covered under residual warranty of replaced defective spare part. The replacement work has to be attended in such a manner that working of Transformer is not suffered intensely. If the machine working hampered intensely, a penalty of Rs.5000/- per occasion will be imposed & necessary punitive action will be taken by NMRC against the tenderer depending upon the intensity of the loss suffered by NMRC. Further, If the operation of Transformer is suffered intensely during course of replacement or delay in attending the machine by the tenderer, the NMRC will be at freedom to get it repaired from any other source and the subsequent cost of repair will be charged from the firm.
28		**Tools and Test Equipment :-** The contractor shall bring all the tools and test equipment which are essential in day to day use in both preventive and breakdown maintenance.
29		**Training to NMRC PSI staff:-** In the Contract period the contractor will provide required training regarding all necessary rectification, Testing and calibration activities. In case of breakdown the contractor will clearly elaborate the cause of breakdown, corrective action taken for the rectification of failure and any necessary precaution that should be taken to avoid such failures.

Section 6: Technical Specification

6.1 GUARANTEED TECHNICAL PERTICULAR (GTP)

6.1.1 TRACTION TRANSFORMER

a) TRACTION TRANSFORMER 21.6/30 MVA,132/27.5Kv

INDICATIONS	UNIT	VALUES
Manufacturer		CGL
Place of manufacturer		Mumbai
Standards		IEC 60076, 60137, 60296
ELECTRICAL CHARACTERISTICS		
Type		Outdoor
Coupling		I.i.
Rated frequency	Hz	50
Rated Secondary power	MVA	30
Cooling mode		ONAN/ONAF
Primary rated insulation voltage	kV	145
Primary operating voltage	kV	132
Rated power frequency withstand voltage-one minute	kV r.m.s.	275
Rated impulse withstand (1.2/50 micro second)	kV peak	650
Secondary maximum non permanent voltage	kV	29
Secondary rated voltage without load	kV	27.5
Rated power frequency withstand voltage for one minute	kV	95
Rated impulse withstand (1.2/50 micro second) voltage for	kV	250
Short-circuit Voltage - On load tap changer (1 Min Tap) - On load tap changer on median tap (Nor. Tap) - On load tap changer on tap 16 (Max Tap)	 % % %	 12.58Appx. 12.50 IEC Tol 13.72 Appx.
Voltage drop At secondary winding - 4/4 of secondary load	%	1.21@ full load
Short circuit voltage	%	12.5 (IEC Tol.) Nor.
Magnetic loading	Tesla	<=1.55
Permissible overload duration at 50% 100 %	 Min Min	 15 5
Iron losses @95^{0}C	kW	11 max
Copper losses@ 95^{0}C -4/4of secondary load	kW	@30 MVA 101.5 MAX
Short circuit current at secondary -On load tap changer on tap 1 --On load tap changer on median tap --On load tap changer on tap 16	 kA kA kA	 7.951 8.391 8.671

INDICATIONS	**UNIT**	**VALUES**
Transformation ratio -On load tap changer on tap 1 -On load tap changer on median tap -On load tap changer on tap 16	 kV kV kV	 112.2/27.5 132/27.5 145.2/27.5
Power at primary winding- 4/4 of secondary load	MVA	21.6 @ONAN 30 @ONAF
Duration of admissible short-circuit	seconds	3
Efficiency(not accounting for the power drawn by the secondary)- 4/4 of secondary load		99.78@UPF
Dimensions of complete transformer: L×B×H	M	7.39×6.00×5.99 m
-weight of complete transformer - with oil (approx.) - with inert gas (approx.)	 kg kg	 55000 41600
Handling ,i.e. under hooks height required for travelling	m	10.5
Overall dimension drawing number		T61B10794F
NOISE LEVEL		
Overall noise level at a distance of 1.5 m -at rated voltage and NO load -at 110% of rated voltage and no load -at maximum over-induction	 dB	 72dB@rated voltage 76dB @110%volt 80dB @1.9 Tesla
MISCELLANEOUS INFORMATION		
Thermal time constant -of oil -of transformer	 h	 5.25 0.081
Maximum value of energizing current at no load	A peak	Approx. 5 times rated current
Value of direct and reverse impedance (nor Tap) -as seen from primary terminals -as seen from secondary terminals	 ohm ohm	 72.60 3.15
Degree of protection for auxiliary circuit		IP55
COOLING SYSTEM		
-Number and type of fans -Rated AC voltage -Fan rotating speed -Power per fan -Fan starting current -Total power drawn by cooling equipment -Air output per fan -Total air necessary	 V RPM kW A m^3/h	Total 6 (working) 415 V 1700rpm 0.37kW 0.82A 7000m^3/h 3.0kw approx Adequate air flow provided

b) On load Tap Changer for 132/27.5 kV Traction Transformer, 21.6/30 MVA

INDICATIONS	**UNIT**	**VALUES**
Manufacturer		Easun MR
Place of Manufacturer		India
Standards		IEC 60214
ELECTRICAL CHARACTERSTICS		
Rated frequency	Hz	50
Cooling mode		ONAN/ONAF
Rated insulation voltage	kV	145
Operating voltage	kV	132
Rated power frequency withstand voltage - one	kV r.m.s	275
Rated impulse withstand (1.2/50micro second)	kV peak	650
Rated current	A	600
Short-circuit withstand current - Thermal (2 seconds) - Dynamic	 kA r.m.s kA peak	 8 20
Tap Voltage	V	2200
Number of taps		15(+6,-9)
Mechanical and electrical contact reliability	Operation	50,000
Motor drive		
Technical data - Rated voltage - Rated current	 V DC or AC	 415 (3 ph)
Protection system - Over current protection device - Other protections		 RS 2001
Degree of protection for Auxiliary cubicle		IP55

c) Traction Transformer HT Bushing Technical Data

Type	Oil Impregnated Paper Insulation
Rated Voltage (L-L)	145 kV
Rated Voltage (L-E)	84 kV
Rated Current	800 amp
P.F. Withstand voltage (Dry/Wet)	305/275 kV
Lightning Impulse Withstand Voltage	650 kVp
Total Creepage Distance	4495 mm
Max Angle of mounting	Max. 30 degree from vertical
Cantilever Withstand Load	1600 N
Rated Short Time current Rating	40 kA for 3 sec
Reference Standard	IS:2099, IEC:60137(2008)
Total Oil weight	13 Ltr. $\pm$10%
Total Weight	135 kg. $\pm$10%

d) Traction Transformer LT Bushing Technical Data

Type	Oil Impregnated Paper Insulation
Rated Voltage (L-L)	52 kV
Rated Voltage (L-E)	30 kV
Rated Current	3150 amp
P.F. Withstand voltage (Dry/Wet)	105/95 kV
Lightning Impulse Withstand Voltage	250 kVp
Total Creepage Distance	1810 mm
Max Angle of mounting	Max. 30 degree from vertical
Cantilever Withstand Load	3150 N

Rated Short Time current Rating	40 kA for 3 sec
Reference Standard	IS:2099, IEC:60137(2008)
Total Oil weight	5 Ltr. ±10%
Total Weight	80 kg. ±10%

6.1.2 AUXILIARY TRANSFORMER

a) AUXILIARY MAIN TRANSFORMER 10/15 MVA, 132/33 kV

INDICATIONS	UNIT	VALUES
Manufacturer		CGL
Place of manufacture		Malanpur
standards		IEC 60076
ELECTRICAL CHARACTERISTICS		
Type		Outdoor
coupling		Ynyn0
Rated frequency	Hz	50
Rated secondary power	MVA	10/15 MVA
Cooling mode		ONAN/ONAF
Primary rated insulation voltage	kV	145
Primary operating voltage	kV	132
Rated short duration power frequency withstand voltage for primary winding	kV r.m.s	275
Rated lightning impulse withstand voltage for primary winding	kV peak	650
Rated short duration power frequency withstand voltage for primary neutral	kV r.m.s	185
Rated lightning impulse withstand voltage for primary neutral	kV peak	450
Secondary rated insulation voltage		36
Secondary rated operation voltage under load		33
Rated short duration power frequency withstand voltage for secondary winding		70
Rated lightning impulse withstand voltage for secondary winding		170
Iron losses@ 95 deg. C & rated voltage & frequency	kW	9 kW (max.)
Short-circuit voltage @ 15 MVA - on load tap changer on tap 1	%	14 % (Approx)
On load tap changer on median tap On load tap changer on tap 16	% %	12.5 (IEC Tol.)
Voltage drop at secondary winding 4/4 of secondary load (ONAN mode) 4/4 of secondary load (ONAF mode)	kV	1.25%
Magnetic loading	Tesla	<=1.55
Permissible overload duration with : 10% overload starting from 4/4 , 3/4 , 2/4 , 1/4, rated output 25% overload starting from 4/4 , 3/4 , 2/4 , 1/4, rated output 50% overload starting from 4/4 , 3/4 , 2/4 , 1/4, rated output	 h h h	. 4 2 0.1

	h	0
Copper losses @ 95 deg. C at median tap 4/4 of secondary load (ONAN mode) (@10 MVA) 4/4 of secondary load (ONAF mode) (@15 MVA)	 kW kW	 31.55kw (approx) 71kw (max)
Short circuit current at secondary (@15 MVA) On load tap changer on tap 1 On load tap changer on median tap On load tap changer on tap 16	 kA kA kA	 1.86 2.099 1.963
Transformation ratio On load tap changer on tap 1 On load tap changer on median tap On load tap changer on tap 16		 112.2/33 132/33 145.2/33
Power at primary winding 4/4 of secondary load, power factor 0.95	 MVA	 15
Impedance voltage @ 15MVA	%	12.5
Duration of admissible short-circuit	second	3
Efficiency (not accounting for the power drawn by the secondary) 4/4 of secondary load, power facor 0,95		 99.45
Temperature rise at thermal stabilization at secondary at 4/4 load for copper for magnetic sheets for oil	 ^oC ^oC ^oC	 55 55 50
Temperature allowable occasionally and temporarily without limitations of the unit service life for copper for magnetic sheets for oil	 ^oC ^oC ^oC	 150 150 150
Allowable overload on secondary in permanent duty, Power factor 0,9, ambient temperature 45C	MVA	25% for 2Hrs
CONSTRUCTION CHARACTERISTICS		
Windig type		Disc
On load tap changer type Rating Numbers of taps Voltage corresponding to each tap		 350A +6, -9 2200
Cooling system		
Number and types of fans Rated voltage AC Fan roteting speed Power per fan Fan starting current Total power drawn by cooling equipment Air output per fan Total air necessary	 V rpm kW A kW m^3/h m^3/h	04 400 900 0.5 I(approx) 1.5Kw 10450 29449
NOISE LEVEL		
Overall noise level - at rated voltage and no load - at 110% of rated voltage and no load - at maximum over- indication	 dBA dBA dBA	 69 71 75
MISCELLANEOUS INFORMATION		
- Thermal time constant -of oil -of Transformer	 h h	 4.24(approx) 0.1(approx)

Maximum value of energizing current at no load	A peak	1% of FLC
Value of direct and reverse impedance - As seen from primary terminals - As seen from secondary terminals		 145.2 approx 9.075 approx
Value of zero sequence impedance - As seen from primary terminals - As seen from secondary terminals		80-90% of VE seq. impedance
Degree of protection for auxiliary circuit		IP55

b) On load Tap Changer for 132/33kV Auxiliary Transformer, 10/15 MVA

INDICATIONS	**UNIT**	**VALUES**
Manufacturer		Easun MR
Place of Manufacturer		India
Standards		IEC 60214
ELECTRICAL CHARACTERSTICS		
Rated frequency	Hz	50
Cooling mode		ONAN/ONAF
Rated insulation voltage	kV	145
Operating voltage	kV	132
Rated short duration power frequency withstand voltage	kV	325
Rated lightning impulse withstand voltage	kV	750
Rated current	A	350
Short-circuit withstand current - Thermal (2 seconds) - Dynamic	 kA r.m.s kA peak	 6 15
Tap Voltage		2200
Number of taps		15 (+6,-9)
Mechanical and electrical contact reliability		50,000
Technical data - Rated voltage - Rated current	 V DC or AC	 110/220(1Ph)/415 (3 ph)
Protection system - Over current protection device - Other protections		 RS 2001
Degree of protection for Auxiliary cubicle		IP55

c) Auxiliary Transformer HT Bushing Technical Data

Type	Oil Impregnated Paper Insulation
Rated Voltage (L-L)	145 kV
Rated Voltage (L-E)	84 kV
Rated Current	800 amp
P.F. Withstand voltage (Dry/Wet)	305/275 kV
Lightning Impulse Withstand Voltage	650 kVp
Total Creepage Distance	4495 mm (31mm/kV)
Max Angle of mounting	Max. 30 degree from vertical
Cantilever Withstand Load	1600 N
Rated Short Time current Rating	40 kA for 3 sec
Reference Standard	IS:2099, IEC:60137(2008)
Total Oil weight	13 Ltr. $\pm$10%
Total Weight	135 kg. $\pm$10%

d) Auxiliary Transformer LT Bushing Technical Data

Bushing Conforms to	IS: 3347-1982
Porcelain Conforms to	IS: 8603
Insulation Level as per	IS: 20099-1986
Rated Voltage (L-L)	36 kV
Rated Current	1000 amps
P.F. Withstand voltage (Dry/Wet)	70 kV (rms)
Dry Lightning Impulse Withstand Voltage	170 kV(peak)
Creepage Distance	1115 mm (31 mm/kV)
Total Weight	18 kg. (Approx)

6.2 TESTING

6.2.1 OIL TESTS-

Relevant standards applicable for oil.

PURPOSE

a) BDV- To check the di-electric strength of oil.
b) PPM- To check the moisture content in oil
c) Tan delta-To check tan delta of oil,

PROCEDURE

a) BDV- A sample of oil has to be taken from the sampling valve of the transformer under test. The oil has to be put in the BDV container & the distance between the 2 electrodes must be set to 2.5mm.

b) PPM- A sample of oil has to be taken from the sampling valve of the transformer under test. Moisturemeter is used to measurement water content in oil. It uses the Carl Fischer titration method.1ml of oil has to be injected in the meter.

Acceptance Criteria: 60kV Minimum for BDV of oil.
15 ppm maximum for oil

This gas chromatography test for Dissolved Gas Analysis (DGA) shall be conducted before and after temperature rise test and before and after dielectric tests.

6.2.2 MEASURMENT OF CAPACITANCE AND TAN DELTA OF WINDING

Reference: IS 2026 (1) Cl.10.1.3

1. Top oil temperature of transformer is measured using thermometer.
2. Capacitance and insulation power factor (tan delta) shall be measured by bridge method at specified kV and rated frequency.
3. The bridge gives direct readings of capacitance and insulation power factor (tan-delta).
4. Measurement shall be made for windings to ground and between windings.

Purpose:

1. To check the tan delta and capacitance of the transformer windings.
2. For comparison with field measurements in order to assess the probable condition of the insulation when good judgment is used.

Methods:

Capacitance and tan $ is measured by “DOBLE/OMNICRON INSTRUMENTS” which directly give capacitance and tan delta with voltage range from 0.5 to 12 kV anf frequency of 50 Hz/60 Hz.
Capacitance and Insulation power-factor (Tan $) measurements are made of winding to ground, between windings.

Acceptance criteria:

Capacitance: Record purpose only.

Tan delta of winding @20^0 C= Tan Delta @Ambient temp/K

Where, K = 0.6428xe $^{(0.0222xAmb\ temp)}$

Instrument used:

1. Capacitance and tan delta measurement kit.
2. RTD's with temperature scanner for temperature measurement.

6.2.3 MAGNETIC BALANCE TEST

1. This test is preformed either on HV or LV windings.
2. Ensure no DC voltage applied on winding and core before this test.
3. A suitable voltage (250V or 400V) is given to one phase and respective voltage measured between other two phases.
4. When supply is given to an extreme phase the center phase should read 60% to 80% of the supplied voltage, and the rest on the other extreme phase.
5. When the center phase is supplied the extreme phases should read nearly 50% of the supplied voltage.

Acceptance Criteria:

1. There should not be voltage drop to zero volt in any phase.

For Star connection winding:

U-N	V-N	W-N
*V	V	V
V	*V	V
V	V	*V

For Delta connection winding:

U-V	V-W	W-U
*V	V	V
V	*V	V
V	V	*V

(*V) is the applied voltage and (V) is measured voltage

6.2.4 MEASUREMENT OF INSULATION RESISTANCE

Reference: IS 2026 (1) CI.10.1.3 or CBIP

1. Insulation resistance between windings and between winding to earth shall be measured with a 5kV Insulation tester.
2. Readings at an interval of 60 sec and 600 sec, shall be taken for the purpose of calculation P.I.

$$P.I. = \frac{IR\ (600SEC)}{IR\ (60\ SEC)} = \frac{IR\ value\ after\ 600\ sec\ of\ switching\ on}{IR\ value\ after\ 60\ sec\ of\ switching\ on}$$

3. These are the reference values for comparison with later measurements in the field. No limitations for the values are given here.

METHOD:

Insulation resistance is measured using a meggar make "megaohmeter" with voltage range 0.5-10.0kV.

PROCEDURE:

1. Measure top oil and bottom oil temperature for Average oil temp.
2. Connect or short all phase terminals (and neutral if applicable) of each winding (eg HV,LV)of the transformer independently.
3. Connect positive terminal of meggar to winding to be tested with respect to ground or w.r.t other winding to be tested.
4. Apply test voltage by starting the instrument.

5. Measure insulation resistance reading in mega-ohm after 15 sec, 60 sec and 600 sec for polarization index.
6. Insulation Resistance will be measured between
   a) (HV+N)/LV
   b) (HV+N)/(LV+E)
   c) LV/(HV+N+E)

Calculate the polarization index (P.I) which is equal to ratio of insulation resistance after 600sec to insulation resistance after 60 sec. Note that P.I value should be greater than or equal to 1.3.

Acceptance Criteria: For P.I.> =1.3 Min.
Note: National and international standard do not specify accomplice norms for insulation resistance of transformer and reactors.

6.2.5 MEASUREMENT OF VOLTAGE RATIO

Reference: IS 2026 (1) Cl.10.3

1. Percentage Deviation of turns ratio of transformer is directly measured by Eltel ratio three phase meter.
2. Voltage applied by ratio meter having input supply 230V a.c. and output voltage 120V a.c. to each phase of HV, which is measured simultaneously along with voltage induced in the corresponding phase of LV by the ratio meter.
3. The percentage deviation of ratio (ratio error) will be measured by adjusting the null meter to zero.
4. The test is made for all the 3-phases at a time for each tap setting.

Acceptance Criteria: Ratio error should be $\leq$ ($\pm$0.5%) of declared ratio or $\leq \pm$ 1/10 of actual impedance on the principal tapping, whichever is lower.

6.2.6 INDUCED VOLTAGE WITHSTAND TEST WITH PARTIAL DISCHARGE

Porpose:
This test is intended to verify the power frequency voltage withstand strength of the line terminal to earth and other windings and withstand strength between the phases and along the winding under test.

Standard: IEC 60078-3CL 11.3,2013
Procedure:
The test time at full test voltage shall be 30sec for any test frequency up to and including twice the rated frequency. When the test frequency exceeds twice the rated frequency, the test time in seconds of the test shall be:
120 x test frequency
Rated frequency, but not less than 15s
The test shall commence at a voltage not greater than one-third of the specified test value, and the voltage shall be increased to the test value as rapidly as is consistent with measurement.
At the end of the test, the voltage shall be reduced rapidly to less than one third of the test value before switching off.
The test is successful if no collapse of the test voltage occurs.

Instrument used:

1. Analog peak voltmeter/power analyzer.
2. PT for measurement of voltage.
3. PD meter with PD calibrator.

6.2.7 MEASUREMENT OF 1 PHASE MAGNETISING CURRENT

Purpose:
To measure the excitation current at 230 V in order to cross check the result at site before commissioning.

Procedure:
Single phase AC, 50 Hz supply is given to low voltage winding .Other windings are kept open. Excitation current is measured of supplied winding.

Instrument used:
1. Digital Multimeter.
2. Digital Clamp –meter.

6.2.8 MEASUREMENT OF WINDING RESISTANCE

Reference: IS 2026 (1) Cl.10.2 or CBIP

1. Average oil temperature of transformer is determined using thermometer (The average oil temperature shall be taken as the mean of Top and Bottom oil temperatures).
2. Measurement of winding resistance is made with direct current source (1A or 10A approx), Digital micro-ohm meter and readings will also be obtained directly by digital micro-ohm meter.
3. Cold winding resistance measurements are then converted to a standard reference temperature of 75^{o} C by the following formula :-
   R(75) = R(t)* (235 + 75) / (235 + t), where R(t) is measured per phase resistance & t is average oil temperature.
4. Resistance measurements are of fundamental importance for the purpose of calculation of I^2R component of load loss, for calculation of winding temperature during temperature rise test and as a base data for assessing possible damage in the field.

Calculation of full winding resistance (FWR):
In case of star connected 3 phase winding
Ru,Rv,Rw = Phase resistance of each phase in ohms.
FWR(R)=Ru+Rv+Rw in ohms.

Temperature correction for resistance:
The winding resistance measurement is made at a temperature r_1 and the measured value is R. Let r_1 is the reference temperature and R has to be corrected to r_1 by using the formula:

$$R(r_m)=R\{(235+r_m)/(235+r_1)\} \quad \text{(ohm)}$$

Acceptance Criteria: Resistance value will be measured for calculating Load Loss.

Standard: IEC-60076-1, CL 10.2

Instrument used:
1. Digital winding resistance meter for resistance measurement
2. RTD's with temperature scanner for temperature measurement.

6.3 RELAY TESTING

In NMRC premises 2 types of relay have installed, SIPROTEC and REYROLLE. SIPROTEC relays run on DIGSI software and REYROLLE type relays run on 'ReyDisp manager'. Testing Performa is attached here.

ANNEXURE-(A)

RELAY TEST REPORT			**NMRC**
Equipment	RELAY 7SD8011	Date	
Project	NE-01	Sheet	
Location & Designation		Panel Ref	

1: Measured Value
Inject current in the relay as per the table below. Observe the reading on the relay display, in primary values

Relay	Phase	Current Injected	Primary Current Display On Relay(A)			
			Ia	Ib	Ic	3Io
Ring 1						
Ring 2						

2. Pickup Settings: Static: Dynamic:

Pickup	Ring 1 (Master) (mA)			Ring 2 (Slave) (mA)		
	R	Y	B	R	Y	B
Phase						
Static						
Dynamic						

3: Line Differential Dynamic **Setting:**

Feeder	Phase	Current (In mA)	Phase Angle Degree	Frequency In (Hertz)	Tripping Time
Ring 1	R				
	Y				
	B				
Ring2	R				
	Y				
	B				

Feeder	Phase	Current (In mA)	Phase Angle Degree	Frequency In (Hertz)	Tripping Time
Ring 1	R				
	Y				
	B				
Ring2	R				

	Y				
	B				

Inter tripping check and found ok. : YES/NO
Communication between relay is check and found healthy: YES/NO

4: Line Differential Static: **Setting: 90%**

Feeder	Phase	Current (In mA)	Phase Angle Degree	Frequency In (Hertz)	Tripping Time
Ring 1	R				
	Y				
	B				
Ring2	R				
	Y				
	B				

Feeder	Phase	Current (In mA)	Phase Angle Degree	Frequency In (Hertz)	Tripping Time
Ring 1	R				
	Y				
	B				
Ring2	R				
	Y				
	B				

Inter tripping check and found ok. : YES/NO
Communication between relay is check and found healthy: YES/NO

5. Slope Test:

Feeder	Phase	Current (In mA)		Angle In Degree	I Diff. In Percent		I Restrain In Percent		Slop %
		Gradually ramping up from 1A to tripping value	Gradually ramping up from 1A to tripping value		ramp up	Ramp down	Ramp up	Ramp down	
Ring 1	R								
Ring2	R								
Ring1	B								
Ring2	B								
Ring1	Y								
Ring2	Y								

6. Stability Test:

Phase	Current injected (In Amp)		0-180 degree		0-0 degree		Trip
	Ring1	Ring2	I diff	I reset	I diff	I reset	

R							
Y							
B							
R							
Y							
B							
Current injection with 0-180 degree angle						Result:	
Current injection with0-0 degree angle						Result	

ANNEXURE- (B)

RELAY TEST REPORT			**NMRC**
Equipment	RELAY 7SR11	Date	
Project	NE-01	Sheet	
Location & Designation		Panel Ref	

Settings

CT rated primary current	:	
CT rated secondary current	:	
Rated primary voltage (L-L)	:	
Rated secondary voltage (L-L)	:	

1. Measured value Test:

Inject current in the relay as per the table below. Observe the reading on the relay display, in primary values

Phase	Current Injected Amp	Primary Current Displayed on Relay In Amp			
		IL1	IL2	IL3	3Io
L1-E					
L2-E					
L3-E					
L1-L2-L3					

2. Over Current Pickup Test (50-1):

Sr. no.	Phase	Setting in Amp	Pickup in Amp
1	R		
2	Y		
3	B		
4	RYB		

3. Over Current:

DMT (50-1) Over Current:

Setting : Delay:

Phase	Current Injected (A)	Current Angle in Degree	Tripping Time Mill Sec.
R-Y			
Y-B			
B-R			
R-Y-B			

4. Over Current Pickup Test (50-2):

S.No	Phase	Setting in Amp	Pickup in Amp
1			
2			
3			
4			

DMT (50-2) Over-current
setting: **Delay**:

Phase	Current Injected (A)	Current Angle in Degree	Tripping Time Mill Sec.
R-Y			
Y-B			
B-R			
R-Y-B			

IDMT (51-1) Over-current:

Setting **TMS**:

Phase	Current Injected (A)	Current Angle in Degree	Calculated Operating Time	Tripping Time Mill Sec.
R-Y				
Y-B				
B-R				
R-Y-B				

5. Earth fault Pickup Test(50G-1) :

S.No.	Phase	Setting In Amp	Pick up I n Amp
1			
2			
3			

6. Earth Fault :

DMT (50G-1) Earth Fault:

Setting:

Phase	Current Injected (A)	Current Angle in Degree	Tripping Time Mill Sec.
R-E			
Y-E			
B-E			

IDMT (51G-1) Earth Fault :

Setting: **TMS**:

Phase	Current Injected (A)	Current Angle in Degree	Calculate Operating Time	Tripping Time
R-E				
Y-E				
B-E				

7. Harmonics Blocking Testing

Setting:

Phase	Harmonic Trip Release	
	Calculated (mA)	Measured Value (mA)
R-N		
Y-N		
B-N		

8. Total Operating Time (Relay And Circuit Breaker) (Time Delay At 0.0 Sec):

Protection	Inject Value (A)			Total Fault Clearance Time(ms)		
	R	Y	B	Relay Time	CB Open Time	Total Time
Over Current						
Earth Fault						

9. Other Checks:

Breaker Tripping	
All LED Indicator	
Final Setting Downloaded To Relay After Test	
ALL Binary Input And Output Test	

ANNEXURE- (C)

RELAY TEST REPORT			**NMRC**
Equipment	RELAY 7SR12	Date	
Project	NE-01	Sheet	
Location & Designation		Panel Ref	

Settings

CT rated primary current		
CT rated secondary current		
Rated primary voltage (L-L)		
Rated secondary voltage (L-L)		

1. Measured value Test:

Inject current in the relay as per the table below. Observe the reading on the relay display, in primary values

Phase	Current Injected Amp	Primary Current Displayed on Relay In Amp			
		IL1	IL2	IL3	3I0
L1-E					
L2-E					
L3-E					
L1-L2-L3					

Voltage Measurement:-

Phase	Voltage Injected	Primary Voltage Displayed on Relay			
		V a	V b	V c	V n
Van					
Vbn					
Vcn					
Van-bn-cn					

2. Over Current Pickup Test :

S.No.	Phase	Setting in Amp	Pickup in Amp
1	R		
2	Y		
3	B		
4	RYB		

3. Over Current:

Setting: **Delay:** **Direction: Forward**

Phase	Current (A)	Current Angle in Degree	Theoretical operating region	Measured Operating region	Tripping Time mili sec.
R-Y					
Y-B					
B-R					
R-Y-B					

Setting: **Delay:** **Direction: Reverse**

Phase	Current (A)	Current Angle in Degree	Theoretical operating region	Measured Operating region	Tripping Time mili sec.
R-Y					
Y-B					
B-R					
R-Y-B					

4. Earth Fault Pickup Test :

S.No	Phase	Setting in Amp	Pickup in Amp
1	R		
2	Y		
3	B		

5. Earth Fault:

Setting: **Delay** **Direction: Forward**

Phase	Current Injected (A)	Current Angle in Degree	Theoretical operating region	Measured Operating region	Tripping Time Mill Sec.
R-E					
Y-E					
B-E					

Setting: **Delay** **Direction: Reverse**

Phase	Current Injected (A)	Current Angle in Degree	Theoretical operating region	Measured Operating region	Tripping Time Mill Sec.
R-E					
Y-E					
B-E					

6. Harmonics Blocking Testing

Setting:

Phase	Harmonic Trip Release	
	Calculated (mA)	Measured Value (mA)
R-N		
Y-N		
B-N		

7. Total Operating Time (Relay And Circuit Breaker) (Time Delay At 0.0 Sec):

Protection	Inject Value (A)			Total Fault Clearance Time(ms)		
	R	Y	B	Relay Time	CB Open Time	Total Time
Over Current						
Earth Fault						

8. Other Checks:

Breaker Tripping	
All LED Indicator	
Final Setting Downloaded To Relay After Test	
ALL Binary Input And Output Test	

ANNEXURE- (D)

RELAY TEST REPORT			**NMRC**
Equipment	RELAY 7ST61	Date	
Project		Sheet	
Location & Designation		Panel Ref	

Parameter	Full scale Ratio	Selected at site
CT Ratio		
PT Ratio		
CTR/PTR		

1. MEASURED VALUE TEST:

a) **Current Measurement**: Inject current in the relay as per the table below. Observe the reading on the relay display.

Phase injected	Current injected	Primary current read on relay display In A
Ph-E		

b) **Voltage Measurement**:

Phase Voltage	Voltage applied (Volts)	Primary Voltage read on relay display in (KV)
Ph-E		

2. Distance protection Setting:

Parameter	Zone-1	Zone-2	Fault Locator
Line length (Km)			
Impedance(Z)			
Reactance(X)			
Resistance(R)			
Line Angle			
Load Encroachment Angle			

3. ZONE REACH TEST

A) TESTING of Zone accuracy for different impedance of fault. Ph-E fault. (MTR operation to be tested)

B) TRIPPING at 95% of set value

Protection	Injected value			Total fault Clearance Time			
	R	X	Z	Relay time	MTR time	CB time	Total time
ZONE-2							
ZONE-1							

C) Computer generate zone wise Distance test report Attached- Yes/No

D) Computer generate zone wise WPC test report attached - Yes/No

E) SELECTION WISE TESTING OF FAULT LOCATOR

Value of reactance in Ohms	Fault Section	Distance(km)

4. ARC (Auto Recloser) Testing

Setting:

Parameter	setting
No. Of Reclose	
Dead Time	
Reclaim time	

Test Results

Protection Operated	Dead Time(Sec)	Reclaim Time(Sec)	AR Successful Yes/No
NA			
NA			
NA			

5. EMERGENCY BACKUP OVER CURRENT PROTECTION

Setting

Description	Settings
50 Emerg O/C	
50 Emerg Delay	

Over Current DMT 50-1

Phase	Trip Current (A)	Trip Time (ms) (1.1* I set)	Trip Timr (ms) (2* I Set)	Trip Time (ms) (5* I Set)

Fault Current	Relay Trip Time(ms)	MTR Operating Time(ms)	CB Operating Time (ms)	Total Operating Time(ms)
2* I Set				

Over Current IDMT 51:

Phase	Setting (Iset)	Operating Time(msec)					
		2* Iset		5* Iset		10* Iset	
		Calculated	Actual	Calculated	Actual	Calculated	Actual

Other Checks

All Binary Input as per Drawing		
All Binary Outputs as per Drawing		
All LED indicator		
Tripping of CB/Lockout Relay(86)		
Final Setting download to relay after test		
Relay found healthy		

ANNEXURE- (E)

RELAY TEST REPORT			NMRC
Equipment	RELAY 7ST63	Date	
Project		Sheet	
Location & Designation		Panel Ref	

Parameter	Full scale Ratio	Selected at site
CT Ratio		
PT Ratio		
CTR/PTR		

1. MEASURED VALUE TEST:

c) **Current Measurement**: Inject current in the relay as per the table below. Observe the reading on the relay display.

Phase injected	Current injected	Primary current read on relay display In A
Ph-E		

b)Voltage Measurement:

Phase Voltage	Voltage applied (Volts)	Primary Voltage read on relay display in (KV)
Ph-E		

2. Distance protection Setting:

Parameter	Zone-1	Zone-2	Fault Locator
Line length (Km)			
Impedance(Z)			
Reactance(X)			
Resistance(R)			
Line Angle			
Load Encroachment Angle			

3. ZONE REACH TEST

A) TESTING of Zone accuracy for different impedance of fault .Ph-E fault. (MTR operation to be tested)

B) TRIPPING at 95% of set value

Protection	Injected value			Total fault Clearance Time			
	R	X	Z	Relay time	MTR time	CB time	Total time
ZONE-2							
ZONE-1							

C) Computer generate zone wise Distance test report Attached- Yes/No

D) Computer generate zone wise WPC test report attached - Yes/No

E) SELECTION WISE TESTING OF FAULT LOCATOR

Value of reactance in Ohms	Fault Section	Distance(km)

4. FUSE FAIL:

Settings:

VT fuse fail alarm generated and verified – Yes/No

Following cases were checked for PT fuse fail function block distance protection after 10 sec.

Case 1: Normal Condition

Voltage injected(V)	Current injected(A)	Result

Case 2: No volt condition (Only current injected)

Voltage injected(V)	Current injected(A)	Result

Case 3: No volt condition created after Time Delay setting of FFM condition

Voltage injected(V)	Current injected(A)	Result

Case 4: Dist Protection status after FFM activated.

Voltage injected(V)	Current injected(A)	Result

5. ARC (Auto Recloser) Testing

Setting:

Parameter	setting
No. Of Reclose	
Dead Time	
Reclaim time	

Test Results

Protection Operated	Dead Time(Sec)	Reclaim Time(Sec)	AR Successful Yes/No
Distance Z1			
Distance Z1			
Distance Z2			

6. EMERGENCY BACKUP OVER CURRENT PROTECTION

Setting

Description	Settings
50 Emerg O/C	
50 Emerg Delay	

Over Current DMT 50-1

Phase	Trip Current (A)	Trip Time (ms) (1.1* I set)	Trip Timr (ms) (2* I Set)	Trip Time (ms) (5* I Set)

Fault Current	Relay Trip Time(ms)	MTR Operating Time(ms)	CB Operating Time (ms)	Total Operating Time(ms)
2* I Set				

Over Current IDMT 51:

Phase	Setting (Iset)	Operating Time(msec)					
		2* Iset		5* Iset		10* Iset	
		Calculated	Actual	Calculated	Actual	Calculated	Actual

7. Other Checks

All Binary Input as per Drawing		
All Binary Outputs as per Drawing		
All LED indicator		
Tripping of CB/Lockout Relay(86)		
Final Setting download to relay after test		
Realy found healthy		

ANNEXURE- (F)

RELAY TEST REPORT			NMRC
Equipment	RELAY 7SJ8011	Date	
Relay Sr. No.		Sheet	
Location & Designation		Panel Ref	

DETAILS

Description	Full Scale Ratio	Selected CT Ratio
CT ratio SBEF		

PROTECTION SETTING

Description	Setting
51N Pickup value	
51N Trip dial	

1. Measured Value Test

a) Current measurement: inject current in the relay as per the table below, observe the reading on the relay display

Phase Injected	Current Injected A	Primary Current Read on relay display in A

2. 50N SBEF PROTECTION

PHASE	SETTING ISET	OPERATING TIME (msec)					
		2 x Iset		5 x Iset		10 x Iset	
		Calculated	Actual	Calculated	Actual	Calculated	Actual

3. OPRATING TIME OF RELAY, MTR AND CIRCUIT BREAKER

All Binary Inputs tested by HARDWARE TEST			
All Binary OUTputs tested by HARDWARE TEST			
All LED Indicators			
Tripping of master Relay 86 on Trip checked			
Final setting downloaded to relay after test			

ANNEXURE- (G)

RELAY TEST REPORT			NMRC
Equipment	RELAY 7SJ6471	Date	
Project		Relay Sr No	
Location & Designation		Panel Ref	

Parameter	Full Scale Ratio	Selected
CT Ratio		

PROTECTION SETTING

Description	Setting		
	Direction	Angle(Dir.)	Pick UP Setting
51-1 Pickup	NON DIRECTIONAL		
51-1 Time Dial			
50-1 Pickup	NON DIRECTIONAL		
50-1 Time Delay			
50-2 Pickup	NON DIRECTIONAL		
50-2 Time Delay			
51-N Pickup	NON DIRECTIONAL		
51-N Time Delay			
50-N Pickup	NON DIRECTIONAL		
50-N Time Delay			

1. MEASURED VALUE TEST

1.1 CURRENT

PHASE INJECTED	Current injected (Amps)		Current Displayed in Relay (Amp/Angle)			
	Amp	Angle	IR	IY	IB	3I0
R						
Y						
B						
R-Y-B						

1.2 VOLTAGE

PHASE APPLIED	VOLTAGE APPLIED(VOLTS)	VOLTAGE DISPLAYED IN RELAY(KV)						
		VA	VB	VC	VAB	VBC	VCA	3VO
R-N								
Y								
B								
RYB								

2. Overcurrent Protection Testing

2.1 Over Current Idmt (51)

Phase Applied	Setting (Iset)	2 x Iset		5 x Iset		10 x Iset	
		Calculated	Actual	Calculated	Actual	Calculated	Actual
R							
Y							
B							
RYB							

2.2 OVER CURRENT DMT 50-1 (1st Stage)

PHASE	CURRENT SETTING	PICKUP VALUE	OPERATING TIME in msec		
			1.1 x Iset	2 x Iset	5 x Iset

	(Iset)		CALCULATED	ACTUAL	CALCULATED	ACTUAL	CALCULATED	ACTUAL
R								
Y								
B								
RYB								

2.3 OVER CURRENT DMT 50-2 (2nd Stage)

Phase	Current Setting (Iset)	Pickup Value	OPERATING TIME in msec					
			1.1 x Iset		2 x Iset		5 x Iset	
			Calculated	Actual	Calculated	Actual	Calculated	Actual
R								
Y								
B								
RYB								

3. Earth Fault Protection Testing

3.1 Earth Fault IDMT (51n)

Phase	Current Setting (Iset)	Operating Time in msec					
		2 x Iset		5 x Iset		10 x Iset	
		Calculated	Actual	Calculated	Actual	Calculated	Actual
R-N							
Y-N							
B-N							

3.2 Earth Fault DMT (50n)

Phase	Setting (Iset)	Pickup Value	Injected Angle	Operating Time in msec					
				1.1 x Iset		2 x Iset		5 x Iset	
				Calculated	Actual	Calculated	Actual	Calculated	Actual
R-N									
Y-N									
B-N									

4. Oprating Time Of Relay, MTR and Circuit Breaker

Protection	Injected Value A			Total fault clearance Time ms			
	R	Y	B	RELAY TIME	MTR Time	CB Open Time	Total Time
Over Current I>>							
Earth Fault							

5. Over Voltage And Under Voltage Protection

Description	Setting
59-1 PICKUP	
59-1 TIME DELAY	
27-1 PICKUP	
27-1 TIME DELAY	

5.1 Over Voltage Protection

PHASE	PICKUP (V)	TRIP TIME (s) (1.1*V set) s
R-Y-B		

5.2 Under Voltage Protection

PHASE	PICKUP (V)	TRIP TIME (ms) (1.1*V set) ms
R-Y-B		

6. HARMONIC BLOCKING TESTING

PHASE	Harmonic Trip Release		
	Calculated mA	Static value mA	Dyanamic value mA
R-N			
Y-N			
B-N			

7. OTHER CHECKS

All Binary Inputs tested by HARDWARE TEST			
All Binary Outputs tested by HARDWARE TEST			
All LED Indicators			
Tripping of master Relay 86 on Trip checked			
Final setting downloaded to relay after test			

ANNEXURE- (H)

RELAY TEST REPORT			**NMRC**
Equipment	RELAY 7SD52	Date	
Project		Relay Sr No	
Location & Designation		Panel Ref	

Parameter	Full Scale Ratio	Selected at site
CT Ratio		

CT Rated Primary Current UPPTCL Side :
CT Rated Secondary Current :
CT Rated Primary Current UPPTCL Side :
CT Rated Secondary Current :

1. **<u>MEASURED VALUE TEST</u>:**

a) Current testing: Inject current in the relay as per the table below. Observe the reading on the relay display, in primary values.

PHASE INJECTED	Current injected (Amps)	Primary Current read on Relay Display (Amp)			
		IR	IY	IB	3I0
R					
Y					
B					
R-Y-B					

b) Voltage Testing:

PHASE APPLIED	VOLTAGE APPLIED(VOLTS)	Primary Current read on Relay Display (kV)			
	Phase Value	V_{RY}	V_{YB}	V_{BR}	3VO
RYB					

2. **LINE DIFFERENTIAL PROTECTION SETTING:**

Differential Settings:

Parameter	Description	Setting
1210	87-1 Pickup	
1213	87-1 value under switch on condition	
1233	87-2 Pickup	
1235	87-2 value under switch on condition	

3. **Differential Pick-up Values as Observations:**

Phases	Diff pick-up (Primary value in A)	Diff pick-up (Secondary value in A)
R		
Y		
B		

4. STABILITY & DIFFERENTIAL CHECK:

Phase	Current injected Amp		Idiff & Istab (%)	
	UPPTCL	NMRC	Idiff	Irest
R				
Y				
B				
Current injection with 0-180 degree angle			Result :	

Phase	Current injected Amp		Idiff & Istab (%)	
	UPPTCL	NMRC	Idiff	Irest
R				
Y				
B				
Current injection with 0-0 degree angle			Result :	
Trip Time =				

5. SLOPE TEST:

a. In Line Differential Curve 45 degree angle curves.
b. Side 1 Nominal Current and side 2 gradually ramped down and ramped up thereby generating two Idiff and Irest values.

Phases	Gradually ramping up from 1A to tripping value		Gradually ramping down from 1A to tripping value		Slope (%) / Degree Result
	Values before pickup during Ramp up		Values before pickup during Ramp down		
	Idiff	Irest	Idiff	Irest	
R					
Y					
B					

6. Distance Setting:

Parameter	**Value**
Line Length	
Value of Primary Impedance	
Impedance reflected on Secondary	

7. Distance Protection Test:

a) Testing of Zone accuracy for different impedances for each of the category of fault viz. L-G, L-L, & L-L-L fault. (MTR operation to be tested).
b) Tripping at 95% of set value (One shot for each type of fault-3 tripping)

Type of Fault	Value of Impedance in m ohms	Time for Relay Operation in ms	Time for MTR Operation in ms	Time for Circuit Breaker Tripping in ms	Total time for operation in ms
L-G					
L-L					
L-L-L					

SECTION WISE TESTING OF FAULT LOCATOR:

Value of Reactance in m ohms	Fault Section	Distance (km)

8. SOTF Timings:

Enabled with Binary Input (Manual Close).
Seal in Time Set =
Current Setting =

PHASE	Pickup Current (A)	TRIP TIME (ms) (1.1* I set)	TRIP TIME (ms) (2* I set)	TRIP TIME (ms) (5* I set)
R				
Y				
B				
R-Y-B				

Manual close signal initiation with BI, Current and Voltage Checked: OK _____/ NOT OK _____

9. Fuse Fail Monitoring Checks:

Setting:

Min Voltage Threshold V> = 30V Max Current Threshold I< =0.1A V< (3ph) = 5V

Quantity	Set Value			Pickup		
	R - phase	Y- phase	B- phase	R - phase	Y- phase	B- phase
Voltage (V)						
Current (A)						
V< (3ph)						

Blocking of Distance Protection and Directional Earth Fault during VT MCB Trip or Fuse Fail Monitor is checked: OK_____/ NOT OK_____

10. Power Swing Blocking:

Setting:

Blocking: All Zones Block
Tripping: No

Blocking of Distance Protection during PSB Detected is checked: OK_____/ NOT OK_____

OPERATING TIME OF RELAY, MTR and CIRCUIT BREAKER

Protection	Injected Value			Total Fault Clearance Time (ms)			
	R	Y	B	Relay Time	MTR Time	CB Open Time	Total Time
Line Differential							

11. OTHER CHECKS:

All Binary Inputs Tested by " Hardware test"		
All Binary outputs Tested by " Hardware test"		
All LED Indicators.		
Tripping of Master Relay (86) on Trip checked.		
Final Setting downloaded to relay after test		
Relay found healthy		

ANNEXURE- (I)

RELAY TEST REPORT			NMRC
Equipment	RELAY 7UT6331	Date	
Project		Relay Sr No	
Location & Designation		Panel Ref	

DETAILS

DESCRIPTION	FULL SCALE RATIO	SELECTED CT RATIO
CT RATIO HV side		
CT RATIO LV side		
CT RATIO HVREF		
CT RATIO LVREF		
CT RATIO Tank EF		

TRANSFORMER DETAILS

POWER RATING	
VOLTAGE RATIO	
VECTOR GROUP	
% Z IMPEDANCE	

PROTECTION SETTING

DESCRIPTION	SETTING
87-1 Pickup value of Differential Current	
I DIFF> Trip time Delay	
87-2 pickup of high set trip	
I DIFF> Trip time Delay	
HV REF pickup	
HV REF trip delay	
LV REF pickup	
LV REF trip delay	
Tank EF pickup	
Tank EF trip delay	

1. Measured Value Test:

a) Current measurent: inject current in the relay as per the table below, observe the reading on the relay display

PHASE INJECTED	CURRENT INJECTED AT HV side in Amp	Primary current read on relay display in Amps			
		I_R	I_Y	I_B	$3I_O$
R-N					
Y-N					
B-N					
R-Y-B					

b) LV current Measurment

PHASE INJECTED	CURRENT INJECTED AT HV side in Amp	Primary current read on relay display in Amps			
		I_R	I_Y	I_B	$3I_O$
R-N					
Y-N					
B-N					
R-Y-B					

2. PICKUP VALUE OF HV DIFFERENTIAL

Fault Type	Expected Trip in Amps	Calculated pickup in mA	Actual pickup in mA
L1-E	I diff + Errors		
L2-E	I diff + Errors		
L3-E	I diff + Errors		
L1-L2-L3	I diff + Errors		

3. PICKUP VALUE OF HV DIFFERENTIAL

Fault Type	Expected Trip in Amps	Calculated pickup in mA	Actual pickup in mA
L1-E			
L2-E			
L3-E			
L1-L2-L3			

4. STABILITY CHECK:

PHASE	Current Injected amp		Angle 0-180		Angle 0-0		Trip Time ms
	HV	LV	I diff	Istab	I diff	Istab	
R							
Y							
B							
RYB							

5. SLOP TEST

1st slope

a. In..... differential curve ..... degree angle curves

b. HV nominal current and LV gradually ramped down and ramped up thereby generating two I diff and i rest values

Phases	Gradually ramping down to tripping value		Gradually ramping up to tripping value		Slope (%) Resuls
	Ramp Down		Ramp up		
	Idiff	Irest	Idiff	Irest	
R					
Y					
B					

2nd slpoe

c. In..... differential curve..... degree angle curves

d. HV nominal current and LV gradually ramped down and ramped up thereby generating two I diff and i rest values

Phases	Gradually ramping down to tripping value		Gradually ramping up to tripping value		Slope (%) Resuls
	Ramp Down		Ramp up		
	Idiff	Irest	Idiff	Irest	
R					
Y					
B					

6. HV REF

PHASE	Measurement A		Pickup Current mA		Operating Time in m sec		
	Injected	Relay value	Setting	Actual	1.1 Time	2 Time	5 Time
IX2							

7. LV REF

PHASE	Measurement A		Pickup Current mA		Operating Time in m sec		
	Injected	Relay value	Setting	Actual	1.1 Time	2 Time	5 Time
IX1							

8. TANK EARTH FAULT PROTECTION

PHASE	Measurement A		Pickup Current mA		Operating Time in m sec		
	Injected	Relay value	Setting	Actual	1.1 Time	2 Time	5 Time
IX3							

9. Harmonic Test: 2nd harmonic setting- 15%

Phase	Harmonic trip		
	Calculated mA	Static values mA	Dynamic values mA

5th harmonic setting- 15%

Phase	Harmonic trip		
	Calculated mA	Static values mA	Dynamic values mA

Note- 5th harmonic is tested and kept OFF

10. OPRATING TIME OF RELAY, MTR AND CIRCUIT BREAKER

Protection	Injected Value A			Total fault clearance Time msec			
	R	Y	B	Relay Time	MTR Time	CB open time	Total Time
Diff Protection							
HV REF							
LV REF							
Tank EF							

11. OTHER CHECKS

All Binary Inputs tested by HARDWARE TEST			
All Binary OUTputs tested by HARDWARE TEST			
All LED Indicators			
Tripping of master Relay 86 on Trip checked			
Final setting downloaded to relay after test			

ANNEXURE- (J)

RELAY TEST REPORT			NMRC
Equipment	RELAY 7SJ66	Date	
Project		Relay Sr No	
Location & Designation		Panel Ref	

Parameter	Full Scale Ratio	Selected
CT Ratio		

PROTECTION SETTING

Description	Setting		
	Direction	Angle(Dir.)	Pick UP Setting
51-1 Pickup			
51-1 Time Dial			
50-1 Pickup			
50-1 Time Delay			
50-2 Pickup			
50-2 Time Delay			
51-N Pickup			
51-N Time Delay			
50-N Pickup			
50-N Time Delay			
VDOC			

1. MEASURED VALUE TEST

1.1 CURRENT

PHASE INJECTED	Current injected (Amps)		Current Displayed in Relay (Amp/Angle)			
	Amp	Angle	IR	IY	IB	3I0
Balanced R-E						
Unbalanced R-Y-B						

1.2 VOLTAGE

PHASE APPLIED	VOLTAGE APPLIED(VOLTS)	VOLTAGE DISPLAYED IN RELAY(KV)						
		VA	VB	VC	VAB	VBC	VCA	3V0
R								

2. OVERCURRENT PROTECTION TESTING

OVER CURRENT IDMT (51)

PHASE APPLIED	SETTING (Iset)	2 x Iset		5 x Iset		10 x Iset	
		CALCULATED	ACTUAL	CALCULATED	ACTUAL	CALCULATED	ACTUAL
R							

3. VDOC PROTECTION TESTING

Setting			Pick-Up-Value			Injected Values		Operating Time (ms)	
I pickup	V-1 pickup	V-2 Pickup	I pickup	V-1 Pickup	V-2 Pickup	Voltage (V)	Current (A)	Theoretical	Actual

4. HARMONIC BLOCKING TESTING

PHASE	Harmonic Trip Release		
	Calculated mA	Static value mA	Dynamic value mA
R-N			

5. OPERATING TIME OF RELAY, MTR and Circuit Breaker

Protection	Injected Values			Total Fault Clearance Time (msec)			
	R	Y	B	Relay Time	MTR time	CB Open Time	Total Time
Over current							
Earth Fault	NA	NA	NA	NA	NA	NA	NA
VDOC							

6. BREAKER FAILURE PROTECTION

Pickup setting (A): Delay Setting (s):

Initiation Given Through Testing Kit

Phase	50 BF Actual Pickup Current (A)	50 BF Actual Trip Time @ 2xsetting (msec)
R-E		

7. OVER VOLTAGE AND UNDER VOLTAGE PROTECTION

DESCRIPTION	SETTINGS
59-1 PICKUP	
59-1 TIME DELAY	
27-1 PICKUP	
27-1 TIME DELAY	

7.1 OVER VOLTAG PROTECTION

PHASE	PICKUP (V)	TRIP TIME (s) (1.1*V set) s
R-Y-B		

7.2 UNDER VOLTAGE PROTECTION

PHASE	PICKUP (V)	TRIP TIME (ms) (1.1*V set) ms
R-Y-B		

8. OTHER CHECKS

All Binary Inputs tested by HARDWARE TEST			
All Binary Outputs tested by HARDWARE TEST			
All LED Indicators			
Tripping of master Relay 86 on Trip checked			
Final setting downloaded to relay after test			

ANNEXURE- (K)

RELAY TEST REPORT			NMRC
Equipment	RELAY 7SD5/87	Date	
Project		Relay Sr No	
Location & Designation		Panel Ref	

Parameter	Full Scale Ratio	Selected at site
CT Ratio		

CT Rated Primary Current UPPTCL Side :
CT Rated Secondary Current :
CT Rated Primary Current UPPTCL Side :
CT Rated Secondary Current :

1. **MEASURED VALUE TEST:**

a) Current testing: Inject current in the relay as per the table below. Observe the reading on the relay display, in primary values.

PHASE INJECTED	Current injected (Amps)	Primary Current read on Relay Display (Amp)			
		IR	IY	IB	3I0
R					
Y					
B					
R-Y-B					

b) Voltage Testing:

PHASE APPLIED	VOLTAGE APPLIED(VOLTS)	Primary Current read on Relay Display (kV)			
	Phase Value	V_{RY}	V_{YB}	V_{BR}	3Vo
RYB					

2. **LINE DIFFERENTIAL PROTECTION SETTING:**

Differential Settings:

Parameter	Description	Setting
1210	87-1 Pickup	
1213	87-1 value under switch on condition	
1233	87-2 Pickup	
1235	87-2 value under switch on condition	

3. **Differential Pick-up Values as Observations:**

Phases	Diff pick-up (Primary value in A)	Diff pick-up (Secondary value in A)
R		
Y		
B		

4. STABILITY & DIFFERENTIAL CHECK:

Phase	**Current injected Amp**		**Idiff & Istab (%)**	
	UPPTCL	**NMRC**	**Idiff**	**Irest**
R				
Y				
B				
Current injection with 0-180 degree angle			Result :	

Phase	**Current injected Amp**		**Idiff & Istab (%)**	
	UPPTCL	**NMRC**	**Idiff**	**Irest**
R				
Y				
B				
Current injection with 0-0 degree angle			Result :	
Trip Time =				

5. SLOPE TEST:

a. In Line Differential Curve 45 degree angle curves.
b. Side 1 Nominal Current and side 2 gradually ramped down and ramped up thereby generating two Idiff and Irest values.

Phases	Gradually ramping up from 1A to tripping value		Gradually ramping down from 1A to tripping value		Slope (%) / Degree Result
	Values before pickup during Ramp up		Values before pickup during Ramp down		
	Idiff	Irest	Idiff	Irest	
R					
Y					
B					

6. Distance Setting:

Parameter	**Value**
Line Length	
Value of Primary Impedance	
Impedance reflected on Secondary	

7. Distance Protection Test:

a) Testing of Zone accuracy for different impedances for each of the category of fault viz. L-G, L-L, & L-L-L fault. (MTR operation to be tested).
b) Tripping at 95% of set value (One shot for each type of fault-3 tripping)

Type of Fault	**Value of Impedance in m ohms**	**Time for Circuit Breaker Tripping in ms**
L-G		
L-L		
L-L-L		

c) NO Trip Values to be measured with Arc impedance = 0.

Type of Fault	**NO Trip Values for values close to origin on R-X plane**	
	m ohms	Corresponding distance (To be calculated)
L-G		
L-L		
L-L-L		

Result:

All Binary Inputs Tested by " Hardware test"	
All Binary outputs Tested by " Hardware test"	
All LED Indicators.	
Tripping of Master Relay (86) on Trip checked.	
Tripping of UPPTCL End Breaker on Trip checked	
Final Setting downloaded to relay after test	
Relay found healthy	

6.3 CALIBRATION

1. 5kV Digital insulation tester with PI, Model No. (5KPI), Make- Motwane

SPECIFICATIONS

Terminal Voltage	
Test Voltage	250V, 500V, 1000V, 2500V, 5000V
Test Voltage Accuracy	±5% of rdg
Short circuit current	1.4mA ± 0.5mA
Programmable Timers	T1 and T2
Insulation Resistance	
Analog Display	1 KΩ to 1 TΩ
Digital Display	(3 Digit Display) 1 KΩ to 1TΩ
Insulation Accuracy	
Up to 1GΩ	All Ranges ± (5% +2 digits)
Over 1 GΩ	5000V ± (5% +0.04% per GΩ) 2500V ± (5%+0.08% per GΩ) 1000V ± (5% +0.2% per GΩ) 500V ± (5% +0.4% per GΩ) 250V ± (5% +0.8% per GΩ)
AC/DC Voltage Measurement	
Range	Up to 600V
Accuracy	±(3% of rdg + 5 digits)
Polarization index (PI)	
Display range	0-99.9
Accuracy	± (5% of reading + 5 digits)
Resolution	0.01
General	
Weight	5.0Kg (Approx) (without Accessories)
Dimensions (HxWxL):	195mmx290mm x360 mm (Approx)

Safety and Standards

- Safety in accordance with: EN61010-1:2001
- EMC in accordance with EN 61326-1:2006
- Type Test in accordance with IS 9223: 1989
- Ingress Protection IP54
- CE&CATIV 600V
- Safety of test lead in accordance with EN61010-031:2002 +A1:2008

2 Capacitance and Tan Delta Bridge Model: MLS-11D

High Voltage Power Supply Model: HLS-12

MEASUREMENTS:

PARAMETER	RANGE	RESOLUTION	ACCURACY
Capacitance	1000 pF – 10000 pF	0.01 pF / 1 pF	± 0.2% of the reading ± 1 pF
Tan Delta	0 to 0.1/ 0.1 to 1	0.00001 / 0.001	± 1% of the reading
Voltage Measurement	0 to 12 kV AC	0.01 kV	± 1% of the reading, ± 1 digit
Current Measurement	0 to 100 mA	1 mA	± 2% of the reading, ± 1 digit
Power Factor	0 to 1	0.01 % (0.0001)	± 0.5% of the reading, ± 0.0002 digit

Technical Specifications:

Input Voltage:	230 V, ± 10%, 50 Hz, Single Phase
Test Voltage:	0 to 12 KV AC
Rated Current:	0 to 100 mA long term
Test Frequency:	Line Frequency 50 Hz
Balancing:	Manual using Null Detector
Voltage Setting:	Variac
Interference Suppression:	µ metal shielding
Test Modes:	Switch for three different types of measurement
UST Mode	Ungrounded Specimen test - 3 combinations This mode is used when the object under test is not grounded This test provides most accurate results
GST Mode	Grounded Specimen test This mode is used when the object under test is permanently grounded This test is used more often in outdoor installations, power systems etc.
GSTg Mode	Grounded specimen test with guard - 3 combinations This mode is used for measuring stray capacitances and separating them from basic measurement in GST mode
Indication:	Two 3½ digit panel meters for voltage and current indications
Standard Capacitor:	In built SF6 Standard Capacitor with Capacitance: 100 pF / 200 pF
Safety Features:	1. Open ground indicating lamp with double grounded connection 2. Zero start control 3. HT cut off on overload 4. HT ON and Supply ON indication 5. All operating controls at earth potential 6. Necessary terminals and sockets for connection between bridge and high voltage power supply

3.
3.
3.

3. Motwane's Primary Current Injection kit, MOT-PIK

MODEL	**MOT-PIK3000**
Output Current	0-3000A
O/P Accuracy	±1.5% of full scale reading ± 2 digits
O/P Resolution	1A
Burden at 100mA	6.67V
Burden	20KVA
Timer	0.0001 to 9999 sec Auto ranging, digital timer
Timer Accuracy	±0.05%±2 counts
Mains Power Supply	230V ac±10%, Single phase, 50/60 Hz
Operation Mode	Motorized
Duty Cycle	10 min On,20 min Off
Display	LED Seven Segment type Digital Display
Indication	Bright LED for Test ON and Power ON Operation
Protection & Safety	Protected by MCB& Fuse Zero Start Interlock Over Current Tripping
Unit	Separate control and loading units
Operating Temperature	0-55^{0}C,5-90% RH Non condensing
Standard Output Cables	720mm^2 (2x1) meters

4. Relay test set, (Secondary Injection Kit), MOT-RTS, Make- Motwane

MODEL	**MOT-RTS200**
Current	0-200A
Selectable Current Ranges	0-1-5-10-25-50-100-200
Burden	600VA
O/P DC Voltage	0-250 V DC
O/P AC Voltage	0-250 V AC
Voltage Accuracy	± 0.5% of rdg
Voltage Resolution	1 V
Current Accuracy	± 0.5% of rdg
Current Resolution	0.1% of full scale
Timer Range	0.0001 to 9999 sec Auto ranging, Tripping with Potential Free Contact
Timer Accuracy	0.05%+1 counts
Mains Supply	230V ac, 50 Hz ± 10%
Operation	Manual
Duty Cycle	30 min ON,10 min OFF
Display	LED
Indication	Bright LED for Test ON and Power ON
Protection & Safety	Cut off toggle switch & Fast blow glass fuse
Operating Temperature	0-55^{0}C,5-90% RH Non condensing
Output Current Leads	PVC insulated 50 sqmm Cu Cable 2x1.5 mtr lug at both ends

5. CTPT TESTER, Model No.- (CTPT-81), Make- UDEY

POWER SUPPLY	230V+/- 10% AC 50 HZ
OUTPUT CURRENT	Excitation characteristic: 0 to 15 Amp
OUTPUT CURRENT	Ratio, Polarity test: 0 to 600 Amp
CT ratio measurement range	5-5000A/5A (5000A/1A)
OUTPUT VOLTAGE	Excitation characteristic: 0 to 1000 Volts
PT ratio measurement range	1-500kV
ACCURACY: RATIO	+/- 0.5% (0.2 reading +0.3% range)
OUTPUT CURRENT Source	0 to 600A (<200A:5 min; 200-400A:5 sec; >400A: 3 sec)
AC HIPOT	0 to 1000 VOLTS AC
DISPLAY	Large LCD (back lit)
DIMENSIONS	LxWxH: 40 x 28 x 34 cm approximately
WEIGHT	20 kg approximately

6. ZXBXZ- 250kVA/250kV AC RESONANT SYSTEM

Purpose- This device is designed for 132kV GIS AC voltage withstand test. It is composed of a frequency conversion control power supply, an excitation transformer, reactors, a capacitor voltage divider. The device has overvoltage, over current, zero start and other protection functions.

SPECIFICATION-

Rated voltage 270kV	meet AC voltage withstand test of GIS, switch and other substation equipment ≤132kV; working frequency 30-300Hz, test voltage ≤ 250kV, test time 15min
Output voltage waveform distortion rate	<1.0%
Allow continuous working time	work for 15 minutes at one time under rated conditions
System quality factor	Q ≥ 30 (f = 45Hz)
Device output waveform	sine wave
Input power	three-phase 380V or single-phase 220V
Frequency adjustment range	30Hz ~ 300Hz
System measurement accuracy	1.5%

7. CABLE FAULT LOCATOR

(i) CABLE FAULT PRE- LOCATOR (TFL 8) M/s TELEMETRICS MAKE

Purpose: The Cable Fault Pre- Locator TFL 8 is used for distance locating.

Technical Specifications

Locating methods:	• Low voltage impulse method • Impulse current method
Sampling frequency:	200MHZ
Gain range:	0-70dB
Low voltage impulse voltage:	30V
Max. resolution:	0.4m
Locating range:	100km
Dead zone:	2m
Battery:	Nickel-metal hydride rechargeable batteries, endurance time over 5 hours
Communication interface:	USB
Power supply:	Input AC220V,50Hz,current 2A,charge for 8 hours
Dim.:	274x218×81mm
Weight:	3.5kgs
Operating Temperature:	-10^{o} - 40^{o}
Humidity:	5-90% RH
Elevation:	<4500m

(ii) SURGE WAVE RECEIVER (Model- SLE 90) M/s TELEMETRICS MAKE

Technical Specifications

Working Channel	Acoustic and Magnetic
Acoustic channel	Broad band Filter: 70 Hz - 3000 Hz
Magnetic channel	9820 Hz +10 Hz Bandwidth Filter
Indication	• Dual LCD bar-graph display to indicate the levels of acoustic and Magnetic channels. • Battery check status • Peak hold signal level bar on LCD
Gain	More than 96 dB for both magnetic and acoustic channels.
Sensitivity	Signal fed 30 mV through 60 dB pad should produce a voltage at least 1.2 V across 500 Ohm resistance connected across the output. Peak value recorded is retained for approx. 2 sec.
Impedance- Input Output	500 Ohms for MIC 500 Ohms for Headphones
Mute Specification	Minimum trigger level for acoustic amplifier: approx 15 micro Volt. - ON time for acoustic amplifier: approx. 200/400 m sec.
Power Supply	8 dry cell batteries of 1.5 V, standard AA size.
Operation Time	More than 15 Hrs. continuous.
Temperature- Operating Storage	0 deg C ~ 50 deg C (-5) deg C ~ 60 deg C
Dimensions	248 (L) x 80 (H) x 190 (D) mm
Weight	1.5 Kg Approx with Batteries
Accessories	Ground Microphone MICS & Headphones & Connecting cords.

(iii) CABLE ROUTE TRACER (CRT 8) M/s TELEMETRICS MAKE

Technical Specifications

(a) Audio Frequency Generator AFG 8

Power Supply	230V AC ±50Hz single phase or External12 Volt DC or internal rechargeable accumulator.
Output Power	1, 2, 4 and 8 watts selectable
Output Frequency	480 Hz, 1450 Hz and 9820 Hz selectable
Impedance Matching	From 0.5 to 1000 Ohms selectable
Indication	Analog meter indication to indicate of transmitted power and charge condition of internal battery ON & Battery Charging
Operating Time	Internal accumulator 1.5 Hrs on 8 Watts Mains and Ext DC power supply no time limit
Dimensions	343 (L) x 132 (H) x 305 (D) mm
Weight	9.5 kg Approx

(b) Audio Frequency Receiver AFR 4

Power Supply	1.5 V x 8 AA size alkaline batteries
Operating Time	8 to 10 hrs without scale illumination
Receiving Frequency	Passive 50 Hz Active-480Hz,1450Hz, 9820Hz selectable
Gain	More than 90 db
Indication	LCD bar-graph display with scale illumination for Signal strength & Battery status.
Dimensions	240 (L) x 110 (H) x 155 (D) mm
Weight	1.35 kg Approx

(c) Universal Search Coil SC 4

Receiving Frequency	50/480 Hz, 1450Hz, 9820Hz selectable
Axis of Coil	Can be Swiveled 45 deg/90 deg
Dimensions	470 (H) x 80 (W) x 207 (D) mm
Weight	0.85 kg Approx

8. Motwane's circuit breaker Timer kit

Technical Specification

Model	**MCBT-P**
Number of Phases	3/4 phases
Breaks per Phase	1
Timer Range	0.1 ms to 9999.9 ms
Resolution	0.1 ms
Accuracy	0.05% ± 1digit
Modes of Operation	C, O, C-O with bounce
Display	4 Line backlight LCD display
PC Interface	USB
Memory	100 Test Results
Printer	Inbuilt Thermal Printer
Mains	85V to 250V, 50 Hz ±5%
Battery	Lead Acid 12V, 7.6Ah
Dimension (LxWxH) mm	383 x 294 x 168
Weight	6.5 Kg

9. Contact resistance meter -200S (MAKE- Motwane)

Purpose- The CRM-200S is specially designed to measure contact resistant of circuit breaker contacts installed in live switchyards of upto 440 kV.

Technical Specifications

POWER	
Mains Power Supply	230V±10%, 50Hz 10Hz Single phase AC supply
Battery Power Supply	12V-7.2 AH. Sealed Rechargeable Lead Acid
Power Consumption	35VA, 6.0 Watt on battery
TEST SPECIFICATION	
Test Current Injection	100A & 200A DC
Test ON Alert	BEEP
MEASUREMENT CATEGORY	
Measurement range	20μΩ, 200μΩ, 2000μΩ & 20mΩ @ 100A 20μΩ, 200μΩ, 2000μΩ & 20mΩ @ 200A
Resolution	1μΩ @ 20μΩ & 200μΩ range 1μΩ @2000μΩ range 0.01mΩ@ 20mΩ range
Accuracy	±2% of reading, ± 5 Digit (For all ranges) (Accuracy is valid from 10% of the range to 95% of the range)
Display	Custom Built 3.5 LCD Display with Backlit
PHYSICAL SPECIFICATIONS	
Dimensions	188 mm (D) X 395mm (W) x 502 mm (L)
Gross Weight	Instrument: 14 Kg Approx
Enclosure Material	Polypropylene (Pelican)
SAFETY	
Directives for CE certification	LVD: 2006/95/EC EMC: 2004/104/EC
Relevant Standard Specification (S)	EN61010-1 EN61326-1

7. Section 7: OTHER CONDITIONS

a) Documents related to the tests

The contractor shall submit the performa of testing/calibration for employer's approval.
These lists shall be extremely detailed and include for each part of testing –
- The operating mode (testing procedure) describing how to proceed to perform properly the test,
- The testing book indicating the expected result of the various tests and provision to indicate the obtained result during the test and to record all observations.

The contractor will have to supply the various certificates and the relevant computation sheets, latest by one month from the date of testing.
Contractor shall submit detail analysis and trend analysis report of transformer on quarterly basis.

b) Testing Conditions

The employer will appoint representative who will be in charge of supervising. All tests will be carried out in co-operation with the Employer or its representative.
All delays which could arise from additional tests required due to defects in testing kits/equipment will not have any financial implication to the employer.

c) Statutory approval

All necessary statutory approvals if any, required to complete the scope of work shall be taken by the contractor. The employer shall facilitate only.

CONFORMITY WITH STATUTORY ACTS, RULES, REGULATIONS, STANDARDS AND SAFETY CODES

All electrical works in connection with installation of electric sub-stations shall be carried out in accordance with the provisions of Indian Electricity Act and Rules, Wherever I.E. rule numbers have been indicated, they are based on I.E. Rules, 1956 amended upto date.

The electrical works shall also conform latest I.E. Rules, BIS/IEC as amended wherever relevant. These additional specifications/ conditions are to be read in conjunction with above and in case of variations; specifications given in the in the contract shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work.

8. Section 8: Draft Contract Agreement

THIS AGREEMENT made on the …….day of …….. 2023 at Noida, District GautamBudh Nagar, Uttar Pradesh Between **Noida Metro Rail Corporation Limited** (Hereafter referred to as "NMRC"), a company incorporated under Companies Act 2013, vide corporate identification Number: U60231UP2014SGC066849 and having its registered office at **Block-III, 3rd Floor, Ganga Shopping Complex, Sector-29, Noida -201301, District Gautam Budh Nagar, Uttar Pradesh, India** *represented by……..of the company, by virtue of his designation and authorization by* ***Shri……., Managing Director, NMRC*** (hereinafter called as the "Purchaser"), which expression shall unless excluded by or repugnant to the context or meaning thereof be deemed to include its successors and permitted assigns) of the one part,

AND

…….. having its registered office at **……**,represented by **……..**(Herein after called the **"Contractor",** which expression shall unless excluded by or repugnant to the context or meaning thereof be deemed to include its successors and permitted assigns) of the other part. WHEREAS the Purchaser desires that the Works known as the **"……..."**should be executed by the Contractor, and has accepted a contract by the Contractor for the execution and completion of these Works.

The Purchaser and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement -

Reference:

(i) Tender No. …… Dated ……..
(ii) Bid Documents duly accepted and submitted by …… dated ……..
(iii) The Bidding Documents which include all the Sections specified below:
   a. Section 1:General Information and Scope
   b. Section 2: Terms of Reference
   c. Section 3:Instructions to Bidders
   d. Section 4: Qualification, Evaluation and Selection Process
   e. Section 5: Special Conditions of Contract (SCC)
   f. Section 6: Technical Specifications
   g. Section 7: Other Conditions
   h. Section 8: Draft Contract Agreement
   i. Section 9: Appendix and Forms of Tender
   j. General Conditions of Contract (GCC)
   k. Safety, Health and Environment Management (SHE)
   l. Amendment/ Modification, if any

(iv) Notice of Award (……) issued by NMRC
(v) Letter of Acceptance of NOA (……) given by …….. to NMRC
(vi) Any other admitted correspondence documents between NMRC and the Bidder.

3. **Duration of Contract**
   The Corporation intends to appoint a Contractor to NMRC for a period of 2 (Two) Years.

4. **Price Schedule**
   NMRC shall consider the following Total Contract Price, as quoted by the Contractor as part of financial bid.

5. The courts at District GautamBudh Nagar, Uttar Pradesh shall have the exclusive jurisdiction to try all disputes arising out of this agreement between the parties.

6. In consideration of the payments to be made by the Purchaser to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Purchaser to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract and Notice of Award issued. “Any conditions, deviation, assumption, exclusion, suggestion of alternative clauses, request of amendments in conditions & specifications of work submitted by bidders along with his Technical Bid or Financial bid, which is different from the Tender Document, Corrigendum, Addendum issued by NMRC any other correspondence in this regard, shall not be treated as a part of the contract Agreement & shall not be binding upon NMRC in anyway whatsoever at any stage of work during execution or thereafter."

7. The Purchaser hereby covenants to pay the Contractor in consideration of the execution and completion of the Works, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract and NOA.

IN WITNESS where of the parties hereto have caused this Agreement to be executed in accordance with the laws of India on the day, month and year specified above.

For and on behalf of the Contractor Signature of the authorized official	For and on behalf of the Purchaser Signature of the authorized official
Name of the official	**Name of the official**
Stamp/Seal of the Contractor	Stamp/Seal of the Purchaser
In the presence of:	In the presence of:
Sign of Witness 1_____	Sign of Witness 1_____
Name_____	Name_____
Address_____	Address_____
Sign of Witness 2_____	Sign of Witness 2_____
Name_____	Name_____
Address_____	Address_____

9. Section 9: Appendix and Forms of Tender

9.1 Appendix 1: Metro Alignment

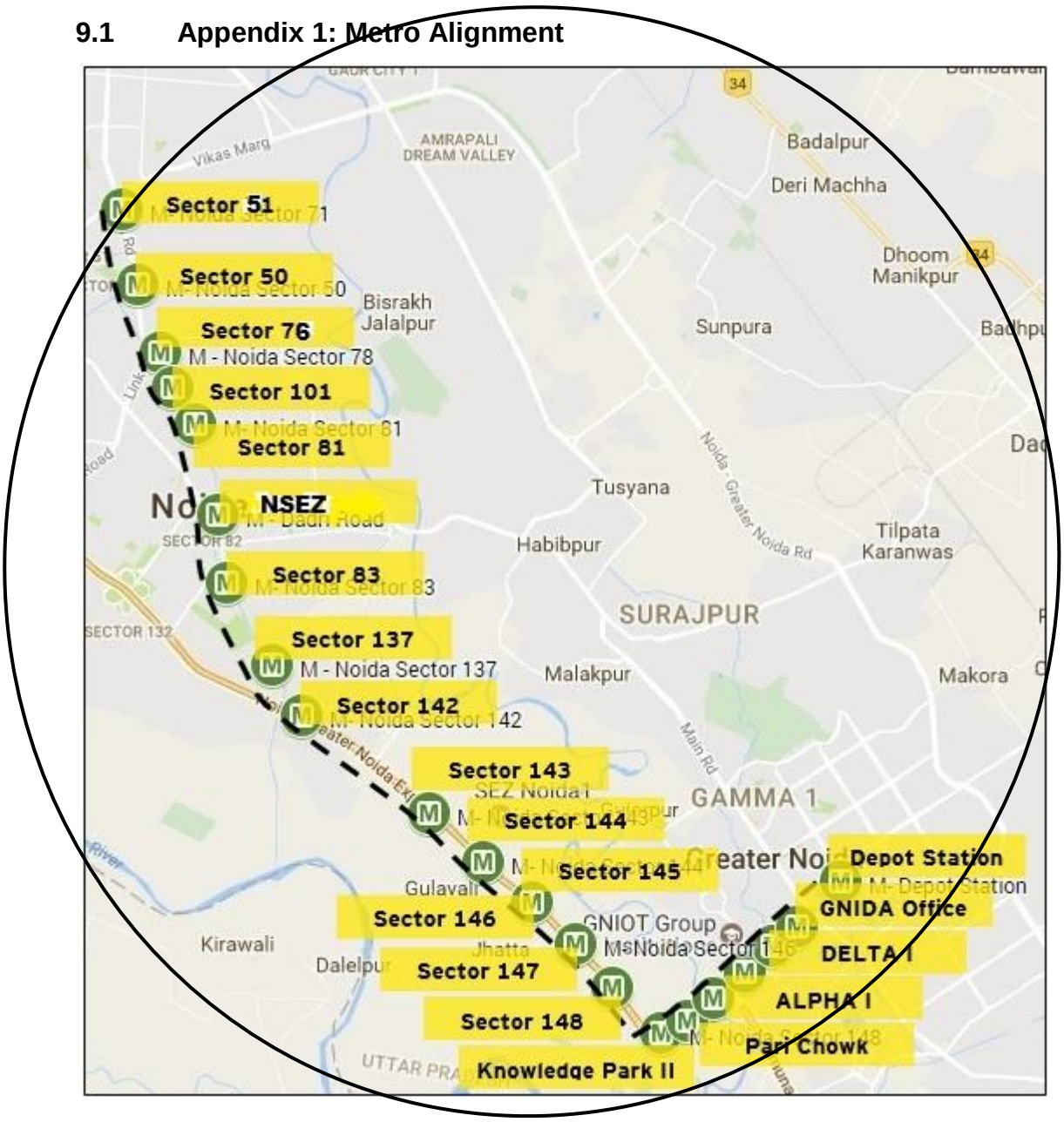

Fig: The commissioned Metro Line

Please Note: The map shown above is indicative (not to scale)

S.NO.	Name of the site
1.	Sector 51 Station
2.	Sector 50 Station
3.	Sector 76 Station
4.	Sector 101 Station
5.	Sector 81 Station
6.	NSEZ Station
7.	Sector 83 Station
8.	Sector 137 Station
9.	Sector 142 Station
10.	Sector 143 Station
11.	Sector 144 Station
12.	Sector 145 Station
13.	Sector 146 Station
14.	Sector 147 Station
15.	Sector 148 Station
16.	Knowledge Park II Station
17.	Pari Chowk Station
18.	ALPHA I Station
19.	DELTA I Station
20.	GNIDA Office Station
21.	Depot Station
22.	Depot

9.2 Forms of Tender

Form 1: Letter of Proposal Submission

[Location, Date]

To

GM/Technical

Noida Metro Rail Corporation (NMRC) Limited

Block-III, 3rd Floor, Ganga Shopping Complex,

Noida -201301,

District GautamBudh Nagar, Uttar Pradesh

Subject: RFP for Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years.

Dear Sir,

We, the undersigned, offer to provide the Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years, in accordance with your RFP Document dated [Insert Date] and our Proposal. We are hereby submitting our Technical and Financial Proposal. We confirm that we have read the RFP Document in totality and abide by all the terms and conditions stated in the document.

We acknowledge that we have

- Studied and analyzed and satisfied ourselves about all the requirement of the tender including but not limited to market and market conditions
- Carefully assessed the commerciality of Project and that we will be fully responsible for all its assessment in this regard.
- Seen / visited / assessed the potential locations and fully understand and comprehend the technical, financial, commercial and investment requirements.

We have filled the complete information correctly in **Form 17.**

We hereby declare that all the information and statements made in this Proposal are true and accept that any misinterpretation contained in it may lead to our disqualification. Our Proposal is binding upon us.

We understand you are not bound to accept any Bid you receive.

_____

Yours Sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name and address of Firm:

Form 2: Firm Details

1.	**Title and name of the Project:** Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years.
2.	State the structure of the Bidder's organization (Bidders to complete/delete as appropriate) Sole Bidder
3.	For Bidders who are individual companies or firms, state the following: Name of Company or firm: …… Legal status: (e.g. incorporated private company, proprietorship, etc.) …… Registered address: …… Year of incorporation…… Principal place of business: …… Contact person: …… Contact person's title: …… Address, telephone, facsimile number and e-mail ID of contact person: …… …… ……..
4.	Employees Provident Fund No. (attach documentary proof) -
5.	Employees State Insurance Acts in India No. (attach documentary proof) -
6.	GST Registration No. (attach documentary proof) -
7.	PAN (attach documentary proof) -

Form 3: Capability Statement

It is Compulsory for the bidder to fill this statement and the bidder must upload those document that support this statement

Tender Reference No : _____

Name of Work : _____

Name of Bidder: _____

S.No.	ELIGIBILITY CRITERIA		(To be filled by the Bidder)
1	The Bidder should be Sole proprietorship/ partnership firm/ public limited company/ private limited company.	Yes/ No	
2	The Bidder should have completed in India during last **7 (Seven) years** period ending last day of month previous to the one in which the bids are invited should be either of the following: 1. One completed work of similar nature of value not less than **Rs. 55.77 Lakh** (Rupees Fifty Five Lakh Seventy Seven Thousand only) or 2. Two completed works of similar nature of value not less than **Rs. 34.86 Lakh** (Rupees Thirty Four Lakh Eighty Six Thousand only) each or 3. Three completed works of similar nature of value not less than **Rs. 27.88 Lakh** (Rupees Twenty Seven Lakh Eighty Eight Thousand only) each **Similar work**" for this contract shall be "Testing and commissioning / maintenance of power transformer and relays feeding 33 KV and above electrical sub station" in NMRC/ any other Metro Organization/ Central govt./ State govt./PSU's/ Private sector companies.	7 Years	

<table>
<tr><th><u>S.No.</u></th><th><u>ELIGIBILITY CRITERIA</u></th><th>(To be filled by the Bidder)</th></tr>
<tr><td>3</td><td>The Bidder should have minimum average annual turnover of Rs. 69.71 Lakh (Rupees Sixty Nine Lakh Seventy One Thousand only) in the last 3 (three) Financial Years (2019-20, 2020-21, 2021-22) preceding the Bid Due Date.
<table>
<tr><td>FY 2019-20</td><td></td></tr>
<tr><td>FY 2020-21</td><td></td></tr>
<tr><td>FY 2021-22</td><td></td></tr>
<tr><td>Average</td><td></td></tr>
</table></td><td></td></tr>
<tr><td>4.</td><td>The Profit of bidder before tax during any of the financial year should be positive during immediately preceding 3 financial years.
<table>
<tr><td>FY 2019-20</td><td></td></tr>
<tr><td>FY 2020-21</td><td></td></tr>
<tr><td>FY 2021-22</td><td></td></tr>
</table></td><td></td></tr>
<tr><td>5.</td><td colspan="2">The Bidder should not have been blacklisted/ banned/ declared ineligible for corrupt and fraudulent practices by the Government of India/ any State Government/ Government Agency and Supreme court and contracts have been terminated/ foreclosed by any company / department due to non- fulfillment of Contractual obligation in last 5 (five) financial years.</td><td></td></tr>
</table>

Form 4: Work Experience

The following format shall be used for statement of experience of Bidder:

SN	Similar Contract description	Contract Identification Number	Award date & Completion date	Employer's Name, address, telephone number, e-mail etc	Role in contract		If in JV/consortium then % participation	Completion cost	Value of similar work in completed work
					Individual	JV/ Consortium			
1									
2									
3									
4									
	Add required number of rows								

Authorized signatory
Name:
Date:

Name of the Bidder with seal

NOTE:

1. Only the value of contract as executed by the applicant/member in his own name should be indicated. Where a work is undertaken by a group, only that portion of the contract which is undertaken by the concerned applicant/member should be indicated and the remaining done by the other members of the group be excluded. This is to be substantiated with documentary evidence
2. The tenderer shall upload details of work executed by them in the prescribed format for the works to be considered for qualification of work experience criteria. Documentary proof such as completion certificates from the client clearly indicating the nature/scope of work, actual completion cost and actual date of completion for such work should be uploaded. In case work is executed for private client documentary proof such as copy of work order, Bill of quantities, Bill wise details of payment received certified by CA, TDS certificates for all the payments received, copy of final/ last bill paid by the client should be uploaded. The offers submitted without this documentary proof will not be evaluated.
3. Value of successfully completed portion of any ongoing work up to the last day of the previous month of tender submission will also be considered for qualification of work experience criteria.
4. For completed works, value of work done shall be updated to the last day of the previous month of tender submission price level assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the submission date of tender.
5. If the above work(s) comprise(s) other works also, then client's certificate clearly indicating the amount of work done in respect of the "similar work" shall be furnished by the tenderer in support of work experience along-with their tender submissions.

Form 5: Financial Capability Details

Bidder should submit their financial details as per the following:
This is to certify that the Average Annual Turnover of M/s ……
having registered office at ……
……., as applicable, is as below:

1.

S.No.	Financial year	Name of the Bidder	Turnover from Similar Work
1.	2021-22		
2.	2020-21		
3.	2019-20		
	Average Annual Turnover		

2.

S.No.	Financial year	Name of the Bidder	Profit before tax
1.	2021-22		
2.	2020-21		
3.	2019-20		

Certificate of the Chartered Accountants/Statutory Auditors

Based on Audited Accounts and other relevant documents of_____ (Name of Bidder), we M/s _____, Chartered Accountants/ Statutory Auditors, certify that the above information pertaining to FY 2019-20, FY 2020-21 and FY 2021-22 is correct.

Signature and Seal of
Chartered Accountants/Statutory Auditors
(with membership no.)

UDIN.

Authorised Signatory
(Name & Designation of Authorised Signatory)

In case the Financial Statements for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor/charted accountant shall certify the same. In such a case, the Bidder shall provide the Audited Financial Statements for 2 (two) years preceding the year for which the Audited Financial Statement is not being provided. Also, pertaining to latest financial year, the bidder shall submit an affidavit certifying that "The Annual Accounts have not been audited so far. We are submitting the CA certified provisional accounts, which shall be substantiated by the Audited Accounts, when prepared."

NOTE:

1. All such documents reflect the financial data of the bidder and not that of sister or parent company.
2. The financial data in above prescribed format shall be certified by CA/ Company Auditor under his signature and stamp in original along with membership no. and UDIN.
3. The Bidder shall provide the audited annual financial statements as required.

Form 6: Memorandum

Name of Work: Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years.

I/We agree to keep the quoted rate open for acceptance for 180 days from the due date of submission thereof and not make any modification in its terms and conditions.

I/We hereby declare that I/We shall treat the quotation documents, drawings and other records connected with the works as secret/ confidential documents and shall not communicate information derived there from to any person other than the information in any manner prejudicial to the safety of NMRC.

_____
Signature of the bidder with seal
Dated:

Witness:
Address:
Occupation

Form 7: Undertaking

I confirm that We (Tenderer), _____

a. Have not been banned /declared ineligible for corrupt and fraudulent practices by any government/government-undertaking/ semi-government/ govt. controlled institutions, any court of law having jurisdiction in India for the past 5 (five) years.

b. Do not have any pending litigation & non-performing contracts during last 5 (five) years. Further, has not been barred by any government/government-undertaking/ semi-government/ govt. controlled institutions

c. Have not abandoned any work in last 5 (five) years.

d. Have not delayed in similar work completion during orders executed in last 5 (five) years.
e. Do not ever been terminated due to poor performance.

f. Have not suffered Bankruptcy/ insolvency in last 5 (five) years.

g. Have not been blacklisted/ debarred by any organization during last 5 (five) years.

h. Have not been be involved in any illegal activity and/or has not been charge sheeted for any criminal act during the last 5 (five) years.
i. Have not submitted any misleading information in the Bid.

j. Are financially sound to perform the work.

Authorized signatory Name:
Date:

Name of the Bidder with seal

Form 8: Power of Attorney

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)
Power of Attorney to be provided by the Bidding Company in favour of its representative as evidence of authorized signatory's authority.

Know all men by these presents, We ……..(name and address of the registered office of the Bidding Company) do hereby constitute, appoint and authorize Mr./Ms……(name and residential address) who is presently employed with us and holding the position of___, as our Attorney to do in our name and our behalf all or any of the acts, deeds or things necessary or incidental to submission of our Bid for **Testing of Power Transformer at Sec-83 and Sec-153, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years** in response to the RFP Document dated_____issued by Noida Metro Rail Corporation ("NMRC" or "the Corporation"), including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the Corporation may require us to submit. The aforesaid Attorney is further authorized for making representations to the NMRC or any other authority, and providing information / responses to the NMRC, representing us in all matters before the NMRC, and generally dealing with the Corporation in all matters in connection with our Bid till the completion of the bidding process as per the terms of the RFP Document and further till the Contract is entered into with the NMRC and thereafter till the expiry of the Contract.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the RFP Document.

Signed by the within named
.....[Insert the name of the executant company]
through the hand of
Mr. ……..
duly authorized by the Board to issue such Power of Attorney
Dated this ……. day of ……

Accepted
……
Signature of Attorney
(Name, designation and address of the Attorney)

Attested
……
(Signature of the executant)
(Name, designation and address of the executant)

……
Signature and stamp of Notary of the place of execution

Common seal of …… has been affixed in my/our presence pursuant to Board of Director's Resolution dated……

WITNESS

1. ……
(Signature)
Name ……

Designation.....……..

2. ……
(Signature)
Name ……

Designation.....……..

Notes:

(1) The mode of execution of the power of attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and the same should be under common seal of the executants affixed in accordance with the applicable procedure. Further, the person whose signatures are to be provided on the power of attorney shall be duly authorized by the executant(s) in this regard.

(2) In the event, power of attorney has been executed outside India, the same needs to be duly notarized by a notary public of the jurisdiction where it is executed.

(3) Also, wherever required, the executant(s) should submit for verification the extract of the charter documents and documents such as a board resolution / power of attorney, in favour of the person executing this power of attorney for delegation of power hereunder on behalf of the executant(s).

Form 9: Saleable Form for Tender Document

Job No. ……..

The required fee of tender form has been deposited in_____Bank A/c No. _____ RTGS/NEFT and the scanned copy of UTR receipt with Transaction Id is being enclosed with E-tender documents. If the copy of UTR receipt is not uploaded with the E-tender the tender shall be rejected.

DETAILS OF EARNEST MONEY ATTACHED

The required amount of Earnest money has been deposited in_____Bank A/c No. _____ RTGS/NEFT and the scanned copy of UTR receipt with transaction Id is being enclosed with E-tender documents. If the copy of UTR receipt is not uploaded with the E-tender the tender shall be rejected.

BIDDER

Form 10: Declaration of Refund of Earnest Money

Noida Metro Rail Corporation (NMRC) Limited
Block-III, 3rd Floor,
Ganga Shopping Complex, Sector-29, Noida -201301,
District Gautam Buddha Nagar, Uttar Pradesh,
India

1	**Bidder Name**	
2	**Bidder Address**	
3	**Bank Name**	
4	**Bank Branch**	
5	**A/c No**	
6	**IFSC Code**	
7	**PAN**	
8	**Tin/TAN**	
9	**GST No.**	
10	**Phone No.**	
11	**Mobile No.**	
12	**Email-Id**	
13	**Type of Account**	

For Office Use Only

14	**Party Unique Id**	

The above provided information is true to the best of my knowledge.

Date: **Signature with Stamp/Seal**

Form 11: Undertaking pertaining to Personnel

- We confirm to deploy personnel required to achieve progress of work as per approved construction of work program and conditions mentioned in the tender document.
- The contractor shall deploy resources as per the mentioned minimum requirement in the tender and also confirm to deploy manpower over and above the minimum numbers indicated above, if the work requires so.
- These minimum resources are as per the requirements of the various activities at different stages of works. All resources need not to be mobilised simultaneously, resources as per the requirement of various stages of works shall be mobilised in accordance with the instructions of the Engineer. The decision of the Engineer shall be final and bonding.
- The performance of project personal deployed will be evaluated periodically by Employer during the contract period. In case the performance of any of the personnel is not satisfactory, the contractor shall replace them with good personnel immediately as per the directions of the Engineer.

Date: **Signature with Stamp/Seal**

Form 12: Proposed Personnel

Affix self-attested photograph

NAME : ……

FATHER'S NAME :……..

DATE OF BIRTH :……..

PERMANENT ADDRESS : ……..

……

RESIDENTIAL ADDRESS : ……..

……

MARITAL STATUS :……...

EDUCATIONAL QUALIFICATION :……

TECHNICAL QUALIFICATION :……

EXPERIENCE : ……

LANGUAGE KNOWN :……

NATIONALITY : ……..…..

CATEGORY :……

DATE: ……...

PLACE: …… **SIGNATURE**

(To be filled by contractor)

Attested by authorised person:

Note: A staffing schedule containing the names, qualifications, professional experience and corporate affiliation of all proposed management personnel (above the level of shift supervisor) and specialists for this work. The submission shall include a provisional management structure and organisation chart showing areas of responsibility, relative seniorities and lines of reporting. The proposed staffing plan shall be in conformity with the "Section 4 – Personnel" of tender document.

Form 13: Obligation/ Compliance to be ensured by Contractor

Sl. No.	Items	Compliance of Contractor (To be filled by contractor)	
		Yes	No
1	License for employing contract labour		
2	Compliance of minimum wages Act by payment of wage on 7th of every month through Bank or in the presence of nominated representative of employer (NMRC Supervisor/manager)		
3 (a)	Compliance of provision of ESI & EPF Act		
3 (b)	Ensure treatment in ESI hospital in case of accident/injuries suffered in performance of work and compensation under ESI Act.		
4	Send Accident report to Regional Labour Commissioner (RLC) & ESI authorities.		
5	Observance of working hours, weekly rest and overtime payments as per minimum wages Act-1948.		

Note: - A Non- filling or "No" by contractor will lead to non-eligibility for contractor in further tendering process.

S.N	Description	Reference Clause	Requirement
i	Latest "date for commencement" of the Works	Clause 8.1 of the GCC	Date given in NOA or Employer's Notice to Proceed
ii	Liquidated Damages	Clause 19 of SCC	**Liquidity damages** 0.5% of the contract value per week of delay
iii	Insurance for workers/ employees	Clause 15.4 of the GCC	All of the contractor's employees shall have to be covered under ESI and ECA as per Special conditions of contract.
iv	Insurance cover for Contractor's All Risk and other requirements as specified in the GCC	Clause 15 of the GCC	**100%** of the Total Contract Price.
v	Amount of Third Party Insurance	Clause 15.3 of the GCC	INR 0.75 Million for any one incident, with no. of incidents unlimited.
vi	Period in which all insurances have to be effected	Clause 15.5 of the GCC	Within 1 week from the "date of commencement"

Signature of authorized signatory of Tenderer

Form 14: Performa for Clarifications / Amendments on the RFP

Sl. No.	Document	Clause No. and Existing Provision	Clarification required	Suggested Text for the Amendment	Rationale for the Clarification or Amendment

Authorized signatory

Name:
Date:

Name of the Bidder with seal

Form 15 : Bid Capacity Information

Name and brief particulars of contract (Clearly indicate the part of the work assigned to the applicants)	Name of client with telephone number and fax number	Contract Value In Rupees Equivalent (Give only the value of work assigned to the applicant(s)	Value of balance work yet to be done in Rupee equivalent as on last day of the previous month of tender submission	Date of Completion as per Contract Agreement	Expected Completion Date	Delay if any, with reason	Value of work to be done during next 24 months with effect from the first day of the month of tender submission
Total							

S.No.	Financial year	Total Value of Works done as per audited financial statements
1	FY 2021-22	
2	FY 2020-21	
3	FY 2019-20	

Bid Capacity (Bidder shall calculate, mention his bid capacity and enclose the supporting calculation)

A = Rs. ……

N = ……years

B = Rs. ……

Assessed available bid capacity = 2*A*N – B

Certificate of the Chartered Accountants / Company Auditor

We, M/s _____, Chartered Accountants/ Company Auditors, certify that the above information is correct.

Name of Chartered Accountants / Company Auditor

Signature and Seal of Chartered Accountants/ Company Auditor

Membership Number & UDIN No. of Chartered Accountants/ Company Auditor

Authorised Signatory

(Name & Designation of Authorised Signatory)

NOTE:

1. The financial data in above prescribed format shall be certified by Chartered Accountant/ Company Auditor in original under his signature & stamp & UDIN along with audited financial statements

2. Value of existing commitments for on-going works during period of 24 months w.e.f. from the first day of the month of tender submission has to be uploaded by the tenderer in Form. These data shall be certified by the Chartered Accountant with his stamp and signature in original with membership number.

Form 16: Bid Offer/ BOQ

To

GM/Technical
Noida Metro Rail Corporation (NMRC) Limited
Block-III, 3rd Floor, Ganga Shopping Complex
Noida -201301,
District GautamBudh Nagar, Uttar Pradesh

THIS FORM IS NOT TO BE FILLED. THE BIDDERS ARE REQUIRED TO FILL THE FINANCIAL PROPOSAL IN XLS FORMAT AFTER DOWNLOADING THE FORM FROM THE E-PROCUREMENT WEBSITE FOR THIS TENDER DOCUMENT

Sub: Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years

Dear Sir,

I/we have read and examined the RFP document, general terms and conditions.

I/we hereby quote for the Total Price for **Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years** as specified below, payable by NMRC.

S. No.	Description	Total Amount in Rs.	Amount in Words
1	Estimated value of work	69,71,204.00	(Rupees Sixty Nine Lakhs Seventy One Thousand Two Hundred Four Only)

S.N.	Quoted amount (Rs.)	
1	In words	
	In figures	
2	Rebate in % (percentage) if any	
	In words	
	In figures	

NAME OF THE BIDDER AND SEAL

BOQ/PRICE SCHEDULE

BOQ for Testing of Power Transformer(s), Relay(s) & equipment(s) calibration of NMRC Traction network for two years

2-years Contract for Relay Testing, calibration of testing kits and Condition monitoring of 8 nos of Power Transformers installed in RSS(Sec-83 RSS & Sec-153 RSS) at Noida Metro Rail Corporation which comprehend
4 nos of Traction Transformer (132/25 kV, rating- 21.6/30 MVA ONAN/ONAF)
4 nos of Auxiliary Transformer (132/33 kV, rating- 10/15 MVA ONAN/ONAF)
(There are 2 nos of Traction Transformers and 2 nos of Auxiliary Transformers in each RSS)

General Points:-

a)-Oil testing laboratory should be NABL accredited
b)-The lab should also have IS-6855 accredited sampling procedure
c)-Relay Test Kit:-3-phase secondary current injection test kit of OMICRON/ DOBEL/ Meggar make
d)-For testing the equipment like Transformer the contractor shall ensure readiness of equipment for testing ,however shutdown shall be provided by employer
e)-Visit charge shall as per activity completion, material shall be provided by employer
f)-In-case of breakdown the contractor engineer shall visit within 24 hours of reporting via call/sms/e-mail
g)-0 of testing of relays shall be as per tentative sample reports attached

A-Detailed Scope of work for Conditioning Monitoring of Power Transformer(s)

S. No	Description of work	Scope	Periodicity	Unit	Quantity	Unit Rate	Total Amount
i)	Measure of winding insulation resistance value of Power Transformer. (Measure IR at 60 sec & 10 sec) and calculate PI Index (IR at 60 sec/ IR at 10 sec.)	Testing	Half yearly	Job	32		
Power Transformer Testing of Oil as per oil parameters- As per relevant IS- 1866							
ii)	**Oil Testing of Main Tank of Power Transformer:-** which will include :-BDV (break Down Voltage); (Dissolve Gas Analysis:-Methane, Acetylene, Ethylene, Ethane, Hydrogen, Carbon Monoxide & Carbon Dioxide); PPM (water content); Acidity (Neutralization Value); Resistivity(Specific Resistance), Dielectric Dissipation Factor(Tan Delta)	Testing	Half yearly	Job	32		
iii)	**Oil Testing of OLTC of Power Transformer:-** which will include :-BDV (break Down Voltage); (Dissolve Gas Analysis of gases :-Methane, Acetylene, Ethylene, Ethane, Hydrogen, Carbon Monoxide & Carbon Dioxide); PPM (water content); Acidity (Neutralization Value; Resistivity(Specific Resistance), Dielectric Dissipation Factor(Tan Delta)	Testing	Half yearly	Job	48		
*** Contractor has to submit the detail report analysis as well as trend analysis report of the Oil Test along with test report of testing from NABL accredited Lab**							
Power Transformer Electrical Testing-As per relevant IS- 1866							
iv)	Carry out Tan delta and capacitance measurement of bushing (of Power Transformer) and of windings (of power Transformer)	Testing	yearly	Job	16		
v)	Magnetic balance test	Testing	As per Requirement	Job	2		
vi)	Magnetic current test	Testing	As per Requirement	Job	2		
vii)	Measurement of winding resistance at all taps	Testing	As per Require	Job	2		

			ment				
viii)	Measurement of voltage ratio at all taps	Testing	As per Requirement	Job	2		
ix)	On line Partial Discharge measurement	Testing	As per Requirement	Job	2		
					Total Amount of A in Rs.		
B-	**Visit pertaining to any breakdown (Visit charge shall as per activity, material shall be provided by employer)**	Visit	As per Requirement	Job	12		
					Total Amount of B in Rs.		
C-Testing of SIEMENS make relay(s) installed at various locations.							
	22 no.ASS						
i)	**7SD80** (Line Differential) (testing parameters:- Differential Protection) **(Annexure-A)**	Testing	Yearly	No.s	192		
ii)	**7SR11** (O/C & Earth Fault) (testing parameters:- overcurrent and earth fault) **(Annexure-B)**	Testing	Yearly	No.s	100		
iii)	**7SR12** (O/C & Earth Fault) (testing parameters:- overcurrent and earth fault) **(Annexure-C)**	Testing	Yearly	No.s	192		
iv)	**7ST61** (Distance Protection) (testing parameters:- Distance protection) **(Annexure-D)**	Testing	Yearly	No.s	8		
	2 no. RSS						
v)	**7ST63** (Distance Protection) (testing parameters:-Over current, PFR (panto flashover), auto recloser, Distance, BCU, WPC) **(Annexure-E)**	Testing	Yearly	No.s	32		
vi)	**7SJ80** (Sensitive earth fault/VDOC/50BF/reverse power protection) **(Annexure-F)**	Testing	Yearly	No.s	48		
vii)	**7SJ64** (BCU, Bay control unit protection132kV) (testing parameters:- Over current, Earth Fault and Bay control Unit protection) **(Annexure-G)**	Testing	Yearly	No.s	56		
viii)	**7SD52** (Line Differential) (testing parameters:- Distance, Differential) **(Annexure-H)**	Testing	Yearly	No.s	32		
ix)	**7UT63** (Transformer Differential) (testing parameters:- Transformer Differential, tank earth fault, Restricted Earth Fault, buchholz, OTI, OSR, PRD Valve) **(Annexure-I)**	Testing	Yearly	No.s	32		
x)	**7SJ66** (O/C & Earth Fault) (Testing parameters:-over current, under voltage, BCU) **(Annexure-J)**	Testing	Yearly	No.s	96		
xi)	**7SS85** (BusBar protection)	Testing	Yearly	No.s	8		
xii)	**6MD85** (BCU (LT Side))	Testing	Yearly	No.s	8		
	Relay at incomer side of both RSS						
xiii)	**7SD5/87** (Line Differential) (testing parameters:- differential protection) **(Annexure-K)**	Testing	Yearly	No.s	16		
					Total Amount of C in Rs.		
****Tentative Performa of Relay testing for Relays mentioned above is attached from Annexure-A to Annexure-K**							
D-Callibration of following testing kits from NABL accredited laboratory							
i)	Meggar (5kV) motwani make	Calibration	Yearly	Job	2		
ii)	Hi-pot tester for cables upto 220kV level (technology products)	Calibration	Yearly	Job	2		
iii)	Tan - Delta tester (shivnanda electronics)	Calibration	Yearly	Job	2		
iv)	Primary injection kit, rated output of 3000A at 3V, 1500A at 6V and 750V at12V , motwani make	Calibration	Yearly	Job	2		
v)	Secondary injection kit with a continuously variable	Calibra	Yearly	Job	2		

	voltage of 0-250 VAC (capacity 2A) or 0-500VAC (capacity 1A), motwani make	tion					
vi)	CT/PT accuracy tester (Udeyraj)	Calibration	Yearly	Job	2		
vii)	Resonance circuit high voltage test kit (Applied techno products)	Calibration	Yearly	Job	2		
viii)	Thermal imaging camera (Flir make)	Calibration	Yearly	Job	2		
ix)	Cable fault detector (telemetrics equipments)	Calibration	Yearly	Job	2		
x)	Digital earth resistance meter (motwani make)	Calibration	Yearly	Job	2		
xi)	Time interval meter (motwani make)	Calibration	Yearly	Job	2		
xii)	Contact resistance meter (motwani make)	Calibration	Yearly	Job	2		
						Total Amount of D in Rs.	
						Total Amount (A+B+C+D) in Rs.	
						GST @18% in Rs.	
						Total Amount including 18% GST in Rs.	

Please Note:

The Bidder with the lowest quoted cost for "Testing of Power Transformer at Sec-83 and Sec-153 Receiving substation, Testing of relays and calibration of testing kits under PSI department of NMRC for Two Years" in the financial quote (L1 bidder) shall be selected for the award of contract.

"Visit charges during breakdown shall include diagnosing the issue, identifying list of material required for rectification and attending the breakdown if no additional material/external help (like labour, crane) is required."

It will be deemed to include Duties, Taxes including GST, Octroi, Royalty etc., cost of all plants, labour, supervision, materials, transport, all temporary works, erection, maintenance, utility identification, contractor's profit and establishment/ overheads, together with preparation of design and drawings, all general risks, insurance liabilities, compliance of labour laws and obligations set out or implied in the contracts.

The quantities in BOQ are approx. and are meant to give tenderer(s) an idea of the quantum of work involved.

NMRC reserves the right to increase/decrease the above quantities added or deleted from any of the items.

Any damages while transporting/ handling of the materials should be replaced/repaired by the tenderer before installation/commissioning without any cost.

Safety and storage of material will be managed by contractor at his own cost.

The work executed against the BOQ items in would be paid on measurement basis.

The Contractor may raise their 'On Account'' payments on monthly basis as per the status of work on the last day of the respective month.

The Financial Bid submitted is unconditional and fulfils all the requirements of the TOR Document.

We have completely read and understood the Bid Document. The Financial Tender submitted is unconditional and fulfils all the requirements of the Tender Document.

Our Financial Proposal shall be binding upon us subject to the modifications resulting from contract negotiations, up to expiration of the validity period of the Proposal. We understand you are not bound to accept any Proposal you receive.

_____

Signature and Name of the Authorized Person

_____

NAME OF THE BIDDER AND SEAL

Form 17: Bid Details

The following list is intended to help the tenderers in submitting offer which are complete. An incomplete offer is liable to be rejected. Tenderers are advised to go through the list carefully and take necessary action.

S.No.	Particulars	Attached Yes / No / Not Applicable	Page no. (Mandatory)
1	Bid Processing Fees		
2	Earnest Money Deposit		
3	Form 1: Letter of Proposal Submission		
4	Form 2: Firm details		
5	Form 3: Capability Statement		
6	Form 4: Work Experience		
7	Form 5: Financial Capability Details		
8	Form 6: Memorandum		
9	Form 7: Undertaking		
10	Form 8: Power of Attorney		
11	Form 9: Salable Form for Tender Document		
12	Form 10: Declaration of Refund of Earnest Money		
13	Form 11: Undertaking pertaining to Personnel		
14	Form 12: Proposed Personnel		
15	Form 13: Obligation/ Compliance to be ensured by Contractor		
16	Form 14: Performa for Clarifications / Amendments on the RFP		
17	Form 15: Bid Capacity Information		
18	Form 16: Bid Offer/ BOQ		
19	Statutory proof of existence as the legal entity		
20	Work Order/ Signed Contracts/ Completion Certificates, clearly indicating the value and nature of experiences		
21	A copy of the Audited balance sheets and Profit and Loss Statements for the last 3 (three) financial years		
22	Self attested copy of ITR for the last 3 (three) financial years		
23	Copy of PAN		
24	Self attested copy of GST registration certificate, EPF, ESI		
25	Valid Electrical Contractor License		
26	Any other document asked by the Corporation if submitted, specify the documents Or Any other document which the Bidder considers relevant		