MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year.

TENDER NO. NM1/E&M-05/2026



Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

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SECTION 1 : NOTICE INVITING TENDER (NIT)

A Project by CIDCO Navi Mumbai Metro — Operated by MAHA METRO	**E-TENDER NOTICE** **Maharashtra Metro Rail Corporation Limited** Metro Bhawan, East High Court Road (VIP Road), Near Dikshabhoomi, Ramdaspeth, Nagpur-440010, Maharashtra, INDIA Website: http://www.metrorailnagpur.com E-mail:md.nmrcl.tenders@gmail.com, Telefax:0712-2554217

Tender Notice No. NM1/E&M-05/2026 **Date: 08.05.2026**

Name of the Work: Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year

Key Details:-

Contract Period	03 (Three) year commencing from 17.11.2026
Documents on sale	Documents can be downloaded from **16.00 hrs. of 08.05.2026 to 16.00 Hrs. of 08.06.2024** from https://mahatenders.gov.in/nicgep/app .
Cost of documents	**INR: 35,400/- (Rupees Thirty Five Thousand Four Hundred Only) (inclusive of applicable GST)**, non-refundable payable through e-payment by Credit Card / Debit Card / Net Banking, as per procedure given in tender document.
Pre-bid Meeting	**At 11.00 hrs. On Dt. 21/05/2026** at the office of ED/Procurement, Maha- Metro through Video Conference. Link shall be published on website of Maha-Metro. Bidder's Queries must be submitted through e-mail ID: md.nmrcl.tenders@gmail.com with subject "Prebid queries for **NM1/E&M-05/2026**" OR in hard copy to ED (Procurement) office before the stipulated date & time of Pre-Bid meeting.
Bid Security (EMD)	The Bid Security / EMD amounting to **INR: 6,32,000/-** (Rupees Six Lakhs Thirty-Two Thousand Only) shall be in the form as mentioned in the Tender Document. Agencies registered as Micro & Small Enterprises (MSEs) are exempted from the submission of EMD; instead, they shall submit Certificate of Registration as MSEs and Bid Securing Declaration.
Date & Time of submission of Tender	Online submission shall start from **11.00 Hrs. on Dt. 01/06/2026** up till **16.00 Hrs. on Dt. 08/06/2026** on Maharashtra government E-Tender Portal.
Date & Time of Opening of Technical bid	On **Dt. 09/06/2026 after 16.30 Hours** in Procurement Department, 1st Floor, "Metro Bhawan" East High Court Road (VIP Road), Near Dikshabhoomi, Ramdaspeth, Nagpur – 440010.

1. Sale of document, e-payment procedure, submission and other details are available on Mahatender portal under section in e-tenders https://mahatenders.gov.in
2. To view this tender notice (NIT), interested Agencies may visit the Maha-Metro website www.metrorailnagpur.com or CPPP website https://eprocure.gov.in
3. The bidder shall bear all costs associated with the preparation and submission of the bid. Maha-Metro, in no case, will be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.
4. Maha-Metro reserves the right to accept or reject all or any of the bids without assigning any reason whatsoever.

MAHARASHTRA METRO RAIL CORPORATION LIMITED ★ NAGPUR METRO

08/05/2026

Executive Director (Procurement)
Maharashtra Metro Rail Corporation Limited

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

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Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year.

TENDER NO. NM1/E&M-05/2026

Section 2
Instructions to Bidders (ITB), Bid Data Sheet (BDS) and Tool Kit for using E-Tender Portal



Maharashtra Metro Rail Corporation Limited
Metro Bhawan, East High Court Road (VIP Road),
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SECTION 2 : INSTRUCTIONS TO BIDDERS (ITB)

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SECTION 2 : INSTRUCTIONS TO BIDDERS (ITB)

A. General

1 Scope of Bid

1.1 In connection with the Invitation for Bids **specified in the Bid Data Sheet (BDS)**, the Employer, as **specified in the BDS**, issues these Bidding Documents for the procurement of Works as specified in Section-5 Scope of Work. The name, identification, and number of Bid is as **specified in the BDS.**

1.2 Throughout these Bidding Documents:

(a) the term "in writing" means communicated in written form and delivered against receipt;
(b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
(c) "day" means calendar day.

2 Source of Funds

2.1 The Employer **specified in the BDS** has received or has applied for financing (hereinafter called "funds") from the funding as **(specified in BDS)** toward the project named **in the BDS**. The Employer intends to apply a portion of the funds to eligible payments under the contract(s) for which these Bidding Documents are issued.

3 Corrupt and Fraudulent Practices

3.1 The Agency requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Annexure-6A.

3.2 In further pursuance of this policy, Bidders shall permit and shall cause its agents (whether declared or not), sub- contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit the Agency to inspect all accounts, records and other documents relating to any prequalification process, bid submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Agency.

4 Eligible Bidders

4.1 A Bidder may be a firm that is a private entity, a government-owned entity—subject to ITB 4.3—or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the

JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution. **Unless specified in the BDS**, there is no limit on the number of members in a JV.

4.2 A Bidder or any member of the JV shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:

(a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or

(b) receives or has received any direct or indirect subsidy from another Bidder; or

(c) has the same legal representative as another Bidder; or

(d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or

(e) Participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same sub-contractor in more than one bid; or

(f) any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or

(g) any of its affiliates has been hired (or is proposed to be hired) by the Employer as Engineer for the Contract implementation; or

(h) has a close business or family relationship with a professional staff of the Employer (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Agency throughout the procurement process and execution of the contract.

4.3 The Agency's eligibility criteria to bid are described in **Section -3 – Eligibility criteria**.

4.4 A Bidder shall not be under suspension from bidding by the Employer as the result of the operation of a Bid Security.

4.5 This bidding is open only to prequalified Bidders unless specified in the BDS.

4.6 A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.

5 Eligible Materials, Equipment, and Services

5.1 The materials, equipment and services to be supplied under the Contract and financed by the Agency may have their origin in any country subject to the restrictions specified in Section- 3, Eligibility criteria and social and environmental responsibility, and all expenditures under the Contract will not contravene such restrictions. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.

B. Contents of Bidding Documents

6 Sections of Bidding Documents

6.1 The Bidding Documents consist of the Sections specified below, which should be read in conjunction with any Addenda issued in accordance with ITB 8.

Notice Inviting Tender (NIT)
Instructions to Bidders (ITB)
Bid Data Sheet (BDS)
Tool Kit for e-Tender
Eligibility Criteria
Evaluation Criteria
Scope of Work
General Conditions of Contract
Specific Conditions of Contract
Corrupt and Fraudulent Practice Policy
Bidding & Contract Forms
List of Documents to be enclosed along with the bid
Financial Bid

6.2 The Invitation for Bids (Notice Inviting Tender) i.e. NIT issued by the Employer is part of the Bidding Documents.

6.3 Unless obtained directly by the bidder concerned from the Employer's office (as mentioned in NIT) or Employer's e-Tender portal, the Employer is not responsible for the completeness of the Bidding Documents, responses to requests for clarification, the

minutes of the pre-Bid meeting (if any), or Addenda to the Bidding Documents in accordance with ITB 8. (Downloaded / Uploaded by Bidder). In case of any contradiction, documents available at Employer's Office or uploaded on e-Tender portal of Employer shall prevail.

6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its bid all information and documentation as is required by the Bidding Documents.

Failure to comply with the requirements of the Bidding Documents and to furnish all information required by the Bidding Documents or submission of a Bid not substantially responsive to the Bidding Documents, in every respect will be at the Bidder's risk and may result in rejection of its Bid.

6.5 The Bidder shall not make or cause to be made any alteration, erasure or obliteration to the text of the Bid Documents issued by Employer or uploaded on the e-Tender portal of Employer, which shall otherwise results in rejection of its Bid.

6.6 The documents including the Bid Document provided by Employer are and shall remain or becomes the property of Employer and are transmitted to the Bidders solely for the purpose of preparation and the submission of a Bid in accordance herewith. The provisions of this Para shall also apply *mutatis mutandis* to the Bids and all other documents submitted by the Bidders, and Employer will not return to the Bidders any Bid, document or any information provided along therewith.

7 Clarification of Bidding Documents, Site Visit, Pre-Bid Meeting

7.1 A Bidder requiring any clarification of the Bidding Documents shall contact the Employer in writing at the Employer's address **specified in the BDS** or raise its enquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received on or before the date specified in this document. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so specified in the BDS, the Employer shall also promptly publish its response at the web page identified in the BDS. Should the clarification result in changes to the essential elements of the Bidding Documents, the Employer shall amend the

Bidding Documents following the procedure under ITB 8 and ITB 22.2 **OR as provided for in BDS in consonance with e-Tendering System**.

7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

Any site / work information given in this bidding document is for guidance only. It shall be deemed that the Bidder has undertaken a visit to the Work Site of the Works and is aware of and has ascertained itself, the prevailing site conditions, traffic, location, surroundings, climate, demography availability of power, water and other utilities, raw materials, required consumables, access to Site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by it prior to the submission of the Bid.

7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents 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.

7.4 If so specified in the BDS, the Bidder's designated representative is invited to attend a pre-bid meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage **(as specified in BDS).**

7.5 The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Employer not later than one week before the meeting **or as specified in BDS**.

7.6 Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have

acquired the Bidding Documents in accordance with ITB 6.3. Any modification to the Bidding Documents that may become necessary as a result of the pre- bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a Bidder **OR as provided for in BDS in consonance with e-Tendering System**.

8 Amendment of Bidding Documents

8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Documents by issuing addenda.

8.2 Any addendum /corrigendum issued by Employer shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the addendum on the Employer's web page in accordance with ITB 7.1 **or as specified in BDS.**

8.3 To give Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2

C. Preparation of Bids

9 Cost of Bidding

9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

10 Language of Bid

10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language **specified in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language **specified in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.

11 Documents Comprising the Bid

11.1 The Bid shall comprise the following:**(refer BDS for additional requirement)**

(a) Letter of Bid in accordance with ITB 12;

(b) completed schedules as required, including Price Schedules, in accordance with ITB 12 and 14;

(c) Bid Security or Bid-Securing Declaration, in accordance with ITB 19.1 **(as specified in BDS)**

(d) alternative bids, if permissible, in accordance with ITB 13 **(as specified in BDS)**;

(e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;

(f) Statement of Integrity, Eligibility and Social and Environmental Responsibility duly signed, in accordance with ITB 12;

(g) Documentary evidence in accordance with ITB 17 establishing the Bidder's continued qualified status or, if post-qualification applies, as specified in accordance with ITB 4.5, the Bidder's qualifications to perform the contract if its Bid is accepted;

(h) Technical Proposal in accordance with ITB 16;

(i) Any other document **required in the BDS**.

11.2 In addition to the requirements under ITB 11.1, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.

11.3 The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid **(as specified in BDS).**

12 Letter of Bid and Schedules

12.1 The Letter of Bid, the Statement of Integrity and Schedules, including the Bill of Quantities for unit price contracts or the schedule of price in case of lump sum contracts, shall be prepared using the relevant forms furnished in Section- 7, Bidding Forms Statement of Integrity or "DECLARATION ABOUT FRAUD AND CORRUPT PRACTICES" as in Form B-6 attached in Section 7 Bidding forms.

The Letter of Bid with all Schedules/ Forms shall be completed and signed by a authorized and empowered representative of the Bidder. If the Bidder comprises a JV/Consortium, the Letter of Bid shall be signed by an authorized representative of the **Lead Member**. Signatures on the Letter of Bid shall be witnessed and dated. Copies of relevant powers of attorney shall be attached.

13 Alternative Bids

13.1 Unless otherwise specified in the BDS, alternative bids shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect **will be included in the BDS**, as will the method of evaluating different times for completion.

13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Documents must first price the Employer's design as described in the Bidding Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer **(as specified in BDS)**

13.4 **When specified in the BDS**, Bidders are permitted to submit alternative technical solutions for specified parts of the Works, and such parts **will be identified in the BDS**, as will the method for their evaluating, and described in Section 5, Scope of Work.

14 Bid Prices and Discounts

14.1 The prices and **discounts** quoted by the Bidder in the Letter of Bid and in the Schedules shall conform to the requirements specified below. **(or as specified in BDS)**

14.2 The Bidder shall submit a bid for the whole of the Works described in ITB 1.1, by filling in price(s) for all items of the works, as identified in Section-9, Financial Bid. In case of admeasurement contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Bid, and provided that the Bid is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive bidders will be added to the bid price and the equivalent total cost of the bid so determined will be used for price comparison. **(or as specified in BDS)**

14.3 The price to be quoted in the Letter of Bid shall be the total price of the Bid, excluding any discounts offered **(or as specified in BDS).**

14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid **(or as specified in BDS)**

14.5 **Unless otherwise specified in the BDS** and the Contract, the rate(s) and price(s) quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Employer may require the Bidder to justify its proposed indices and weightings.

14.6 If so specified in ITB 1.1, bids are being invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the bids for all lots (contracts) are opened at the same time **or as specified in the BDS**.

14.7 Unless otherwise **specified in the BDS**, all duties, taxes, and

other levies payable by the Contractor under the Contract, or for any other cause, as of the date **28 days** prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

15 Currencies of Bid and Payment

15.1 The currency (ies) of the bid and the currency (ies) of payments shall be **as specified in the BDS**.

15.2 Bidders may be required by the Employer to justify, to the Employer's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the prices shown in the Schedule of Adjustment Data in the Appendix to Bid are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.

16 Documents Comprising the Technical Proposal

16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section-7 – Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidder's proposal to meet the work requirements and the completion time.

17 Documents Establishing the Qualifications of the Bidder

17.1 In accordance with Section-3, Evaluation and Qualification Criteria, to establish that the Bidder continues to meet the criteria used at the time of prequalification or at the time of actual bidding (as the case may be), the Bidder shall provide in the corresponding information sheets included in Section-7, Bidding Forms, updated information on any assessed aspect that changed from that time, or if post-qualification applies as specified in ITB 4.5, the Bidder shall provide the information requested in the corresponding information sheets included in Section-7, Bidding Forms.

17.2 If a margin of preference applies as specified in accordance with ITB 33.1, domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITB 33.1 (as detailed in BDS)

17.3 Any change in the structure or formation of a Bidder after being prequalified and invited to Bid (including, in the case of a JV, any change in the structure or formation of any member thereto) shall be subject to the written approval of the Employer prior to the deadline for submission of Bids. Such approval shall be denied if (i) as a consequence of the change, the Bidder no longer substantially meets the qualification criteria set forth in Section-3, Qualification Criteria and Requirements; or (ii) in the opinion of the Employer, the change may result in a substantial reduction in

competition. Any such change should be submitted to the Employer not later than fourteen (14) days after the date of the Invitation for Bids. **(or as specified in BDS)**

18 Period of Validity of Bids

18.1 Bids shall remain valid for the period **specified in the BDS** after the bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A bid valid for a shorter period shall be rejected by the Employer as non- responsive.

18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended for **twenty-eight (28) days beyond** the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid, except as provided in ITB 18.3.

18.3 **Unless specified in BDS**, if the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, the Contract price shall be determined as follows:

(a) In the case of fixed price contracts, the Contract price shall be the bid price adjusted by the factor **specified in the BDS**.

(b) In the case of adjustable price contracts, no adjustment shall be made.

(c) In any case, bid evaluation shall be based on the bid price without taking into consideration the applicable correction from those indicated above.

19 Bid Security

19.1 The Bidder shall furnish as part of its bid, a bid security **as specified in the BDS**, in original form and, in the case of a bid security, in the amount and currency **specified in the BDS**.

19.2 A Bid-Securing Declaration shall use the form included in Section-7, Bidding Forms, **as specified in BDS**

19.3 If a bid security is specified pursuant to ITB 19.1, the bid security shall be a demand guarantee in any of the following forms at the Bidder's option:

(a) an unconditional guarantee issued by any Scheduled bank in India;

(b) an irrevocable letter of credit;

(c) Demand Draft, from any Scheduled Bank in India.

(d) another security **specified in the BDS**,

from a reputable source from an eligible country as specified in Section-3 Eligibility criteria. If the unconditional guarantee is issued by a financial institution located outside the Employer's Country, the issuing financial institution shall have a correspondent financial institution located in the Employer's Country to make it enforceable. In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section-7, Bidding Forms, or in another substantially similar format approved by the Employer prior to bid submission. The bid security shall be valid for twenty-eight (28) days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

19.4 Any bid not accompanied by a substantially responsive **Bid security** or **Bid-Securing Declaration** (as the case may be) shall be rejected by the Employer as non-responsive.

19.5 The bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the Contract and furnishing the performance security pursuant to ITB 42**. (Replaced in BDS)**

19.6 The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.

19.7 The bid security may be forfeited or the Bid-Securing Declaration executed:

(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or any extension thereto provided by the Bidder; or

(b) If the Bidder submit fake/ forged/ fabricated/ false documents as well as false & misleading information/ data with his Bid, which fails the authenticity verifications initiated by Maha-Metro.

(c) If the Bidder tamper/ edit/ mutilate the Bid document and associated information/data and submit the same with his Bid.

(d) If the successful Bidder fails to:

(i) *sign the Contract in accordance with ITB 41; or*
(ii) furnish a performance security in accordance with

ITB 42.

(iii) authenticate and verification of performance security

19.8 The bid security or a Bid-Securing Declaration of a JV shall be in the name of the JV that submits the bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the bid security or the Bid-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2. **or as Specified in BDS, Section-2.**

(a) 19.9 If a bid security is **not required in the BDS pursuant to ITB 19.1**, and if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereto provided by the Bidder, or

(b) if the successful Bidder fails to sign the Contract in accordance with ITB 41; or furnish a performance security in accordance with ITB 42;

the Employer may, **if provided for in the BDS**, declare the Bidder ineligible to be awarded a contract by the Employer for a period of time **as stated in the BDS**.

20 Format and Signing of Bid

20.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it “ORIGINAL.” Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked “ALTERNATIVE.” In addition, the Bidder shall submit one set of copies of the bid, in the number **specified in the BDS** and clearly mark them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail. **(Replaced in BDS)**

20.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation **as specified in the BDS** and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid. **(Replaced in BDS)**

20.3 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives. **(As specified in BDS)**

20.4 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

D. Submission and Opening of Bids (as specified in BDS)

21 Sealing and Marking of Bids (Replaced In BDS)

21.1 The Bidder shall enclose the original and one set of all copies of the bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as “ORIGINAL”, “ALTERNATIVE” and “COPY.” These envelopes containing the original and the copies shall then be enclosed in one single envelope

21.2 The inner and outer envelopes shall:

(a) bear the name and address of the Bidder;
(b) be addressed to the Employer in accordance with ITB 22.1;
(c) bear the specific identification of this bidding process specified in the BDS 1.1; and
(d) bear a warning not to open before the time and date for bid opening.

21.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

22 Deadline for Submission of Bids

22.1 Bids must be received by the Employer at the address and no later than the date and time **specified in the BDS**. **When so specified in the BDS**, bidders shall have the option of submitting their bids electronically. Bidders submitting bids electronically shall follow the electronic bid submission procedures **specified in the BDS**.

22.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

23 Late Bids

23.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder **or as specified in BDS**

24 Withdrawal, Substitution, and Modification of Bids

24.1 **Unless specified in BDS**, A Bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2. The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

(a) Prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and

(b) received by the Employer prior to the deadline prescribed for submission of bids, in accordance with ITB 22.

24.2 Bids **requested** to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No bid may be withdrawn, substituted, or modified in the **interval** between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

25 Bid Opening

25.1 Except in the cases specified in ITB 23 and 24, the Employer shall publicly open and read out in accordance with ITB 25 all bids received by the deadline (regardless of the number of bids received), at the date, time and place **specified in the BDS**, in the presence of Bidders` designated representatives and anyone who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be **as specified in the BDS.**

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding bid being substituted, and the substituted bid shall not be opened, but

returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked “MODIFICATION” shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only bids that are opened and read out at bid opening shall be considered further.

25.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the total Bid Price, per lot (contract) if applicable, including any discounts and alternative bids; the presence or absence of a bid security and any other details as the Employer may consider appropriate. Only discounts and alternative bids read out at bid opening shall be considered for evaluation. The Letter of Bid and the Schedules are to be initialed by a minimum of three representatives of the Employer attending bid opening. The Employer shall neither discuss the merits of any bid nor reject any bid (except for late bids, in accordance with ITB 23.1) (**Replaced in BDS)**

25.4 The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts and alternative bids; and the presence or absence of a bid security. The Bidders’ representatives who are present shall be requested to sign the record. The omission of a Bidder’s signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders. (**Replaced in BDS)**

E. Evaluation and Comparison of Bids

26 Confidentiality

26.1 Information relating to the examination, evaluation, and comparison of the bids, and qualification of the Bidders and recommendation of contract award shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process until information on Contract award is communicated to all Bidders in accordance with ITB 40.

26.2 Any attempt by a Bidder to influence the Employer in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, or Contract award decisions may result in the rejection of its bid.

26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing.

27 Clarification of Bids

27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid, given a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 31.

27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer's request for clarification, its bid may be rejected.

28 Deviations, Reservations, and Omissions

28.1 During the evaluation of bids, the following definitions apply:

(a) "Deviation" is a departure from the requirements specified in the Bidding Documents;

(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and

(c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Documents.

29 Determination of Responsiveness

29.1 The Employer's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB11.

29.2 A substantially responsive bid is one that meets the requirements of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) if accepted, would:

(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the Bidder's obligations under the proposed Contract; or

(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.

29.3 The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 16, in particular, to confirm that all requirements of Section-5, Scope of Work have been met without any material deviation, reservation or omission.

29.4 If a bid is not substantially responsive to the requirements of the Bidding Documents, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

30 Nonmaterial Nonconformities

30.1 Provided that a bid is substantially responsive, the Employer may waive any nonmaterial non-conformity in the Bid.

30.2 Provided that a bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

30.3 Provided that a bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component.

31 Correction of Arithmetical Errors (replaced in BDS)

31.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) Only for admeasurement contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) Only for admeasurement contracts, if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless, only for admeasurement contracts, the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1 shall result in the rejection of the Bid.

32 Conversion to Single Currency

32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency as specified in the BDS.

33 Margin of Preference

33.1 Unless otherwise specified in the BDS, a margin of preference for domestic bidders shall not apply.

34 Subcontractors

34.1 Unless otherwise stated in the BDS, the Employer does not intend to execute any specific elements of the Works by sub- contractors selected in advance by the Employer.

34.2 In case of Prequalification, the Bidder's Bid shall name the same specialized subcontractor as submitted in the prequalification application and approved by the Employer, or may name another specialized subcontractor meeting the requirements specified in the prequalification phase.

34.3 In case of Post-qualification, the Employer may permit subcontracting for certain specialized works as indicated in Section-3 Experience. When subcontracting is permitted by the Employer, the specialized sub-contractor's experience shall be considered for evaluation. Section-3 describes the qualification criteria for sub-contractors or as specified in BDS.

35 Evaluation of Bids

35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

35.2 To evaluate a bid, the Employer shall consider the following **(as specified in BDS)**:

(a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Schedules, but including Day work items, where priced competitively;

(b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;

(c) price adjustment due to discounts offered in accordance with ITB 14.4;

(d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;

(e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 30.3;

(f) the additional evaluation factors as specified in Section-3 & 4, Eligibility and Evaluation Criteria.

35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

35.4 If these Bidding Documents allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Bid Form, is specified in Section-3 & 4, Eligibility and Evaluation Criteria.

35.5 If the bid, which results in the lowest Evaluated Bid Price, is significantly lower than the Employer's estimate or seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Schedules, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. If it turns out that the bid price is abnormally low, the bid may be declared non- compliant and rejected. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.**(As specified in BDS)**

36 Comparison of Bids

36.1 The Employer shall compare the evaluated prices of all substantially responsive bids established in accordance with ITB 35.2 to determine the lowest evaluated bid.

37 Qualification of the Bidder

37.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid either continues to meet (if prequalification applies) or meets (if post-qualification applies) the qualifying criteria specified in Section-3 & 4, Eligibility and Evaluation Criteria.

37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.

37.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

38 Employer's Right to Accept Any Bid, and to Reject Any or All Bids

38.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

F. Award of Contract

39 Award Criteria

39.1 39.1 Subject to ITB 38.1, the Employer shall award the Contract to the Bidder whose bid has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

40 Notification of Award

40.1 Prior to the expiration of the period of bid validity, the employer shall notify the successful Bidder, in writing, that its bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Employer will pay the Contractor in consideration of the execution and completion of the Works (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price") and the requirement for the Contractor

to remedy any defects therein. At the same time, the Employer shall also notify all other Bidders of the results of the bidding.

40.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract

40.3 The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its bid was not selected

41 Signing of Contract

41.1 Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement.

41.2 In case the agreement is sent, within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

42 Performance Security

42.1 Within twenty-eight (28) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the General Conditions of Contract, subject to ITB 35.5, using for that purpose the Performance Security Form included in Section-7 Contract Forms, or another form acceptable to the Employer. If the performance security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer's Country.**(as specified in BDS)**

42.2 Failure of the successful Bidder to submit the above- mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security or execution of the Bid-Securing Declaration. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

Annexure 2A: Bid Data Sheet (BDS)

A. General

General	The following terms are used in the Bidding Documents shall have the same meaning and interpretations: • 'Tender(s)' and 'Bid(s)' • 'Tenderer(s)' and 'Bidder(s)' • 'Employer's Requirements' and 'Work Requirements' • 'Engineer's and 'Employer's
ITB 1.1 Scope of Bid	Following is added to Section-2 ITB Clause: Name of Project: **Navi Mumbai Metro Line 1** The Employer is: **Maharashtra Metro Rail Corporation Limited (Maha-Metro)** Mode of Tender: **It is an 'Online Open Tender'. Therefore, any Bidder who meets the 'Eligibility Criteria' specified in Section-3 of this Tender Document, can participate in the Bidding Process.** Type of Bidding: **National Competitive Bidding (NCB)** Name of Work: **"Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year"** Tender number: **NM1/E&M-05/2026** Scope of Work: **The detailed Scope of Work under this Tender is described in detail in Section-5 of this Tender Document. The Contractor has to execute the work accordingly with the approval of Employer.**
ITB 1.3 (Additional Para)	The successful Bidder has to establish its Office at Navi Mumbai, if it does not have at present. The cost and expenses for setting up the said office(s) will be deemed to have been included in the Quoted Contract Price by the Bidder and no separate / extra / additional amount is payable by Employer
ITB 2.1 Source of Funds	**Following is added to Section-2 ITB Clause:** Funded by Maharashtra Metro Rail Corporation Limited from the amount received from CIDCO for Assignment of Operation and Maintenance of Navi Mumbai Line-1 Project.
ITB 4.1	The Bidder shall be a Single Entity or A Joint Venture / Consortium of

Eligible Bidders Section-2	maximum 2 (Two) members, subject to Eligibility Criteria specified in Section-3 of this Tender Document.
ITB 4.2 Eligible Bidders Section-2	(In Continuation to the existing clause, further added as under) i. No Bidder can be a subcontractor of other Bidder while submitting a Bid individually in his own name or as a partner of a JV / Consortium in the same bidding process. A Bidder, if proposed as a subcontractor in any Bid (if allowed in the bid document), may be a proposed subcontractor in more than one Bid also, but only in the capacity of Sub-contractor. ii. A JV/Consortium member of any Bidding Entity will not be permitted to participate in the bid as a single entity individually or as member of another JV/Consortium entity. iii. No individual member will be member of JV/Consortium of more than one group of bidders.
ITB 4.5 Eligible Bidders	**Section-2 ITB Clause is replaced by the following:** This Bidding Process is in **Single stage two-packet system** through e-Tender Portal of Govt. of Maharashtra i.e. https://mahatenders.gov.in.
ITB 4.7 (Additional Para)	Any **Ban/Blacklisting/Debarment** enforced on the Bidder, must not be effective on the day of 'Last date for Bid Submission': A) for the reasons like supply of sub-standard material, non-supply of material, abandonment of works, sub-standard quality of works, failure to abide "Bid Securing Declaration" etc. by i) any Department / PSU / Subordinate Offices under Ministry of Housing and Urban Affairs (MoHUA) or ii) any department of Government of Maharashtra or B) By Department of Expenditure (DoE), Ministry of Finance, Government Of India from participating in any government bidding procedure. Bidder must not have been listed in the exclusion list of World Bank, on the day of 'last date for Bid Submission' Bidder shall submit an affidavit regarding the above as per Format provided in Section-7 of this Tender Document.
ITB 4.8 (Additional Para)	JV/Consortium Agreement: In case, the Bidder is a consortium / JV, a detailed Consortium Agreement between the Members of such Consortium stating clearly their inter-relationship, name of lead member, percentage share, detailed division of work and obligations among the Members as mentioned in ITB 4.13 below should be submitted along with the Bid for proper

examination by Maha-Metro. The format of the Consortium Agreement is provided in Section-7: Bidding Form.

ITB 4.9 (Additional Para)

Further, a JV/Consortium member shall enclose the following with their bid:

i. Power of Attorney issued by Competent Authority of all the JV/Consortium Members duly supported by their board resolutions
ii. duly notarized Joint Statement of JV/Consortium signed by Directors or Power of Attorney holders of each JV/Consortium members, authorizing the Lead Member, to sign & submit the Bid on behalf of JV/Consortium.

The formats of the Power of Attorney as well as the board resolution are provided in Section-7: Bidding Forms. All the relevant forms should be duly signed and be submitted as per the requirements of the forms.

ITB 4.10 (Additional Para)

(a) Every Bidder, be it a single entity or a JV/ Consortium, is required to submit along with its Bid, a Power of Attorney duly signed and stamped and supported by its board resolution / Directors authorizing an individual as its authorized signatory, inter alia, to sign and submit the Bid. The formats of the Power of Attorney as well as the board resolution are provided in Section-7: Bidding Forms. In case of JV/Consortium, such power of attorney and board resolution must be executed by respective members. The POA of lead member shall be the Authorized Signatory for Bid Submission and any correspondence between the Bidder and the Maha Metro.

(b) The Lead member shall be authorized to incur liabilities, receive payment (if provided for in MoU / Consortium Agreement) and receive instructions for and on behalf of any or all Members of the Consortium / Joint Venture.

(c) All members of the Consortium / Joint Venture shall be jointly and severally responsible for the execution of the Contract in accordance with the terms and conditions of the Contract.

(d) In case of the Bidder being Successful, the JV / Consortium Agreement shall be registered at any place in Maharashtra so as be legally valid and binding on all partners / members.

(e) The Bid shall be signed by the POA of Lead Member so as to be legally binding on all the Members of the JV/ Consortium.

(f) If the bidding entity is a Proprietorship firm, the proprietor of the firm shall submit a declaration notarized by Notary Public stating that he is the legal owner of the bidding firm & authorized signatory all document. Such declaration shall accompany with PAN Card of proprietor.

(g) If the bidding entity is a Partnership firm / Private Limited Company, all the partners shall jointly provide a Power of Attorney in the name of one partner as an authorized signatory. Such declaration shall accompany with copy of DIN numbers of all partners.

ITB 4.11 (Additional Para)

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 when it is so required the same should be under common seal affixed in accordance with the required procedure in the prescribed format as provided in Section-7.

For a Power of Attorney executed and issued overseas, the document will also have to be endorsed by the Indian Embassy or notarized/ registered with appropriate statutory authority in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by a Bidder from a country which has signed the Hague Legislation Convention, 1961 is not required to be endorsed by the Indian Embassy if it, carries a conforming Apostille certificate. This power of attorney should be registered at appropriate authority and easily verifiable.

ITB 4.12 (Additional Para)

If the Bidder is a Consortium or Joint Venture, the Bidder shall essentially submit the following information in addition to other requirement detailed in Section-3 and 4: Eligibility and Evaluation Criteria respectively.

(a) A Memorandum of Understanding / Consortium Agreement / JV Agreement duly notarized by the notary public of country of origin or should be stamped by Embassy / High Commission of India (in case of overseas bidders of non-Hague Convention member countries). Bidders from Member Countries of Hague convention may submit all these documents with “Apostille” stamp instead of Embassy.

(b) Nomination of one of the Members of the Consortium or Joint Venture to be in-charge (“Lead member”); and this authorization shall be covered in the Consortium Agreement signed by the legally authorized signatories of all Members of Consortium or Joint Venture. Further, the authorized representative of lead member shall be authorized to sign the bid document and other allied correspondence by signing a notarized Joint Statement of JV/Consortium, as mentioned in above clauses.

(c) Details of the intended financial participation by each member shall be furnished with complete details of the proposed division of responsibilities and relationships among the individual Members in a JV/Consortium Agreement.

ITB 4.13 (Additional Para)	The Bidder shall submit with the Bid full details of its ownership and control. The required information should be submitted in relevant form in the Section 7.
ITB 4.14 (Additional Para)	Indian Bidders, or Indian Members of a JV/ Consortium shall submit, a copy of the Permanent Account Number (PAN) issued by the Income Tax Authorities and a certified copy of the last 3 years (including the latest Financial Year) income tax return, duly acknowledged by Income Tax department with their Bid and the Technical Package. In case the Indian member of a JV/ Consortium is a wholly owned 100% subsidiary of their foreign partner in the said Consortium and this Indian company has been formed less than 3 years ago, the certified copy of the latest Financial Year income tax return (applicable only if company was formed more than a year ago), duly acknowledged by Income Tax department shall be submitted in the Technical Package. The Indian bidders shall submit copy of GST registration Certificate along with the bid. The foreign partner of the JV/ Consortium shall submit appropriate documents pertaining to their financial capability/ audited balance sheets and clearances of taxes as per the relevant law of the country of their origin.
ITB 4.15 (Additional Para)	Each Bidder (each Member in the case of a JV/Consortium) is required to confirm and declare with its Bid that no agent, middleman or any intermediary has been, or will be, engaged to provide any services, or any other item or work related to the award and performance of this Contract. Such Bidder or Member will have to further confirm and declare in the Bid that no agency commission or any payment which may be construed as an agency commission has been, or will be, paid and that the Contract Price will not include any such amount. If the Employer subsequently finds to the contrary, the Employer reserves the right to declare the Bidder as noncompliant, and declare any Contract if already awarded to the Bidder to be null and void. Specific declaration to this effect exactly as per Section 7: Bidding Form shall be submitted with the Technical Package.
ITB 4.16 (Additional Para)	Canvassing or offer of an advantage or any other inducement by any person with a view to influencing acceptance of a Bid will be an offence under laws of India. Such action will result in the rejection of the Bid, in addition to other

punitive measures.

ITB 4.17 (Additional Para)

Provisions & guidelines of MAKE IN INDIA POLICY 2017 (latest Revision, till final date of submission of Bid) along with MoHUA letter K-14011/08/2017/MRTS-Coord dated 14.10.2020 shall be applicable in this bid.

B. Contents of Bidding Documents

ITB 6.7 (Additional Para)

Supporting Documents / Information.

a) The reference documents, reports, drawings containing site information included in the Bidding Documents are for general information only and any interpretation of the results shall be construed as opinions only and not as representations or warranties as to the actual site conditions.

b) The Bidders shall note the existence of over ground, at grade and underground structures, utilities, and infrastructure in the near vicinity of the Works to be maintained.

c) The accuracy or reliability of the documents and reports referred to in this Para and of any other information supplied, prepared, or commissioned at any time by the Employer or others in connection with the Contract is not warranted. The Bidder should visit, examine and assess the Site including working conditions of all equipment, systems and will be deemed to have satisfied himself of the risks and obligations under the Contract.

ITB 7.1 Clarification of Bidding Documents, Site Visit, Pre-Bid Meeting

(a) For clarification purposes only, the Employer's address is:
Executive Director (Procurement)
Maharashtra Metro Rail Corporation Limited
Metro Bhawan, East High Court Road (VIP Road), Near Dikshabhoomi, Ramdaspeth, Nagpur-440010, Maharashtra, INDIA.
Electronic mail address: md.nmrcl.tenders@gmail.com
Web page: https://www.mahametro.org

(b) All correspondence from Maha Metro pertaining to this Bid till award of the work shall be done by the authorized representative of Maha Metro. The Bidders are advised to regularly check their email ID registered with their user account at E-Tender Portal of Govt. of Maharashtra for any update/ addendum/ corrigendum/ pre-bid and post-bid queries/ any other correspondence by the Employer.

(c) Pre-bid meetings shall be arranged as per schedule & mode mentioned in NIT. Bidders may discuss any queries pertaining to this bid during this pre bid meeting. Simultaneously, bidders shall also send the

queries to Maha-Metro via email or in physical form at the address mentioned above. Maha-metro shall not reply the queries to bidders individually. The reply of all pre-bid queries shall be compiled & published on e-tender portal of Maha-Metro at respective place.

(d) Maha Metro may also on its own discretion, if deemed necessary, issue interpretations and clarifications in the form of Addendum/Corrigendum and the same shall be uploaded on e-tender portal of Maha Metro.

(e) All clarifications, interpretations, Corrigenda, Addenda, reply to pre-bid queries issued by Maha Metro & published on e-tender portal against respective bids shall be deemed to be part of the Bid Documents.

(f) Oral queries, clarifications asked by bidder and oral reply given by Maha Metro or its employees or representatives shall not be treated as part of the bid document as well the Contract Agreement.

ITB 7.4 Clarification of Bidding Documents, Site Visit, Pre-Bid Meeting	**Following is added to Section-2 ITB Clause:** A Pre-Bid meeting shall take place at the following date, time and place: Date, Time & Place: As per NIT and any Corrigendum published on the website of Maha Metro / eTender Portal. The replies of the pre-bid queries & Corrigenda, if any, shall be published on Maha Metro's website/ eTender Portal on a later date.
ITB 7.5 Clarification of Bidding Documents, Site Visit, Pre-Bid Meeting	The Bidder is requested, as far as possible, to submit any questions in writing, to reach the Employer before the date and time specified for Pre- Bid meeting in NIT & ITB 7.4 above. The bidder may send such queries either by post to the address mentioned in the bid document or send by mail to md.nmrcl.tenders@gmail.com
ITB 7.6 Clarification of Bidding Documents, Site Visit, Pre-Bid Meeting	Replies of the pre-bid queries, if applicable, including the text of the questions asked by Bidders, without identifying the source, will be uploaded on the E-Tender portal of Maha Metro against the respective bid, in accordance with ITB 6.3, and the same shall also be part and parcel of the Bid Document.
ITB 8.2 Amendment of Bidding Documents	Such modification/clarifications/corrections in the form of an Addendum/Corrigendum will be uploaded on the e-tendering portal http://mahametrorail.etenders.in as well as Maha-Metro's website. All these addendums, corrigendum and clarifications shall be part of the

Contract Agreement.

C. Preparation of Bids

ITB 10.1 Language of Bid

The language of the bid is: **English**

All correspondence/ exchange shall be in the **English language**. Language for translation of supporting documents and printed literature is **English**. Supporting documents related to eligibility criteria enclosed with the bid, other than English Language, should be translated in to **English** and will have to be endorsed by the **Indian Embassy o**r notarized/ registered with appropriate statutory authority in the jurisdiction where the supporting document is being issued.

However, such documents provided by a Bidder from a country which has signed the **Hague Legislation Convention 1961** is not required to be endorsed by the **Indian Embassy,** if it carries a conforming **Apostille Certificate**.

The bidder should provide the relevant contact number & E-Mail ID along with the postal address, in **English**, of issuing authority / agency of such documents for verification purpose.

ITB 11 **Documents Comprising the Bid**

ITB. 11.1 (c) **Bid Security / EMD shall be acceptable as detailed in NIT & ITB 19.1**

ITB. 11.1 (d) Alternative bid is **not permissible.**

ITB. 11.1 (j) The Bidder shall, on or before the date and time given in the Notice of Invitation (NIT) to Bid, upload his Bid on e-tender portal in accordance with provisions in ITB 22.1.

i. The Bidder shall follow the procedure and steps of E-Tender portal of given in E-Tender Toolkit provided as Annexure-2B.
ii. Cost of the bid: Paid online through E-Tender portal.
iii. Bid Security: Scanned copy of EMD and Evidence of submission / payment of Bid Security as per requirements of NIT and BDS ITB 19.1, to be uploaded.
iv. Technical Package: To be submitted at appropriate place i.e., Technical Envelope on e-tender portal.
v. Financial Package: Financial bid form to be duly filled up directly in the Commercial Envelope only on e-tender portal and not anywhere else.
vi. **Bidder should ensure that the no part of the Financial Bid should**

	be up- loaded anywhere in the technical envelope, if the bidder does so then his bid will be rejected out-rightly. vii. The original Bank Guarantee towards Bid Security (if any), shall be submitted within (07) Seven working days from the last date stipulated for submission of bid at the office of Maha Metro at address given at ITB 7.1 above.
ITB 11.1 (k)	The bid documents shall include all the corrigendum/ addendum/ clarifications provided by the Employer during the course and before submission of Bid along with all necessary essential enclosures as specified in the bid document. In case of failure by the bidder in uploading (submission) the same, the bid shall be treated as non-responsive and not evaluated further.
ITB 11.3 Documents Comprising the Bid	**Bidder shall inter alia undertake in the Letter of Bid that; no Payment of Commission or Gratuities has been made to any middleman/ agent regarding this tender**
ITB 13.1 Alternative Bids	Alternative bids are not permitted for this Bidding Process.
ITB 13.2 Alternative Bids	Alternative times for completion are not permitted for this Bidding Process.
ITB 13.3 Alternative Bids	Technical alternatives to the requirements of the Bidding Documents are not permitted for this Bidding Process.
ITB 13.14 Alternative Bids	Alternative technical solutions are not permitted for this Bidding Process.
ITB 14.1 Bid Prices and Discounts	The Price is to be quoted Online on E-Tender portal of Govt. of Maharashtra in Financial Bid Section of **E-Tender Portal only.** **No discounts offer are allowed to be quoted by the bidder in the Letter of Bid and No discount letter to be uploaded anywhere in e-Tender Portal.** **Offering Discount in any form or anywhere in E-Tender Portal or in Letter of Bid, shall lead to disqualification of Bidder and Financial Bid of such bidder shall not be taken in consideration for evaluation.**
ITB 14.2 Bid Prices and Discounts	The Bidder shall quote the price online in the Financial Bid Section of the E-Tender portal of Govt. of Maharashtra, either rate against each item or in the summary sheet of schedule of BOQ or scanned & upload the filled BOQ/Schedule or Lump sum Price (as the case may be) as per provision described in the aforesaid Financial Bid Section of Bid Document.
ITB 14.3	The price quoted in the Financial Bid Section of E-Tender portal of Govt. of

Bid Prices and Discounts	Maharashtra be the total price of the bid.
ITB 14.4 Bid Prices and Discounts	Any disclosure of Financial Offer and any offering of any Discount thereon in Technica Bid is not permitted.
ITB 14.7 Bid Prices and Discounts	Section-2 ITB Clause is replaced by the following: i. Price quoted by the bidder includes GST & all other applicable Taxes, Duties, Levies payables etc. complete shall be as per provisions detailed in Financial Bid. ii. All taxes, duties, levies prior to Base date i.e. 28 days prior to last date of submission of Bid is deemed to be inclusive in the price quoted by Bidder. iii. Any change in legislation of any kind of Taxes by GOI or GOM, after Base Date shall be accounted separately and shall be applicable both ways (Reimbursement & Deduction). iv. Successful bidder has to pay the applicable stamp duty towards the registration of Contract Agreement, as per prevailing Norms /Acts of Govt. of Maharashtra.
ITB 14.8 (Additional Para)	The Employer may get, from the Government, partial or complete waiver of taxes, royalties, duties, Labour, cess, octroi, and other levies payable to various authorities. The successful Bidder (the Contractor) shall maintain meticulous records of all the taxes and duties paid and provide the same with each running bill. In case the waiver becomes effective, the Contractor will be advised on the process to be followed to obtain the refund from the concerned authority. The Contractor shall arrange for the remit of the refund to the Employer. In case of failure by the Contractor to remit such amounts, the same shall be recovered from amounts due for payment to the Contractor. The Pro forma of undertaking is provided in Section-7.
ITB 14.9 (Additional Para)	With the Bid submission, the Bidder shall submit the Proforma of undertaking provided in Section 7: Bidding Form stating that registrations under various fiscal and labour laws like GST, Central Excise, Import Export Code, Employee State Insurance, Provident Fund, Maharashtra Labour Welfare Fund, Local Body Tax shall be obtained by the bidders in the event of award of the work.
ITB 14.10 (Additional Para)	With the Bid submission, the Bidder shall submit the Pro forma of undertaking provided in Section 7: Bidding Form stating that registrations under various fiscal and labour laws like GST, Central Excise, Import Export Code,

	Employee State Insurance, Provident Fund, Maharashtra Labour Welfare Fund, Local Body Tax shall be obtained by the bidders in the event of award of the work.
ITB 14.11 (Additional Para)	Maha Metro project is covered under Project Import chapter 98.01 of Custom Tariff Act according to which only concessional custom duty is payable. The Bidder should avail this benefit and pass on the benefit of the same to Maha Metro. As regards registration under Project Import, after the award of the contract, Maha Metro at the written request of Contractor shall facilitate the Contractor for obtaining sponsoring / recommendation letter from the Ministry of Urban Development / Government of Maharashtra for getting themselves registered for availing Project Import benefits. The responsibility to avail the concessional benefits under Project Import shall solely rest with the Contractor.
ITB 15.1 Currencies of Bid and Payment	The currency of the Bid & payment shall be Indian Rupees (INR) only.
ITB 17.2 Documents Establishing the Qualifications of the Bidder	Provisions and norms as stipulated in “Make in India Policy 2017” issued by GOI with the latest amendment till the time of submission of the bid, shall be applicable in this Tender.
ITB 17.3 Documents Establishing the Qualifications of the Bidder	Applicable if the bid is two stage i.e., Pre-Qualification Stage & Bidding Stage
ITB 18.1 Period of Validity of Bids	**Section-2 ITB Clause is replaced by the following:** The bid validity period shall be 180 (One Hundred & Eighty) days from the ‘last date of Bid Submission’. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.
ITB 18.2	**Section-2 ITB Clause is replaced by the following:**

Period of Validity of Bids

In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their bids. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid, except as provided in ITB 18.3. The bid security shall also be extended by the Bidder corresponding to the extended Bid validity period

ITB 18.3 Period of Validity of Bids

Section-2 ITB Clause is replaced by the following:

The bid price shall not be adjusted in the event of delay of award.

ITB 19.1 Bid Security

Section-2 ITB Clause is replaced by the following:

(a) The Bidder shall furnish, as part of its bid, a bid security **as specified in NIT.**

(b) The Bid security shall be in the form of Unconditional Bank Guarantee issued by any Nationalized or Scheduled Commercial Bank (Except Co-Operative Bank) of Indian origin or scheduled commercial foreign bank having business office in India. The Bid Security Bank Guarantee shall be as per Format in Section-7.

(c) The Bid Security shall be valid **till 60 (sixty) days from the end of Bid Validity Period**.

(d) A scanned copy of this BG or the Bid securing declaration (if applicable) is to be uploaded online and the Bidder should ensure physical submission of the original bank guarantee at the office of Maha Metro at address specified in Bidding Documents, within **7 (Seven) working days** from the time and last date scheduled for handing over the Bidding Documents (online).

(e) If the Bidder fails to submit the scanned copy at the aforesaid (c. above) or fails to submit the original bank guarantee (c. above), **his bid shall not be considered for opening/evaluation & shall be rejected outright.**

(f) Bankers Detail of Employer (Maha Metro) for issuance of Bank Guarantee as Bid Security as per Structured Finance Messaging System (SFMS).

Bank Name: State Bank of India
Branch with Address: S.V Patel Marg, Kingsway Nagpur 440001
Bank Account Name: MAHARASHTA METRO RAIL CORPORATION LTD.
Bank Account No.: 35378499419

Bank Account Type: Current Account
IFSC Code: SBIN0000432
MICR Code: 440002002

Note:
Bidders are requested not to deposit any cash in the above account towards Bid Security. This account is only for issuance of Bank Guarantee through Bidder's Bank in Electronic format (SFMS).

(g) The EMD / Bid Security received in the form of Bank Guarantee shall be scrutinized in accordance with the Format provided in Section-7 of Bid Document and its authenticity shall also be verified from the issuing bank.

Any material or cognizable changes in format of Bid Security Bank Guarantee (Provided in Section-7), which leads to affect the interest of Maha-Metro adversely, shall not be accepted. In such case Maha-Metro reserves the right to reject the EMD/Bid Security & disqualify the bid.

ITB 19.2 Bid Security — **Section-2 ITB Clause is replaced by the following:**

As per GFR-2017, Rule No. 171, Bid Security / EMD is exempted for participating bidders registered as MSME (ONLY in the category Micro or Small), subject to submission of MSME Registration Certificate and Bid Securing Declaration, as per Format provided in Section-7 of Bid Document.

If bid securing declaration is executed for the events mentioned in ITB 19.7 and in the Bid securing declaration, the bidder shall be suspended from participating in any Tender issued by Maha Metro for the period of 3 years.

ITB 19.3 Bid Security — **Section-2 ITB Clause is replaced by the following:**
Clause 19.1 & 19.2 of BDS to be referred.

ITB 19.5 Bid Security — **Section-2 ITB Clause is replaced by the following:**
The bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's acceptance of Letter of Acceptance (LOA) issued by Maha Metro.

ITB 19.6 Bid Security — **Section-2 ITB Clause is replaced by the following:**
The bid security of the successful Bidder shall be returned as promptly as

possible once the successful Bidder has signed the Contract Agreement.

ITB 19.8 Bid Security	**Section-2 ITB Clause is replaced by the following:** The bid security or a Bid Securing Declaration (if applicable, Ref.19.2), as specified in Section-2 BDS, Cl No. 19.1 can be submitted by JV/Consortium or lead member only on behalf of the JV/Consortium.
ITB 19.9 Bid Security	**Section-2 ITB Clause is replaced by the following:** Bid Security is required in this bid.
ITB 20.1 Format and Signing of Bid	**Section-2 ITB Clause is replaced by the following:** Bid to be submitted through E-Tender portal of Govt. of Maharashtra only.
ITB 20.2 Format and Signing of Bid	**Section-2 ITB Clause is replaced by the following:** The Bid shall be submitted by the bidder, online through e-Tender portal of Govt. of Maharashtra. Details have been described at **ITB clause no. 21 & Annexure-IIB.**

The written confirmation of authorization to sign on behalf of the Bidder shall consist of:

i. In case of bidder is a Proprietorship Firm, the proprietor shall be authorized signatory of bid and a notarized Undertaking shall be submitted by bidder as per Format provided in Section-7: Bidding Forms

ii. In case of single bidder (i.e. Limited Company, Private Limited Company, LLP company), a notarized Power Of Attorney authorizing a signatory, supported by board resolution

iii. In case of JV/Consortium, a notarized Power of Attorney shall authorize the Lead Member as a signatories of the Bid on behalf of JV/Consortium. A duly notarized Joint Statement of JV/Consortium (as per Section-7 formats), signed by authorized signatories (POA) of each member of the JV/Consortium supported by copy of POA and board resolution of respective JV/Consortium Members' Companies, authorizing POA of Lead Member to represent JV/Consortium, legally on their behalf, is required to be enclosed with the bid.

The Power of Attorney (ies) shall be in the format provided under Section-7: Bidding Forms of these Bidding Documents.

The online bid shall be submitted by using Digital Signature Certificate (DSC) of authorized POA of bidder detailed at (i), (ii) & (iii) above.

ITB 20.3 Format and Signing of Bid	As detailed in BDS para 20.2 above.
ITB 20.5 (Additional Para)	**Viewing & downloading the document is free of cost, bidder has to pay the Cost of Tender Document at the time of submission of the Bid.**

D. Submission and Opening of Bids

ITB 21.1, 21.2 & 21.3 Sealing and Marking of Bids

The Bidder shall submit/ upload (through digital signature of authorized person in e-tender portal of Maha Metro) (as described in ITB 20) in the Technical Package of its Bid the following documents, duly completed, which in the event of acceptance of the Bid, shall form part of the Contract :-

i. For submission of Tender Document and Corrigendum, Tick (V) Submission Process has been enabled in Technical section of E-Tender Portal of Maha Metro. Bidders have to tick (v) the corresponding checkbox provided in the Technical Section of E-Tendering portal as a token of acceptance of these bid documents & corrigendum / Addendums. By clicking the tick (v) the bid documents & corrigendum /addendum shall automatically get attached to offer of bidder. Further bidder may proceed for submission by clicking submit button.

ii. All required enclosures as per bid document shall be uploaded in "Technical Envelope" / "Technical Section" of E-Tender portal by using DSC of bidder.

iii. The "Technical Envelope" / "Technical Section" of E-Tender portal has been provided with facilities to upload a file of maximum size of 20 mb only at each entity.

iv. If bidder is desirous to upload a file more than 20mb size, he shall have to spilt the file in two or more parts of 20mb or lesser than 20mb each and can upload the same at appropriate Technical Template or "Additional Document" section of "Technical Envelope/section" of E-Tender Portal.

v. If the bidder has completed the submission process of his bid before due date of submission and in between employer issue a corrigendum, in this circumstances the bidder has to re-submit his bid by "clicking tick (V)" to the new added corrigendum, in case the new corrigendum has any implications to his already submitted bid. Bidder may, at his option, amend his bid accordingly & re-submit it.

vi. Physical Sign & seal of bidder on each page of Bid Documents available online is not required.

vii. Copy of Power of Attorney signing the bid of bidder or of Lead member

in case of JV / Consortium.

viii. Scanned copy of Bid Security: Cash, (if any) as well as BG component refer E-tender Notice).

ix. Scanned copy of POA of each member & Lead member in case of JV/Consortium.

x. All relevant formats given in Section 7: Bidding format. Physically Signed by authorized signatory / POA of bidders or Lead member in case of JV/ Consortium.

xi. Certificate of registration and other statutory documents of formation of bidder's company or JV/ Consortium or each members of JV/ Consortium (If not incorporated yet) issued by appropriate authority.

xii. Copy of PAN card of bidder. (PAN card of Indian member of JV/Consortium, if JV/Consortium consist foreign member).

xiii. Copy of all financial documents as directed in Section-3.

xiv. Relevant work experience certificate (in line of Section 3 & 4: Evaluation and Qualification Criteria) and other qualifications certificates as given in Evaluation of Qualification under Section-3.

xv. All Format of Section-7 and other enclosure, certificates stated above or desired elsewhere in the bid documents shall be physically filled, signed & stamped by authorized signatory / POA of bidder or POA of Lead member of JV/Consortium and scanned copies of such enclosures/documents should be uploaded on e-tender portal of Maha Metro along with bid documents.

The enclosures meant for Technical Bid shall be uploaded with Technical Envelope & Financial enclosures (If any) shall be uploaded with Commercial Envelope on E-Tender Portal of Maha Metro only.

ITB 21.4 (Additional Para)

1. Financial Bid (Commercial Envelope)

i. The financial bid shall be submitted in financial envelope/commercial envelope.

ii. BOQ/Summary sheet provided in the Commercial Envelope/financial envelope Section of E-Tender portal of Maha Metro shall be duly filled up online by bidder.

iii. Few price schedules may require to be filled up physically and required to be signed & stamped by authorized signatory / POA of bidder or POA of Lead member of JV/Consortium and a scanned copy of such schedules may be uploaded, as per instructions provided in the Financial bid of bid Document or E-Tender Portal.

ITB 22.1 Deadline for Submission of Bids

Section-2 ITB Clause is replaced by the following:

Last date and time of submission of online Bid shall be as per NIT or subsequent revision through corrigenda/addenda.

Procedure of submission of bid electronically i.e. E-tender has been

described in **Annexure-2B** of bid document.

ITB 23 Late Bids	**Section-2 ITB Clause is replaced by the following:** The submission of bid is permitted through E-Tender portal only. Submission of bid is not possible beyond the permitted date and time of submission of bid.
ITB 24.1, 24.2 & 24.3 Withdrawal, Substitution, and Modification of Bids	**Section-2 ITB Clause is replaced by the following:** i. As the bid process is through e-tender portal of Govt. of Maharashtra, amendment/ modification of bid by using the Re-Work option of the E-Tender portal shall be permissible before closing of the bidding process i.e., last date and time of submission of bid. ii. In case the bidder desires to withdraw the already uploaded/submitted bid, the same would not be possible but the bidder can opt not to proceed with the submission of the bid after opting "Re-work" option on E-tender portal. This can be done only prior to the closing date and time of bidding process. iii. The bidder should further note that in such case of not proceeding with submission of bid, the Bid Security, if paid online, through the E-Tender portal, the same will not be refunded immediately. Such cases shall be dealt separately offline after completion of bidding process.
ITB 25.1 & 25.2 Bid Opening	**Section-2 ITB Clause is replaced by the following:** The bid opening/ shall take place at office of: **Executive Director (Procurement)** **Maharashtra Metro Rail Corporation Limited "Metro Bhawan",** **East High Court Road (VIP Road), Near Dikshabhoomi,** **Ramdaspeth, Nagpur-440010, Maharashtra, INDIA** **Date & Time: As per NIT** The electronic bid (E-tender) opening procedure shall be as under: **The Technical Envelope/ Packages of Online Submitted Bids shall be opened/ downloaded by the Bid opening committee on due date and time of Bid opening.** No minimum number of bids is required in order to proceed to bid opening. **Add following paragraph below the existing paragraph of ITB 25.1:** **i.** The Bid Security will be checked and details will be read out for the information of representative of Bidders, present at the time of opening of Bid. **ii.** Technical Envelope/ Package of those Bidders who have not submitted Bid Security shall not be opened. Bid which is accompanied by an

unacceptable or fraudulent Bid Security shall be considered as non – compliant and rejected. **Also, the bidders who have not uploaded the essential enclosures and formats and do not agree with the Bid document, Corrigenda, Addenda as uploaded on the e-Tender portal by Maha-Metro, their bid submission shall treated as non-responsive and no further technical evaluation will be carried out.**

iii. **The entire submission of the bidder shall be downloaded and examined, scrutinized, and evaluated by a committee of officers of Maha-Metro.**

After evaluation of Technical Bid received electronically via E-Tender portal of Maha Metro, the Financial/ Commercial Package/ Envelope of bid of the bidders who have been evaluated as substantially responsive shall be opened. The date & time of opening of the Financial Bid shall be communicated to Technically Successful bidder electronically (E-mail).

ITB 25.3 Bid Opening

Section-2 ITB Clause is replaced by the following:

The Bid received through E-tender portal shall be opened in two stages i.e., Technical Bid opening and Financial Bid opening. The entire opening process shall be done online on E-Tender portal of Govt. of Maharashtra. If bidder desires, the opening of bids may be witnessed by their authorized representatives.

ITB 25.4 Bid Opening

Section-2 ITB Clause is replaced by the following:

The opening of Bid shall be done online on E-Tender portal of Govt. of Maharashtra. The employer shall open the Bid using DSC (Digital Signature Certificate) of authorized officers of Maha-Metro. The opening log of Bid shall be generated automatically on E-Tender Portal and the printout of the same shall be retained in the tender file.

The entire bid submitted by bidder shall be downloaded & printed for evaluation by a Tender Evaluation Committee.

The Bidders' representatives who are present shall be required to sign the attendance sheet for record.

ITB 25.5 (Additional Para)

After the evaluation of the Technical Bid in accordance with ITB 27, 28, 29 and ITB 30, the Employer shall prepare a list of responsive Bidders for opening of their Financial Bid.

Unacceptable and non-responsive bids will be rejected, and the corresponding Financial Package will not be opened.

A date, time and venue will be electronically notified to responsive Bidders

for announcing the result of evaluation and opening of Financial Bid.

The opening of the Financial Bid shall be done in presence of respective representatives of responsive Bidders who choose to be present.

Results of Technical Evaluation shall be communicated electronically to bidders.

ITB 25.6 (Additional Para)

All Financial Bids shall be opened by using DSC of authorized officer of Maha-Metro and the same shall be downloaded from the online E-Tender portal of Govt. of Maharashtra.

The contents of the Financial Bid are to be initialed by bid opening committee of the Employer attending bid opening either in ink or by using DSC.

The authorized representative of contractor are permitted to witness the opening process of Financial Bid.

E. Evaluation, and Comparison of Bids

ITB 26.4 (Additional Para)

The Bid drawings and documentation issued for this work is the property of Maha Metro (Employer) and shall be used solely for bidding purpose as general guidance. They shall not be used in part or whole or altered form for any other purpose without the permission in writing of the Employer.

ITB 29.5 (Additional Para)

Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid:

a) All enclosures, declarations, formats are properly signed by authorized representative of bidder or authorized representative of lead member of a JV/Consortium.
b) The complete bid document including all corrigenda/ addenda /clarifications issued from time to time, prior to the submission of bid should be agreed by bidder and all required enclosures should be uploaded on the e-tender portal of Govt. of Maharashtra through Digital Signature (DSC) of authorized representative of the Bidder.
c) has been accompanied by a valid Bid Security (as applicable); and
d) meets the Eligibility Criteria - Bidders, which do not qualify in any of the minimum eligibility criteria and other criteria described in bid document elsewhere, shall not be considered for further evaluation of Technical packages and shall be rejected
e) meets the other aspects of general evaluation as per BDS ITB 4.9 to 4.17

Absence of the above documents shall result in disqualification of the Bid/Bidder.

ITB 32.1 Conversion to Single Currency	**Section-2 ITB Clause is replaced by the following:** Quoting in Foreign currencies is not permitted. Hence, Bids will be compared in **Indian National Rupees (INR)** only. This will be achieved by conversion of the Foreign Currency if any, of the Bid into Indian Rupees by using the Exchange Rates of Reserve Bank Of India at the close of business of the Reserve Bank of India on 7 days prior to the day of Bid submission, and then adding the same to the Indian Rupee portion (if any) of the Bid. In case this particular day happens to be a holiday, the exchange rate at the closing of the business of the Reserve Bank of India on the previous working day will be considered.
ITB 33.1 Margin of Preference	**Section-2 ITB Clause is not applicable for this Bidding Process.** **Above or below clause** Margin of purchase preference shall be applicable as per MAKE IN INDIA POLICY 2017 (latest Revision at the time of Submission of Bid).
ITB 34.1, 34.2 & 34.3 Subcontractors	**Section-2 ITB Clause is replaced by the following:** No subcontractor is nominated by Employer.
ITB 34.4 (Additional Para)	**Sub-Contract** Sub–contracting shall be limited to 50% of the awarded price of the work excluding the cost of design, if any. The terms and conditions of subcontracts and the payments that have to be made to the Subcontractors shall be the sole responsibility of the Contractor. For sub-contracts, it will be obligatory for the Contractor to obtain a "No Objection" from the Engineer/ Employer. The credentials of the Subcontractor and Vendor need approval of employer. The Contractor shall certify that the cumulative value of the subcontracts awarded is within the aforesaid 50% limit. Any proposals by the Bidders in their offer shall not be construed as an approval of the vendor. The Subcontractor / Vendor shall fully comply with the technical specifications included in the Works Requirements.
ITB 35.2, 35.3, 35.4 Evaluation of Bids	**Section-2 ITB Clause is replaced by the following:** For evaluation of Price Bid, the employer shall consider the price bid submitted by the bidder making corrections for errors, if any, pursuant to ITB 31.2 above **only**.

Price variation clause will not be considered for financial evaluation.

ITB 35.5 Evaluation of Bids

Section-2 ITB Clause is replaced by the following:

As per OM No, F 9/4/2020-PPD, Dt. 12.11.2020, Ministry of Finance, Department of Expenditure, Procurement Policy Division, Government Of India.

(No provision should be kept in Bid Document regarding Additional Security Deposit / Bank Guarantee (BG) in case of Abnormally Low Bid)

Hence following pertains to ABG is not applicable to this tender .:

If bidder's quoted price is lower than the 10% of the estimated cost of the proposed work, Additional Bank Guarantee (APG) at the rate of 10% of the difference of the lowest allowable limit of quoting and quoted price by the bidders is to be furnished along with the normal performance bank guarantee (PBG).

Additional Performance Guarantee (APG) shall be calculated as under :-

A=Estimated cost of the work;

B=Quoted price by the bidder;

Difference of cost, C=A-B, if C > (10%A), then

APG = (C-10%A) x 10/100

However, such bid may be accepted by employer solely at their discretion, after going through the cost analysis submitted by the bidder and finding it workable.

ITB 35.6 (Additional Para)

Variations, deviations, alternative offers, and other factors which are not in line with the requirement and conditions of the bidding documents or otherwise result in the accrual of unsolicited benefits to the Employer shall not be taken into account in Bid evaluation.

F. Award of Contract

ITB 39.1 Award Criteria

Section-2 ITB Clause is replaced by the following:

Subject to ITB 38.1 and ITB 39.2, the Employer will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the Bidding Documents and who has offered the Lowest Evaluated Bid Price, and whose offer is balanced in terms of ITB 35.6, provided that such Bidder has been determined to be eligible and qualified in accordance with provisions of ITB 4.

ITB 39.2 (Additional Para)	In case, Successful Bidder is a JV/ Consortium, then the Performance Security may be furnished on behalf of the JV/ Consortium either by the Lead Member or by all the Members of such JV/ Consortium in such proportion as may be agreed between them as per JV/ Consortium agreement.
ITB 40.4 (Additional Para)	The “Letter of acceptance” will be sent in duplicate to the successful Bidder, who will return one copy to the Employer duly acknowledged and signed by the authorized signatory, within one week of receipt of the same by him. The Letter of Acceptance will constitute a part of the Contract.
ITB 42.3 (Additional Para)	Failure of the successful Bidder to comply with the requirements of ITB 41 and ITB 42 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security.
ITB 43 (Additional Para)	**Guarantees and Warranties** The Contractor shall submit all other Warranties, Guarantees & Undertakings (as applicable) in accordance with Section-5 and Section-6.

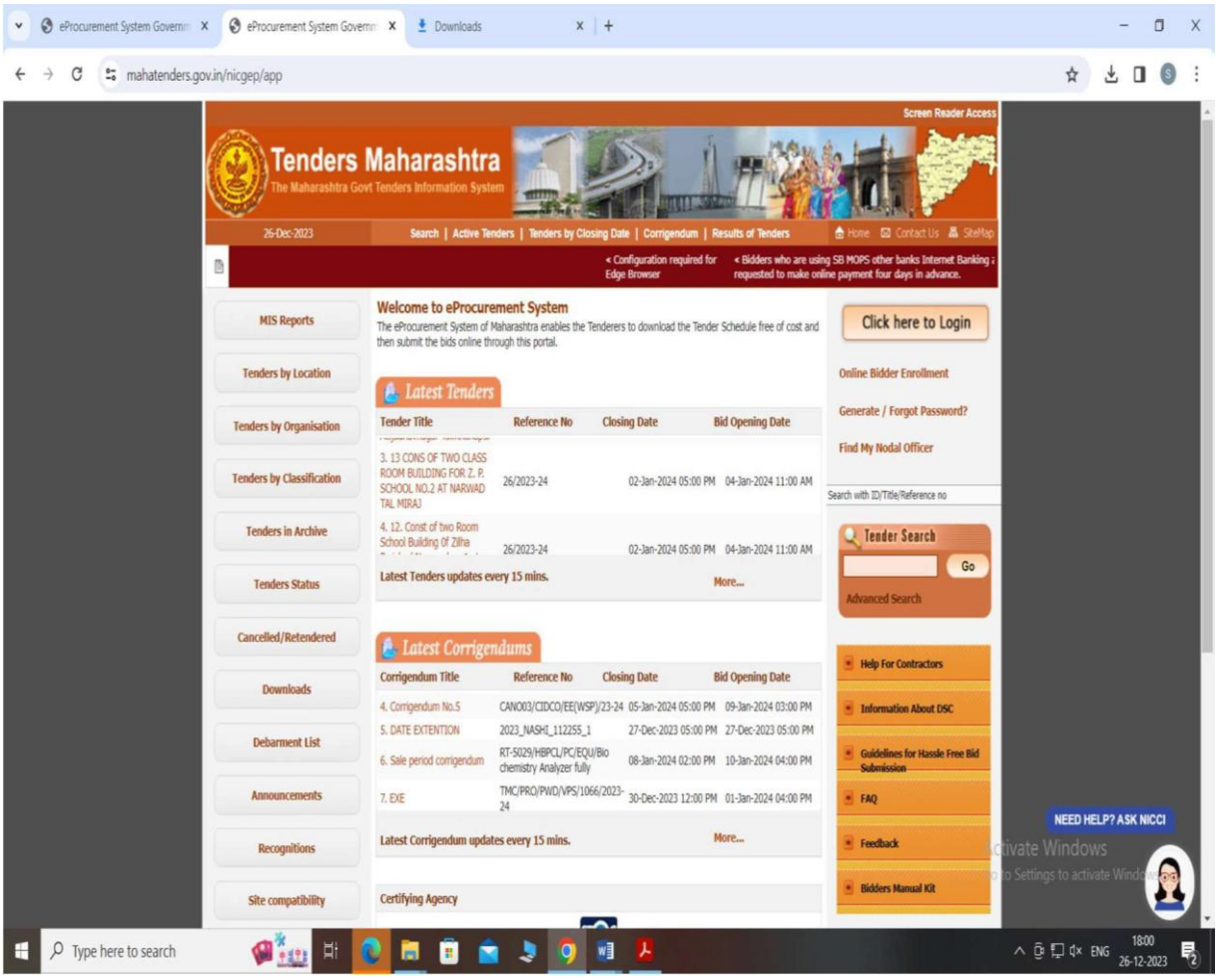
Annexure 2B

(Tool Kit for using E-Tender Portal of Govt. of Maharashtra)

i. The agencies interested to participate in this bid may purchase document online and follow the procedure detailed in e-Tender Portal of Govt. of Maharashtra i.e. https://mahatenders.gov.in

ii. The detailed procedure can be accessed from the below highlighted tab or follow the link

i.e. https://mahatenders.gov.in/nicgep/app?page=BiddersManualKit&service=page to access the information for detailed procedure.



No. K-14011/08/2017/MRTS-Coord
Government of India
Ministry of Housing and Urban Affairs
(MRTS-Coord Desk)

311-B, Nirman Bhawan, New Delhi,
Dated the 14th October, 2020.

To

Managing Directors of All Metro Rail Corporations
(As per standard list)

Subject: Revision of Minimum Local Content (MLC) of various metro rail components under MII-PPP Order, 2017 of DPIIT

I am directed to refer to the above cited subject and to say that the existing Minimum Local Content (MLC) of various metro rail components issued vide this Ministry's letter of even number dated 13.07. 2018 was reviewed in the last meeting of Managing Directors of various Metro Rail Corporations held on 08.10.2020. The revised minimum local content to be adopted by Metro Rail Companies in the procurement of various components shall be as under:

S. No	Metro Rail Components	Existing % of MLC	Revised% of MLC
1	Rolling Stock	40% which could be increased to 50% from FY-2019	**60%**
2	Telecom	40% which could be increased to 50% from FY-2020	**50%**
3	Signaling	30% which could be increased to 40% from FY-2020 and 50% from FY - 2023	**50%**
4	Civil Works (Elevated & Underground)	80%	**90% (for Elevated)** **80% (for Underground)**
5	Electrical and Mechanical	50%	**60%**

2. The above Minimum Local Content would be for Class-I local supplier under MII-PPP Order of DPIIT. For Class-II local supplier, the Minimum Local Content should be kept at 20% for all components as mentioned in extant MII-PPP Order of DPIIT.

3. This is for information and necessary action.

Yours faithfully,

(Rachna Kumar)
Under Secretary to the Govt. of India
Telefax: 2306 2935

Copy for information to: The Secretary, DPIIT, Udyog Bhawan, New Delhi-11.

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year.

TENDER NO. NM1/E&M-05/2026

Section 3: Eligibility Criteria

Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

SECTION 3: ELIGIBILITY CRITERIA

3.1. The Bid offers which do not qualify any of the Criteria specified in this Section-3, shall not be considered for further Bidding Process and such Bid offers shall be rejected.

3.2. Only '**Domestic Bidders'** i.e. Indian Companies are permitted to participate in this bid.

3.3. Bidder shall not have a '**Conflict of Interest'** in this tender process. Bidders shall be considered to have a conflict of interest, if:

- bidders submit more than one bid for the work.
- bidders having common controlling shareholders in two or more bidding entities
- bidders have common partner/s in two or more bidding entities
- bidders having any family relationship with the any employee of Maha-Metro.

3.4. Any **Ban/Blacklisting/Debarment** enforced on the Bidder, must not be effective on the day of 'Last date for Bid Submission':

A) for the reasons like supply of sub-standard material, non-supply of material, abandonment of works, sub-standard quality of works, failure to abide "Bid Securing Declaration" etc. by

i. any Department / PSU / Subordinate Offices under Ministry of Housing and Urban Affairs (MoHUA)

or

ii. any department of Government of Maharashtra

OR

B) By Department of Expenditure (DoE), Ministry of Finance, Government Of India from participating in any government bidding procedure.

3.5. Bidder must not have been listed in the **exclusion list of World Bank**, on the day of 'last date for Bid Submission'

3.6. **Registration under Provident Fund:** Bidder will be qualified only if they are registered with Provident Funds Department. Bidder has to submit notary attested copy of the certificate of PF registration.

3.7. **ESIC Registration:** The bidder will be qualified only if they are registered with ESI. Bidder has to submit notary attested copy of the certificate of registration with Employee State Insurance Corporation.

3.8. **GST Registration: -** The bidder must have a valid GST registration under the relevant act. Bidder has to submit copy of the certificate of registration.

3.9. The Bidder shall submit an Affidavit along with the bid, stating that it shall comply with all relevant statutory norms like Minimum wages, Employees' provident fund, Employees State

Insurance & GST as well any legislated obligations during entire execution period of the contract.

3.10. **Electrical License**: Bidder should have an Electrical License issued by Government Authorities, valid on the last date for Bid Submission.

3.11. **Financial & Technical Criteria:**

3.11.1. **Technical Criteria:**

1. **General Work Experience:**

Bidder should be a Proprietorship Firm / Partnership Firm / Limited Liability Partnership Firm / Private Limited Firm/Public Limited Firm, registered with applicable Statutory Authorities from at least Last 03 (Three) Years (the 03 Year period shall end on the Base Date i.e. 28 days prior to the Last date of Bid Submission). Bidder shall submit Incorporation Certificate/ Statutory Registration Certificate/ Shop Act Registration Certificate (as applicable), for evidence for the same.

2. **Similar Work Experience:** (Bid Form B-4a)

Bidder should have ***Similar work** experience during Last 03 (Three) Years (the 03 Year period shall end on the Base Date i.e. 28 days prior to the Last date of Bid Submission) and should be either of the following:

I. FOR INDIVIDUAL BIDDER (SCOPE OF WORK PART A AND B BOTH)

a The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 10.11 Crores** towards ***Similar Works of Part-A & Part-B under One Contract.**

Or

b The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 6.32 Crores each** towards ***Similar Works** under Two Contracts.

Or

c The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 5.06 Crores each** towards ***Similar Works** under Three Contracts.

[OR]

II. JV/CONSORTIUM (SCOPE OF WORK PART A AND B BOTH)

A. FOR SCOPE OF WORK PART - A

a. The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 3.65 Crores** towards ***Similar Works under One Contract.**

Or

b. The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 2. 29 Crores each** towards ***Similar Works under Two Contracts.**

Or

c. The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 1.83 Crores each** towards ***Similar Works under Three Contracts.**

[AND]

B. FOR SCOPE OF WORK PART B

a. The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 6.46 Crores** towards ***Similar Works under One Contract.**

Or

b. The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 4.04 Crores each** towards ***Similar Works under Two Contracts.**

Or

c. The Bidder must have claimed payment for satisfactorily Executed Works amounting to **not less than INR 3.23 Crores each** towards ***Similar Works under Three Contracts.**

3.11.2. Financial Criteria:

SN	Subject	Requirement	Single Entity	Joint Venture/ Consortium		
				All Parties Combined	Each Member	Any One Member
1	**Eligibility**					
1.1	Nationality	Domestic Bidder	Must meet requirement	Must meet requirement	Must meet requirement	
2	**Financial Situation and Performance**					
2.1	Financial Capabilities (cash flow)	The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the cash flow requirements of INR 0.70 Cr.	Must meet requirement	Must meet requirement	Must meet Min. 20% (Twenty percent) of the requirement	For Lead Member: Must meet Min. 50% (Fifty percent) of the requirement
2.2	Bid Capacity	Required Bid Capacity(s) of INR 12.64 Cr. **Evaluation of Bid Capacity: -** The Bidders will be qualified only if their available bid capacity is more than the	Must meet requirement	Must meet requirement	Must meet requirement as per their % share of participation in JV	

SN	Subject	Requirement	Single Entity	Joint Venture/ Consortium		
				All Parties Combined	Each Member	Any One Member
		value specified in above table. Available bid capacity will be calculated based on the following formula: **Available Bid Capacity= 2xAxN – B** Where, A = Maximum of the value of works executed in any one year during the last 05 (five) financial years reckoned up to 31st March'2025 (Updated to price level of 31st March 2025 assuming 5% (for INR portion) and 2% (for foreign currency portion) inflation per year compounded annually) N = Number of years prescribed for completion of the present work				

SN	Subject	Requirement	Single Entity	Joint Venture/ Consortium		
				All Parties Combined	Each Member	Any One Member
		B = Value of existing commitments as on first day of the month of this Bid submission i.e. for on-going works during completion period of proposed work. Proportionate value will be taken if it falls during the financial year. Note: 1. The available bid capacity should be more than specified value in above table 2. A certificate issued from a Statutory Auditor certifying A and B value must be enclosed with the technical bid. The certificate must be with UDIN				
2.3	Net Worth	Must not be less than **INR 4.21 Crore** as on **31-Mar-**	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement

SN	Subject	Requirement	Single Entity	Joint Venture/ Consortium		
				All Parties Combined	Each Member	Any One Member
		2025. Bidder shall submit a statement for the same, certified by Statutory Auditor with UDIN. **Note: Only Statutory Auditor's certificate required to be enclosed with bid. The certificate must be with UDIN.**				
2.4	Average Annual Turnover	Minimum average annual turnover within last 5 years shall be INR 8.43 Crores. Note: - 1. Last five years shall be (FY 2020-21, 21-22 ,22-23, 23-24 & 24-25) 2. In case of Companies, which follows Financial Year as Calendar Year (January to December), data for 2024 shall be treated equivalent to the	Must meet requirement	Must meet requirement	Must meet Min. 20% (Twenty Percent) of the requirement	For Lead Member: Must meet Min. 50% (Fifty) of the requirement

SN	Subject	Requirement	Single Entity	Joint Venture/ Consortium		
				All Parties Combined	Each Member	Any One Member
		data of FY 20224-25 and so on. 3. Statutory Auditor's certified summary sheet of audited balance sheet need to be enclosed with bid. The certificate must be with UDIN 4. Copy of audited balance sheets also need to be submitted along with the bid				
2.5	**Net Profit**	Summary sheet of audited balance sheets for the last 5 (five) years (FY 2020-21, 2021-22, 2022-23, 2023-24 & 2024-25) shall be submitted and must demonstrate the current soundness of the Applicant's financial position and indicate its prospective long-term profitability.	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement

SN	Subject	Requirement	Single Entity	Joint Venture/ Consortium		
				All Parties Combined	Each Member	Any One Member
		The Bidder Must have made Net Profit before tax during any two of the last 5 financial years i.e. (FY 2020-21, 2021-22, 2022-23, 2023-24 & 2024-25) Statutory Auditor's certified summary sheet of each year needs to be enclosed with bid. The certificates must be with UDIN Copy of audited balance sheets also need to be submitted along with the bid				

Special Notes to Section-3: (Bidding Form B-4a)

1. ***Similar Works Experience for Part-A: "Similar Work" means work of Electrical equipment installation or Maintenance of Electrical equipment such as LT Panels, DG, Fire pumps, Firefighting systems, Lighting, BMS etc.** in Metro Rail Projects (Government or private owned) OR Railways OR Public Sector Undertakings under Ministry of Railways (GOI) OR Railway SPVs OR Private Railway Systems owned by any Corporate listed in BSE/NSE OR in Hospitals/ Malls (Government or Private owned) OR Data Center as a direct contractor or as a JV/Consortium member.

2. **Similar Works Experience for Part-B: "Similar Work" means Electrical equipment installation or Maintenance of Electrical equipment such as, 220/132/33kV,25kV RSS & TSS, 25kV GIS, 33kV AIS panels, RTU, FACP, HT Power transformers (Auxiliary (OIL & Dry type) and Traction), 25kV OHE, SS,SSP, Isolators, BMs and control wiring of switchgears, SCADA etc.** in Metro Rail Projects (Government or private owned) OR Railways OR Public Sector Undertakings under Ministry of Railways (GOI) OR Railway SPVs OR Private Railway Systems owned by any Corporate listed in BSE/NSE, as a direct contractor or as a JV/Consortium member.

3. **Executed Work** means either Fully Completed Works OR Ongoing Works, subject to certification of amount of work done by the Employer/Client.

4. Sole bidder or Members of the JV/Consortium submitting the bid should have been registered with any statutory body for at least 3 years before the date of issue of NIT. Bidders shall submit Certificate of Incorporation/Statutory Registration/Shop Act License certificate (As the case may be). Period shall be considered from the date of Incorporation/ Statutory Registration/Shop Act Registration of bidding Firm/Company.

5. The Bidder shall submit details of '*Similar Work Experience' in the Forms given in bidding forms along with documentary proof such as client's certificates as mentioned above.

6. Sole Bidder or members of proposed JV/Consortium for this bid, shall submit summary of financial data & turnover for last five audited financial years (FY 2024-25, FY 2023-24, FY 2022-23, FY 2021-22, FY 2020- 21), duly certified by Statutory auditor along with his stamp, signature and UDIN.

7. JV/Consortium of Maximum 2 members is allowed.

8. The Lead Member must have minimum 51% contribution in the proposed JV/Consortium and Other Members must have minimum 20% contribution in the proposed JV/Consortium.

9. Full (100%) experience for previous works of the JV/Consortium shall be considered, if the

claiming member of the JV/Consortium has at least 60% share in previous JV/Consortium for the relevant referred Work Experience, else proportionate quantum of experience of previous works up to the percentage share of participation in the previous JV/consortium shall be considered.

10. If any member has less than 20% share in previous JV/consortium, his experience shall be considered as non-substantial and shall not be considered for evaluation.

11. Existing JV/Consortium already worked/working in any department & meeting the eligibility criteria of '*Similar Work', mentioned above, can bid with the same JV/Consortium configuration as a Single Entity.

12. Registration under Provident Fund: Bidder (Sole Bidder or members of JV/Consortium) will be qualified only if they are registered with Provident Funds Department. Bidder has to submit copy of the certificate of PF registration.

13. ESIC Registration: The bidder (Sole Bidder or members of JV/Consortium) will be qualified only if they are registered with ESI. Bidder has to submit copy of the certificate of registration with Employee State Insurance Corporation.

14. GST Registration: - The bidder (Sole Bidder or members of JV/Consortium) must have a valid GST registration under the relevant act. Bidder has to submit copy of the certificate of registration.

15. The Bidder (Sole Bidder or JV/Consortium) shall submit an Affidavit along with the bid, stating that it shall comply with all relevant statutory norms like Minimum wages, Employees' provident fund, Employees State Insurance & GST as well any legislated obligations during entire execution period of the contract.

16. Bidder's attention is drawn towards the following while furnishing the experience certificate of *Similar Works:

    i. Experience Certificate signed & stamped by Client/Employer with address & contact no's /email ID, briefly describing the nature of the work done, Amount certified towards this work done either annually or fully completed along with time period of execution of this work.

    ii. Maha-Metro on its own discretion may verify the authenticity of the documents as well as experience certificates submitted by bidders. Any fraudulent/fabricated/forged document which fails in authenticity verifications shall result in rejection of the bids and forfeiture of EMD/Bid Security/Execution of Bid securing Declaration. Such bidders may also be banned/blacklisted/debarred from participating in any future bids of Maha Metro.

17. The Bidder shall submit details of 'Work Experience' & other requirements for fulfilling the Eligibility Criteria in the Formats provided in Section-7 along with documentary proofs such as client's certificates as mentioned above.

18. Proportionate quantum of experience of previous works up to the percentage share of participation in the previous JV/Consortium shall be considered for evaluation.

19. For Average Annual Turnover, Bidder shall submit summary of financial data duly certified by Statutory auditor with his stamp, signature and UDIN for Last 05 (Five) Audited Financial Years (i.e. FY 2024-25, FY 2023-24, FY 2022-23, FY 2021-22, FY 2020-21).

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year.

TENDER NO. NM1/E&M-05/2026

Section 4: EVALUATION CRITERIA



Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

SECTION 4: EVALUATION CRITERIA

4.1 Technical Evaluation:

Bidder who fully meet the eligibility criteria shall be treated as technically qualified. Financial bid of bidders who fail to meet to minimum eligibility criteria shall not be opened & his bid shall not be evaluated further.

4.2 Financial Evaluation:

Financial Bid of only technical qualified bidder shall be opened.

Amount quoted by bidder shall be compared & the work shall be awarded to the bidder whose total quote is the lowest subject to fulfilling the terms & conditions of tender documents.

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year

TENDER NO. NM1/E&M-05/2026

Section 5: SCOPE OF WORK



Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

PART-A

SCOPE OF WORK AND EXPLANATORY NOTES OF E&M & UPS SYSTEMS

5.1 General

Contractor has to carry out Preventive and Corrective Maintenance of E&M, (Annual Maintenance Contract-3 Years) of Belapur Terminal, RBI Colony, Belpada, Utsav Chowk, Kendriya Vihar, Kharghar Village, Central Park, Penthpada, Amandoot, Petha-Taloja & Pendhar Station and Depots of Navi Mumbai Metro Rail Line-1 Project.

5.1.1 Commencement of Work:

The Annual Maintenance Contract (AMC) for the Electrical & Mechanical (E&M) systems will start on 01-04-2027. It will cover all stations and the depot of Navi Mumbai Metro Line-1. Before the contract officially starts for E&M System, the contractor may visit and inspect the stations and depot. The purpose of this visit is to check and assess the E&M equipment that will be included under the AMC. The equipment to be maintained will be as defined in the Scope of Work and the BOQ (Bill of Quantities).

5.1.2 Work content:

The contractor is required for maintenance activities and supply of indicative manpower of various categories provided in the Bill of Quantities. The contractor shall be responsible for management of the manpower supplied by him including arranging timely arrival at duty place, punctuality, payments to the manpower in compliance with statutory requirements and other terms & conditions of the contract. The successful bidder has to deploy the services of following indicative manpower within 10 days from the date of issue of LOA.

Sr. No	Category	Minimum Educational Qualification	Minimum Experience Post Qualification
1	Sr. Supervisor (E&M/HVAC)	B.E / B. Tech in Electrical & Electronics/ Industrial Engineering from Govt. recognized Institution/ University	05 years of work experience in the field of E&M department OF Metros/Railways (Maintenance of LT panels, Fire System, HVAC & Other associated equipment, DG & UPS etc.)
2	Supervisor (E&M/HVAC)	B.E. / B. Tech. or Three years Diploma in Electrical discipline from	For B.E / B. Tech - Candidate should have minimum 02 years of experience in the field of E&M department in Metros/Railways (Maintenance of LT

Sr. No	Category	Minimum Educational Qualification	Minimum Experience Post Qualification
		Govt. recognized Institution/University	panels, Fire System, HVAC & Other associated equipments, DG & UPS etc.) For Diploma –Candidate should have minimum 03 years of experience in the field of E&M department of metros & Railways (Maintenance of LT panels, Fire System, HVAC & Other associated equipments, DG & UPS etc.)
3	Maintainer (E&M/Electrical)	ITI/Diploma (NCVT/SCVT) course in Electrician Trade from a Govt. recognized university/Institute.	Candidate should have minimum 02 years of experience in the field of E&M/Electrical Department (Maintenance & Operation of LT panels, Fire System, Other associated equipments, DG & UPS etc.)

5.1.3 **Maintenance requirements**

During preventive/corrective maintenance, the work assessment will be done by agency along with metro officials. Based on above work assessment/measurement, report will be prepared and will be jointly signed by metro officials & Supervisor/ Sr. Supervisor of the agency. Based on above work assessment report, work order will be placed to the agency for any kind of preventive/corrective maintenance.

5.1.3.1 **Work order**

Work order will be issued based on Work Assessment report from time to time, which will be decided by Maha-Metro or by following stipulated schedules mentioned in the Maha-Metro manuals for preventive maintenance. For corrective and breakdown maintenance affecting the train services should be done on immediate basis to restore the traffic. However, the breakdown maintenance for the works not affecting train services must be completed within three days of the occurrence.

5.1.3.2 **Tools, Consumables, Hardware, PPE's, Uniform**

Contractor shall arrange the required Tools, Consumables, Hardware Items, and PPEs & Uniform as per *enclosed* tentative list at his own cost for maintenance works. Tools

required shall be procured by the contractor as per the site requirement from standard supplier (preapproved vendor) from the list given by Maha-Metro.

The Contractor shall ensure standard practices of calibration and test of tools/equipment's, repair to the tools, hardware's etc. (if any) should be done by the contractor at his own cost.

The contractor shall receive the Spares from Maha-Metro office of Operation & Maintenance.

5.1.3.3 **Vehicle**

i. Road Vehicles for transportation of men and material (spare movements from Store to station & return) shall be arranged by contractor at his own cost.

ii. Any other special purpose vehicle/equipment for carrying out special maintenance shall be arranged by the contractor at his cost.

5.1.3.4 The contract shall continue for a period of Three (03) year. The period of the contract may be further extended to 1 year as per requirement and discretion of MAHA-Metro.

5.1.3.5 The contract may be terminated before the contract period owing to deficiency in service or substandard quality of manpower deployed by the selected contractor or cessation of the requirement of work. MAHA-Metro, however, reserves the right to terminate the contract at any time after giving 30 days' notice to the selected service providing firm/company.

5.1.3.6 The Service provider should have adequate facilities (infrastructure with qualified and expert manpower) for testing / screening, recruitment, and training of personnel. This is also subject to evaluation / verification by MAHA-Metro. (Proof of such facilities in terms of Photographs, List of experts/ trainers engaged by the bidders shall be enclosed with the Technical Bid)

5.1.3.7 **Office and store:**

i. Contractor shall establish office if it doesn't exist in Navi Mumbai/Mumbai at his own cost within 30 days after issuing of LOA.

ii. The list of employees proposed to be deployed by contractor shall be submitted to MAHA-Metro along with educational qualification and experience and its documentary proof. MAHA-Metro reserves the right to seek details of educational qualification and experience certificate verify and scrutinize the CVs and educational details of proposed/ deployed employee.

iii. The contractor shall perform the all-maintenance practice and procedures (Preventive, Corrective) as per the requirement of MAHA-METRO and submit the

suitable detailed reports on monthly basis of each wing or as directed by Maha-METRO

iv. The contractor shall be responsible for attending and rectifying the day-to-day general complaints pertaining to O&M systems and resolved the problems/complaints within the prescribed limits.

v. Any other works as and when directed by the authorized person from MAHA-METRO other than mentioned above falling under the domain of O&M Works, directly or indirectly. (Such additional works like wiring, piping's, false ceiling adjustment and any minor installations etc. as per MAHA-METRO requirement wherever required).

vi. If any Equipments or Systems of MAHA-METRO are damaged due to mishandling by contractor's staff. The whole responsibility for it will be with contractor. The contractor has to rectify the same at their own risk and cost.

vii. The contractor would maintain the Maintenance done data on Digital O&M portal of Maha-Metro, maintenance manuals, and maintenance records of different E&M systems. These are proprietary to Maha-Metro and should not be shared with anyone.

viii. At the end of the contract period or termination, all the equipment, hand tools, software, maintenance data, hard copies of maintenance documents, maintenance manuals or any other items belonging to MAHA-METRO shall be handed back in good condition. Any damages found shall be recovered from the contractor whatever amount Maha-Metro.

ix. MAHA-Metro will perform random audits at their discretion to evaluate the quality of maintenance performed by the contractor.

x. The employer shall have the right to remove any employee of the contractor who is considered to be undesirable, poor workmanship, skills, poor quality of work, misconduct, disobey the lawful command. The contractor shall remove such employee with immediate effect and provide a suitable replacement at his own cost.

xi. In case of any Emergency, Contractor should be able to assemble all required man power within stipulated time to carry out emergency related works.

5.1.4 **Work Description of Outsourced Manpower: -**

The deployed manpower, by successful bidder, under various categories as described below shall perform following works at the Stations/Depots/Offices

Sr. No.	Category	Brief description of duties / work
A	B	C
1	Sr. Supervisor (E&M/HVAC)	1. He will be the Contact person Maha-Metro for any emergencies. 2. Responsible for billing activities 3. Shall coordinate with all Supervisor & Maintainer for scheduled activities & corrective activities. 4. He shall be responsible for providing Form-B & obtaining of Fire NOC (including payment of all statutory bodies & other documentation)
2	Supervisor (E&M/HVAC)	1. Responsible for preventive & corrective maintenance of E&M systems pertaining to his section. 2. Root cause analysis for faults and subsequent corrective maintenance required. 3. Custody of maintenance equipment for his section. 4. Training for maintenance staff. 5. Upkeep records and documents pertaining to E&M systems of his section. 6. Maintain the list of consumables, capital spares, minor spares required for keeping the system healthy.
3	Maintainer (E&M)	1. Carry out preventive maintenance as per roster. 2. Overall monitoring of E&M equipment's installed at stations. 3. Fault tracing, root cause analysis and rectification.

The above description of duties is not exhaustive, the deployed staff may be assigned other works pertaining to establishments, sites or any other issues in case of urgency.

5.1.5 **Place of Deployment: -**

The outsourced staff provided by successful bidder (Service provider) under the categories described above shall be deployed at any office of MAHA-Metro Navi Mumbai or any site of MAHA Metro as per requirement & discretion of MAHA-Metro. The outsourced staff or service provider shall not have any claim or preference in place of deployment.

5.1.6 **Discipline, Behavior & Integrity: -**

The deployed manpower shall maintain discipline, well behaved & possess high level of

integrity. He/she should follow highest level of professional ethics. The service provider shall provide induction courses related to discipline, basic official etiquette, discipline & integrity prior to deployment of the manpower to MAHA-Metro. Any manpower showing indiscipline, misbehavior, violation of basic official etiquette or doubtful integrity shall be removed immediately. In case of any serious offence committed by such persons, suitable penal action may be taken as per prevailing law & act and the service provider shall also be penalized in terms of partial or full forfeiture of performance security.

5.1.7 **Training, Skill Development & Competency: -**

Candidates provided by the contractor for different maintenance positions shall undergo a written test or interview conducted by Contractor in consultation with MAHA-Metro, and there after only qualified staffs shall be allowed to undergo training.

The service provider shall provide durational training at his own cost & place for skill development, refresher course on professional & official behavior of deployed staff with MAHA-Metro.

After successful completion of training program, competency test/interview will be first carried out by the contractor based on past experience and training given by contractor. After issue of competency by contractor, interview will be carried out by MAHA-Metro and competency/permission to work shall be awarded accordingly as per MAHA-Metro competency procedure. If any of the contractor's staff leaves the company, for new contractor staff the entire cost of training and salary during training period shall be borne by contractor.

5.1.8 **Verification of Character, Credentials, and Integrity of deployed manpower: -**

The service provider (successful bidders) shall deploy the persons with verified credentials antecedents and characters. Such verification shall be done by service provider at his own cost & keep it as a record. It shall be produced as & when required by MAHA-Metro. Any person with doubtful characters' antecedents & credential shall be immediately removed by service provider failing which lead to partial or full forfeiture of performance security and / or termination of contract.

The Contractor shall ensure that alcoholic drinks, drugs and other substances, which may impair judgement, are not sold, introduced or consumed on the Site.

The Contractor shall ensure that his personnel and those of his sub-contractors of any tier are not under the influence of alcohol or any substance which may impair judgement whilst on the Site or otherwise engaged in the execution of the Works.

The Contractor shall immediately remove or cause to be removed from the Site any

person employed by the Contractor or his sub-contractors of any tier who is found to be under the influence of alcohol, drugs or any other substance which may impair judgement. Such person shall not be employed again in connection with the Works or on the Project without the prior consent of the Employer

5.1.9 **Formats and Checklist**

The formats and work assessment checklist attached as Annexure A tentative for tender purpose only. It may be updated/modified or revised or added as per latest revision during execution of works as per requirement.

5.2 Detailed Scope of Work:

The scope of work covers **"Annual Maintenance Contract of Electrical & Mechanical equipments of Belapur Terminal, RBI Colony, Belpada, Utsav Chowk, Kendriya Vihar, Kharghar Village, Central Park, Pethpada, Amandoot, Pethali-Taloja & Pendhar Station and Metro Depot Buildings and premises of Navi Mumbai Metro Line-1 for a period of Three year."**

PERTICULARS OF SCHEDULE OF ITEMS

SCHEDULE 1	AMC of VARIOUS E&M SYSTEMS
Diesel Generator	1. **AMC For DG Sets,** 4 Preventive Maintenance Service Visits in a Year which includes 1 Yearly Wet service (**Including all consumables for wet Service)** and 3 Quarterly Dry Services (Covering Checkups and Adjustments) (Including Material Supply for DG AMC of various capacities as per BOQ) & attend unlimited Breakdown calls. *Contractor shall execute AMC with OEM/OEM Authorized dealers/Reputed Agencies (with Prior Approval of Maha-Metro)
Fire Detection and Fire Fighting System	1. **AMC For Fire Detection System** Including Quarterly Maintenance & Unlimited breakdowns of Fire Detection System (System includes FACP, Detectors, Modules, Fire PC & all associated devices) *Contractor shall execute AMC with OEM/OEM Authorized dealers/Reputed Agencies (with Prior Approval of Maha-Metro) 2. Monthly, Half Yearly Maintenance of Fire Pumps as per attached checklists and breakdowns as per BOQ 3. Quarterly Maintenance of FHCs, YH as per attached checklists and breakdowns as per BOQ

SCHEDULE 1	AMC of VARIOUS E&M SYSTEMS
	4. Quarterly Maintenance of Fire Extinguishers as per attached checklists and breakdowns as per BOQ 5. Corrective maintenance related to Panel flooding systems 6. Material Supply for Fire Detection and Fire Fighting Systems as per BOQ items as on when required
HVAC system (Non-Toshiba/Carrier)	1. Quarterly Maintenance of HVAC Split AC's IDU, ODU as per attached checklists and breakdowns as per BOQ 2. QUARTERLY maintenance of VRV IDUs, ODUS as per attached checklists and breakdowns as per BOQ
Various Pumps (Seepage, Sewage, Domestic)	1. Monthly Maintenance of Pumps & breakdown and rewindings call as per BOQ & checklists (Including pump Removing, Rewinding, Reinstallations)
LT Panel, DBs, High Mast, Lights,Signages	1. Yearly Maintenance of LT panels as per checklist and breakdown as per BOQ 2. Yearly Earth value measurement as per checklist and breakdown as per BOQ 3. Half Yearly Maintenance of High Masts as per checklist and breakdown as per BOQ 4. Supply of various electrical item as per BOQ
Rolling Shutters	1. **Preventive & Corrective maintenance for Rolling Shutters** for Yearly Maintenance of Rolling shutters as per attached checklist & Attend breakdowns as per BOQ *Contractor shall execute AMC with OEM/OEM Authorized dealers/Reputed Agencies (with Prior Approval of Maha-Metro)
Providing Man Lifter/Boom Lifter as per Requirement	1. Rate Contract for providing Man Lifter (Including Operator & Fuel) on hourly basis as per requirement.

SCHEDULE 2	Form B, Fire NOC and Lump Sum Item
Form B and Fire NOC	Certification of Form - B (HALF YEARLY) from licensed agency of Maharashtra Fire Services for NMML1 Metro Stations under jurisdiction of Panvel/Navi Mumbai Municipal Corporation and CIDCO per the prescribed schedule regarding Fires Systems installed stations & depot at Navi Mumbai Metro Line-1.

SCHEDULE 3	1 Year AMC of UPS Systems
UPS AMC	**Non-Comprehensive Annual Maintenance Contract** of UPS Systems covering Quarterly Preventive Maintenance and Unlimited Breakdown service of UPS (E&M and S&T Systems) including SCVS, Battery, Isolation Transformer, Spare Cell Charger (Spare items if required during PM/CM to be utilized per BOQ for any incidental Breakdown/Work) *Contractor shall execute AMC with Reputed Agencies (with Prior Approval of Maha-Metro)

- To ensure smooth operation of E&M systems and timely closure of CM/PM activities, contractor shall depute round the clock (24X7) Manpower (In 3 Shifts)
- Staff shall attend day to day Preventive and Corrective Maintenance of all Pumps, Fans, LT panels, Light/Switch Socket, DBs, High Masts etc. Attending day to day Failures (Major/Minor).

Detailed roles and responsibilities of the Contractor Staff are as below; Contractor shall deploy minimum manpower as below;

S. No.	Skill Set and Shift	Minimum Number	Location	Duties Assigned
1	Team Leader/Sr. Supervisor (Overall In charge for E&M, OHE & PSI) (General Shift)	01 (minimum)	Depot & Station	Day To Day Admin Work, Billing, Overall Supervision of NMML1, any other duties assigned by Maha Metro. Submission of RCA (Root cause Analysis of Major/Minor Breakdown)
2	Supervisor (General Shift/M/E/N if required)	03 (minimum)	Depot & Station	Day to Day Planning of Preventive Maintenance, Timely Attending Breakdown/Corrective Maintenance as reported by TPC/SC/Maha-Metro Staff, Day to day Manning of Personnels in Shift, any other duties assigned by Maha Metro

S. No.	Skill Set and Shift	Minimum Number	Location	Duties Assigned
3	Technician/Electrician/Maintainer (General Shift/M/E/N)	5 (minimum)	Station & Depot	Preventive Maintenance as per checklist Provided by Maha-Metro, Timely Attending Breakdown/ Corrective Maintenance as reported by TPC/SC/Maha-Metro Staff under supervision of concerned Supervisor, any other duties assigned by Maha Metro.

* Above tabulated indicative manpower is excluding AMC OEM/OEM Authorized dealer/Reputed Agencies manpower which will be deputed under AMC of DG set, Fire detection System, UPS System, Rolling Shutter by the contractor separately.

- For AMCs, Contractor shall ensure deployment of OEMs/OEM authorized agencies/ Reputed agencies who has extensive experience of AMC at PSUs/Malls/Hospitals/Retail stores/Government Offices/Metro Elevated/ Underground/Airports/Hospitals/Indian Railways/Maharashtra Fire Service dedicatedly only for Systems Diesel Generators, Fire Detection and Fire Fighting Systems, Rolling Shutters, UPS Systems.
- The contractor will obtain approval of Maha-Metro for schedule of any Preventive or Corrective Maintenance. Maha-Metro reserve the right to withdrawn any Preventive/Corrective as per BOQ.
- The particular shall cover supply of essential maintenance spares as per BOQ. The material should be of reputed brand, make and as per relevant standard specification. **The contractor will obtain approval of Maha-Metro regarding brand, make, specifications etc. before supplying the material.**

Schedule 2: Certification of Fire NOC & Form B

- "Certification of Form - B (HALF YEARLY) from licensed agency of Maharashtra Fire Services for Navi Mumbai Metro Line-1 Metro Stations under jurisdiction of Navi Mumbai/Panvel Municipal Corporation or CIDCO as per the prescribed schedule regarding Fires Systems installed at Navi Mumbai Metro Line-1 stations, depots and Office.
- This also includes the contractor for License work such as filling necessary applications, submission of forms for approval to the local authorities, depositing fees and other amounts. (For 5 Nos of Elevated Stations & One Depot)
- INCIDENTAL/EMERGENCY WORKS/SPARES are Spare items if required during PM/CM to be utilized per BOQ for any incidental Breakdown/Work as and when required.

Schedule 3: UPS System (E&M) Maintenance

- Deployment of Reputed agencies(with Approval of Maha-Metro) who has extensive experience of AMC at PSUs/Malls/Retail stores/Government Offices/Metro Elevated/ Underground/Airports/Hospitals/Indian Railways dedicatedly only for UPS Systems covering individual battery voltage check, Servo Voltage Control Stabilizer (SVCS),Spare cells charger Cleaning UPS & electronics cards, Fan check, UPS overall operation check (Loading, Synchronization, Bypass), Connection checking & tightening, Mechanical Check & software upgrade.

5.2.1 Brief Scope of Work in Detail:

SCHEDULE 1

- Providing Annual Maintenance of (E & M) Systems for 11 Stations & Depot of Navi Mumbai Metro Line-1 including replacement of defective / worn out parts and servicing of assets for 36 months.
- Contractor shall appoint & execute AMCs with OEM/OEM Authorized Dealers/Reputed agencies for AMC of DG Sets, Fire Detection Systems, Rolling Shutters & UPS Systems
- Includes ensuring round the clock availability of contractor manpower for Highly skilled (Overall in-charge for supervising in daily shift at Depot location of Navi Mumbai Metro Line-1), Skilled Person/Supervisor (On field at Stations and Depots

for executing different E&M maintenance activities) and Un-Skilled Person (On field stations and Depots for executing different E&M maintenance activities).

- Maintenance of all the equipment along with minor repair works will be the responsibility of the contractual staff.

Following are the schedule works in detail: -

A. <u>AMC FOR DIESEL GENERATOR SET (DG Set)</u>

- This schedule covers the scope of AMC for Diesel Generators (M/s Kirloskar make) ranging 380 & 650 KVA (M/s Cummins Make).
- Contractor shall execute DG set AMC with OEM/OEM Authorized Agencies/Reputed Agencies
- The purpose of this Annual Maintenance Contract (AMC) is to ensure that all Diesel Generator (DG) sets under the Maha-Metro premises are maintained in optimal working condition, with minimal downtime and maximum efficiency. The contractor shall provide preventive maintenance, wet and dry servicing, and attend to all breakdowns as per the defined schedule and requirements.
- Contractor shall arrange tools/tackles/PPEs/Ladder/Scaffoldings for work requirements on own without any additional cost

DG SETS COVERED

- The AMC will cover DG sets of various capacities as per the Bill of Quantities (BOQ).
- DG Sets Capacity Range: [380 kVA to 650 kVA]
- Make & Model: [Kirloskar, Cummins, etc.]
- Quantity: [As per BOQ 14 Nos]

Sr No	Ratings & Location of DG Sets	UOM	Qty
1	380 kVA Kirloskar Make at all Stations of NMML1	Nos	11
2	650 kVA Cummins Make (Depots)	Nos	3

The AMC shall include the following services:

i. Preventive Maintenance Services:

Total of 4 scheduled preventive maintenance visits will be carried out in a year per DG set:

a. 1 Nos of Wet Service (Yearly Major Service)

- Performed once a year, including replacement of all consumables and fluids.

- Contractor must supply all materials and consumables.

b. 3 Nos of Dry Services (Quarterly Services)

- Performed every quarter to check, clean, inspect, and adjust DG performance.
- Includes necessary adjustments but minimal consumable usage.

ii. Breakdown Maintenance

- The contractor shall attend to unlimited breakdown calls during the contract period.
- Breakdown service shall be included in the AMC cost, excluding major spares not covered (if any

1. Detailed Scope of Work for DG Set AMC

A. Wet Service (Yearly Major Service)

- To be carried out once a year, covering complete DG overhaul for reliability and performance.
- This includes supply of standard spares and consumables as per OEM recommendations

a. Consumables Supply & Replacement: (Compulsory change)

- Engine lube oil
- Lube oil filter
- Fuel filter (primary & secondary)
- Air filter
- Coolant/anti-freeze solution
- Water separator
- Gasket sets required for servicing
- Belts (fan belt, alternator belt, etc. as needed)
- Cleaning agents and necessary minor consumable

b. Service Activities:

- Draining old oil and refilling fresh engine oil.
- Cleaning or replacement of filters as per condition
- Thorough inspection of engine, alternator, control panel, fuel system, exhaust system, cooling system, and wiring.
- Adjustment of valve clearance and injector, AVARS settings.
- Checking and tightening of nuts, bolts, and fasteners

- Greasing and lubrication of moving parts.
- DG set full-load and no-load testing.
- Cleaning of DG and DG area after completion of service.
- Submission of service report **(The detail checklist covering above scope is placed at ANNEXURE A)**

B. Quarterly Dry Services (3 Visits per Year)

- Performed every quarter to ensure smooth functioning of DG sets.
- Visual inspection of the DG set and surrounding area.
- Cleaning of filters, checking battery terminals, belts, and engine mounts.
- Testing operational performance of the DG.
- Top-up of coolant and battery water as needed.
- Checking fuel system for leaks, Visual inspection & check for abnormalities, battery charging/replacement if required.
- Calibration of control panel meters and protection relays if any.
- Recording all observations in the logbook.

C. Breakdown Services

- Unlimited breakdown attendance included in AMC.
- The contractor shall diagnose and resolve faults.
- Minor spares like nuts, bolts, clips, and connectors are included.
- Major spares like injectors, alternators, starter motors, AVR, etc. will be charged extra unless explicitly included.

D. Exclusions (If Applicable)

- Major engine overhauls beyond routine maintenance.
- Replacement of major spares like engine block, alternator stator/rotor, turbocharger.
- Civil works related to DG foundation.
- Fuel and utility costs.

E. Safety & Compliance

- All services shall be performed in compliance with OEM recommendations and safety standards.
- Contractor to provide necessary PPE for staff.

- Hazardous waste must be disposed of as per environmental norms.

F. Warranty & Guarantee

- All parts and consumables must be genuine and carry OEM warranty.
- Any defect due to poor workmanship shall be rectified free of cost by the contractor

B. PREVENTIVE AND CORRECTIVE MAINTENANCE OF FIRE DETECTION & FIRE FIGHTING SYSTEM

i. AMC For Fire Detection System

a. This schedule covers the scope to execute AMC for Fire Detection Systems installed at Various Metro stations of Navi Mumbai Metro Line-1.

b. Contractor shall execute AMC with OEM/OEM Authorized dealers/Reputed Agencies and may submit details to Maha-Metro office

c. Contractor shall supervise and monitor AMC throughout the contract period i.e for 3 Years.

d. AMC Includes Quarterly Maintenance & Unlimited breakdowns of Fire Detection System (System includes FACP, Repeater Panels, Mimic Panels, Fire PCs, Detectors, MCP, Monitor Modules, Control Module, Isolator Modules, Relay Modules, Flasher Cum Hooters and all associated accessories

e. Quarterly maintenance includes Checking All devices, randomly operating detectors/MCP as per checklist. Check the healthiness of the battery & all cards. Cleaning of detectors and devices. Checking integration of FACP with all other systems i.e AFC System, Passenger Announcement System (PAS), Passenger Information Display System (PIDS), ACID gates, BMS System, Repeater & Mimic panels, Fire PCs etc

f. Detectors shall be cleaned as per pre-approved frequency of Maha-Metro,

SN	Station/ Depot	Area/Location of SD	Detector Cleaning Frequency
1	11 Elevated Stations	Pump Room	After Every 60 Days
		Concourse	
		ASS Room	

SN	Station/ Depot	Area/Location of SD	Detector Cleaning Frequency
		S&T UPS Room (HVAC Controlled Environment)	NA
		SER/TER Room (HVAC Controlled Environment)	NA
2	Depot	Open area and technical rooms	Quarterly
3	Any other location as per BOQ	All Devices	Quarterly

- Preventive maintenance of Fire Detection system & other passenger affecting amenities shall be carried out in Night hours after completion of Metro revenue services or at a time specified by Engineer in Charge of Maha-Metro.

ii. Monthly, Half Yearly Maintenance of Fire Pumps Set as per attached checklists and breakdowns as per BOQ. A set of Jockey pump, main pump, standby pump, also sprinkler jockey and sprinkler main pump at some stations. Preventive maintenance includes cleaning & checking of Automation of Pumps as per sequence chart, checking foundation bolts, check coupling bolts, check leakage from gaskets/glands replace wherever required, Inspection of Cooling Fan blades, Inspection of terminals of pumps. Half yearly cleaning Y-stainers, check alignments of pumps, Check earthing connections to pumps, record voltage, currents and other parameters of pump as per checklists

iii. Quarterly Maintenance of set of FHCs, YH as per attached checklists and breakdowns as per BOQ. Preventive maintenance Includes cleaning of FHCs, YHs, 2 Way, 4 Ways, Draw outs connections. Check availability of all glasses, keys, hammer and all accessories. Check functioning of door locks, check operation of all valves and pressure at FHC outlet. Arrest any leakages from first aid hose reel, greasing of hose reel drum for free movement attend any other abnormality in FHCs, YHs, 2 Way, 4 Ways, Draw outs connections

iv. Quarterly Maintenance of Fire Extinguishers as per attached checklists and breakdowns as per BOQ. Preventive maintenance Includes cleaning of Extinguishers, Monitor pressure/weight of extinguishers. Ensure healthiness of all accessories of extinguishers i.e. Hose pipes, nozzles, handles, hangers. Provide and update inspection date stickers and certifying healthiness of individual extinguishers after maintenance. Painting of extinguishers as per standards if required.

v. Breakdown related to Panel flooding systems including nitrogen top up in tubes, refilling of panel flooding cylinders including HTP, Supply installation of pressure gauges, T Connectors, End connectors, attending leakages and providing straight, Supply and installation of Trace tubes & master control units as per standards.

vi. Material Supply for Fire Detection and Fire Fighting Systems as per BOQ as on when required

C. HVAC system

The brief scope of work shall include;

i. Preventive Maintenance:

1. Maintenance for all HVAC Split AC's IDU, ODU including condensers and all other auxiliaries at the site.
2. Cleaning of air filters, indoor unit grills and filters through air blower.
3. Cleaning of the indoor unit body by wiping out the dust etc. with wet cloth.
4. Checking air flow through the supply air grill, return air grill and condenser.
5. Checking air temperature at supply air grill, return air grill, Inlet air condenser, outlet air from condenser.
6. The Bidder shall carry out chemical coating on condenser and gas pipes to prevent rusting.
7. Condenser coils shall be replaced whenever required to be replaced within the same shift (8Hrs) only.

ii. Preventive Maintenance Quarterly:

1. Replacement of parts if found damaged/unusable.
2. Checking selector switch, thermostat, relays, remote control etc.
3. Cleaning of blower and condenser fan.
4. Cleaning the evaporator and condenser coils.
5. Checking and tightening of nuts and bolts.
6. Checking of the backup electrical power outlet/MCB.
7. Checking the drive motors and fans.
8. Checking cooling efficiency.
9. Replacement of any component of air conditioners (Outdoor and indoor units, electrical connections etc.) found defective after the above checks and tests.
10. Charging of Refrigerant GAS during the period of Contract if need arises.

iii. Breakdown Maintenance:

1. Attend breakdown service of Air-conditioners, if any within a period of 4 hours of intimation through telephone/mobile phone. Maintain the complaint register

as per Performa. Before performing the routine/breakdown service, it is obligatory to get due permission from the concerned Engineer in charge or his authorized person and demonstrate the working of the Air conditioning units to such person after the servicing.

2. While performing the routine/breakdown service, it is obligatory to get consent from the engineer in charge or his authorized person before making any replacement of parts/major systems.

3. Upon completion of the routine service or breakdown service it is required to enter the details of work done, parts replaced if any and specific remarks if any with date in the Job Card as per the format. Job Card Performa duly signed by the Engineer-in-Charge, or his authorized person need to be submitted along with RA Bill.

4. During the course of service of the Air-conditioner any damages or losses that may occur to the Air-Conditioning units or any other equipment or assets of Maha-Metro (due to careless/improper handling or faulty/improper adjustment, the Contractor shall be responsible for the same and he will be bound to compensate for the losses suffered to the Maha-Metro in that respect.

5. Proper care of the safety of men, material, and equipment should be taken. Maha-Metro will not be responsible for any accident/injuries occurring to the Contractor's men due to their negligence during service of the Air-conditioner.

6. The manpower shall be ITI(HVAC)/Diploma/Graduate in Electrical/Mechanical Engineering qualified to carry out the HVAC maintenance works.

D. <u>Domestic, Sump & Sewage Pumps etc</u>

i) Preventive Maintenance:

Monthly Maintenance of Pumps Set. A set includes pumps installed i.e. Seepage pumps, domestic pumps, Sewage pumps etc. Maintenance includes automation testing of pumps, Manual operation of pump, cleaning of pumps and sump pit area, check coupling for tightness, inspection of foundation bolts, Earthings, attend any leakage, Inspection of terminal box of motors, Check healthiness of all pressure gauges, Healthiness of water level sensors.

ii) Corrective Maintenance & Rewinding:

Attend breakdown calls for Seepage, domestic, Sewage etc pumps. Removal, Rewinding & Reinstallation of pumps in case of winding failures issues including

transportation cost of motor. Attend free rotation issues of pumps, Attend automation failure issues of pumps. Rewinding and reinstallation of Ceiling/Table / Pedestal / Wall bracket/ cabin/Exhaust fans including transportation cost of motors.

E. LT Panel, DBs, High Mast, Lights, Signages

i) Preventive Maintenance

1. Routine Yearly maintenance of LT panels sets As per Maha-Metro maintenance checklist i.e Cleaning of all panels with vacuum cleaner ,Checking earth connection tightness, Ensure availability of rubber mat, Check MFM functioning, Check healthiness of all equipment inside panels, Check interlock for incomers, Auto/Manual Operation of breakers, Manual/Auto spring charge functioning, Cleaning breaker contact, Tightness of all shrouding covers, Operation of space heaters, Tightness of busbar, Healthiness of all indicators, Replace door locks wherever faulty, Check lights, ventilation fans, healthiness of gas flooding systems, Greasing of mechanical interlock system for ACBs, Record voltage current and match physically using clamp meter, multimeter etc.
2. Routine Yearly earth value measurements & value marking/maintenance of Isolators & cleaning of DB's as per Maha-Metro maintenance checklist. i.e Checking/measuring earth values of MET, CETs with standard measuring instruments, Corrective action if values are abnormal, Values marking, DB cleaning and tightness of terminals, Check DB operation through BMS & manually. Healthiness of indicators off all DBs at Stations.
3. Half Yearly Maintenance of High Masts installed at depots and stations. Preventive maintenance includes greasing/oiling of motors, chains, replacing faulty lights, check healthiness of rope, cleaning of highmast panels, Check UP-down operation of highmast assembly, check operation of motor.

ii) Breakdown Maintenance:

1. To attend breakdown of LT panels likes Automation failure, Breaker failure, adjusting Setting, Relay programming, Replacements of panel equipments with commissioning i.e ACB, MCCB, MCB, Contactors, Relays, LVM, Ammeter, Voltmeters, Motorized mechanisms, Spring charging motors, Indicators, Timers, MFMs, Spreaders, Busbars, Control wirings & other panel accessories etc.
2. Attending faults related to High masts, Signages, Lights, DBs etc.

F. Providing Man Lifter/Boom Lifter as per Requirement

1. To provide man lifter/boom lifter (Along with operator) equipment along with all necessary services to support maintenance, installation, inspection, and operational activities at heights, ensuring safety, reliability, and compliance with applicable statutory requirements.
2. The contractor shall supply man lifter/boom lifter (aerial work platform) on a **hire basis**, as and when required, including transportation, fuel, operator, maintenance, and associated accessories, ensuring safe and efficient operation at site locations specified by the client.
3. The lifter shall be used for activities such as:
   i. Maintenance of electrical installations, lighting, and panels at height.
   ii. Cleaning and repair of high-level structures, roofs, or ceilings.
   iii. Erection, dismantling, or inspection of equipment and structures.
   iv. Painting or other specialized works at height.
   v. Any other work requiring safe access to elevated locations

4. Equipment Specifications

The man lifter/boom lifter shall meet the following minimum requirements:

Parameter	**Specification (Minimum)**
Working Height	12 to 20 Meters (Or specified by Maha-Metro)
Platform Capacity	Minimum 200-250 kg (2 Persons with Tools)
Power Source	Diesel/Petro/Battery Operated
Rotations	360°C or as per site requirements
Minimum Safety Precautions	Emergency stop, fall protection anchors, tilt alarms, load sensors, overload protection

5. Supply & Deployment

i. Supply of man lifters on a per day (minimum 8 hours per day) requirement of Maha-Metro

ii. Transporting the lifter to and from the designated site, including loading/unloading charges if any

iii. Deployment within 12 hours of receiving a formal request from the Maha-Metro

iv. Arranging necessary permits and documentation required for movement within plant premises or public roads

6. Operator & Personnel

i. Providing a trained and certified operator with a valid license for safe operation of the lifter.
ii. Operators must be conversant with Machine controls and emergency procedures, Site safety rules and PPE compliance, Basic troubleshooting for minor issues.
iii. The contractor shall provide a replacement operator in case of absence or emergency.

7. Safety Compliance

The contractor must ensure:

i. Equipment has a valid fitness certificate and periodic inspection records.
ii. Operators and workers are provided with PPE (helmets, safety belts, etc.)
iii. Strict compliance with OSHA/IS standards and site-specific safety guidelines.
iv. No unsafe practices such as overloading, improper use, or bypassing safety controls.
v. Presence of fire extinguishers and emergency kits on the equipment.
vi. Maha-Metro reserves the right to reject equipment or personnel not meeting safety requirements.

8. Documentation

The contractor shall provide:

i. Machine fitness certificate and latest inspection reports.
ii. Operator license and training certificates.
iii. Insurance documents for: Equipment/ Operator & third-party liability

SCHEDULE 2: Certification of Fire NOC & Form B, LUMPSUM Items

A. <u>Detailed Scope for Fire NOC & FORM B</u>

1) The contractor shall:

- Carry out half-yearly certification of Form-B for fire safety systems installed at Navi Mumbai Metro Line-1(NMML1) stations, depot.
- Liaison with relevant municipal & other authorities for timely submission, approval, and renewal of fire-related documents.

- Provide end-to-end services, including application submission, form filling, fee deposition, and obtaining final NOCs.

2) **Locations Covered**

The work will cover all metro premises under NMML1:

- Metro Stations: All operational stations of Navi Mumbai Metro Line-1 under CIDCO jurisdiction.
- Depots: All maintenance depots as specified by NMML1.
- RSS at Kharghar & Taloja-Panchanand
- Total 14 Locations

3) **Scope of Services**

i. **Certification of Form-B (Half-Yearly)**

The contractor shall perform the following activities for certification:

a. System Inspection:
   - Comprehensive inspection of fire pumps, sprinkler systems, hydrants, alarms, emergency lighting, extinguishers, smoke extraction systems, and PA systems.

b. Testing and Verification:
   - Functional testing of all fire safety systems, verification of water and power supply, pump modes, and safety parameter compliance.

c. Certification Process:
   - Preparation and submission of Form-B through a licensed fire safety agency.
   - Submission to local fire authorities within the prescribed schedule.

d. Documentation:
   - Maintain inspection records, test reports, and certification documents.

ii. **Liaisoning Services for Fire NOC.**

The contractor shall provide end-to-end liaisoning services, which include:

a. Preparation and Submission of Applications:
   - Filling necessary forms, preparing supporting documents, drawings, and fire safety reports.

b. Coordination with Concern Authorities:
   - Regular follow-up with Panvel/Navi Mumbai Municipal corporation or CIDCO and Fire Department officials to ensure timely approvals.
   - Attend inspections and meetings as required.

c. Fee Deposition:
   - Deposit statutory fees, challans, and charges to municipal corporations.
   - Collect and submit original receipts to NMML1.

d. Issuance of NOC:
   - Ensure successful issuance of the approved Fire NOC.

4) **Deliverables**

i. Inspection and Testing Report - Half-Yearly
ii. Signed and Stamped Form-B - Half-Yearly
iii. Copies of Challans and Applications - As needed
iv. Final Fire NOC - As applicable
v. Consolidated Compliance Summary - Quarterly

5) **Responsibilities of Contractor**

- Monitor dates of Expiry of Form-B & plan for necessary actions
- Ensure strict adherence to timelines. Provide licensed professionals for certification.
- Maintain confidentiality of all documents.
- Ensure authenticity of certifications.
- Arrange manpower and tools for inspections.
- Submit regular updates to NMML1

6) **Service Charges and Fees**

- Contractor shall quote service charges for Form-B certification and liaisoning work.

- Statutory fees shall be deposited by the contractor and reimbursed at actuals upon submission of original receipts.

7) **Timelines**

- Half-Yearly Form-B Certification: Within 15 days of scheduled date.
- Fire NOC Renewal Process: At least 30 days before expiry

B. <u>SCOPE FOR INCIDENTAL/EMERGENCY WORKS/SPARES FOR E&M SYSTEMS MAINTENANCE</u>

The objective is to ensure continuous operational efficiency and uninterrupted functioning of the Operation & Maintenance (O&M) activities related to Electrical & Mechanical (E&M) systems by providing flexibility to address:

- Emergency or incidental works
- Continuous improvement activities to enhance safety, reliability, and performance of E&M systems

C. <u>Deployment Of Additional Manpower for Non-Scheduled Work on Daily Wages</u>

1. **Scope**

The objective of this scope is to provide flexibility in engaging semi-skilled and unskilled manpower on a need-based, daily wage basis to support for any emergency or incidental works. This ensures that adequate manpower is available for emergency, and special tasks that may arise from time to time without impacting the continuity of services

2. **Deployment Procedure**

a) Requirement Intimation:

- The Engineer-in-Charge (EIC) or authorized official will notify the contractor **in advance** regarding the number of workers required and the date/time of deployment.

b) Response Time:

- The contractor must ensure that manpower is **deployed within 24 hours** of receiving the request.
- For emergencies, workers must report **within 4–6 hours**, as directed by the EIC.

c) Attendance and Supervision:

- Daily attendance to be maintained jointly by contractor and client representatives.
- The contractor shall appoint a **site supervisor/coordinator** to monitor manpower deployment.

d) Replacement of Unsuitable Workers:

- If a worker is found **unsuitable, negligent, or unfit**, the contractor must replace them within 24 hours at no extra cost.

3. **Safety and Compliance**

The contractor shall ensure the following for deployed workers:

- **Personal Protective Equipment (PPE):**

  Workers must be provided with safety helmets, gloves, reflective vests, safety shoes, and other required PPE before deployment.

- **Training:**
  Basic safety and work-related training must be provided prior to commencement of work.

- **Compliance with Labor Laws:**

  All applicable statutory compliances must be adhered to, including:

  - Minimum Wages Act
  - Employees Provident Fund (EPF)
  - Employees State Insurance (ESI)
  - Payment of Bonus and other relevant labor regulations

- **Medical Fitness:**

  Workers must be medically fit, and a health record must be maintained by the contractor.

4. **Documentation Requirements**

The contractor shall maintain and submit the following records to the client:

- Daily attendance register of deployed workers.
- Wage payment records signed by the workers.
- Copies of ESI, EPF contributions, and other statutory compliance documents.

- Monthly summary of manpower deployed, categorized by skill level.

SCHEDULE 3: Annual Maintenance Contract (AMC) Service of UPS Systems:

A. <u>Detailed Scope of Work</u>

1. Contractor shall award AMC of UPS System to Reputed Agencies pre-approved by Maha-Metro.
2. Period for AMC agreement shall be for 1 Year.
3. Typical population of UPS system in Navi Mumbai Metro is as follows:

Sr No	Ratings Of UPS	UOM	Qty
1	60 KVA, Numeric make	Nos	8
2	60 KVA, Schinder make	Nos	4
3	60 KVA, Vertiv make	Nos	2
4	40 KVA, Schinder make	Nos	8
5	100 KVA, Reillo make	Nos	2
6	160 KVA, Reillo make	Nos	2

4. AMC Agency/Maha-Metro Contractor shall depute sufficient qualified and experienced Personnel at Stations, Depots and dedicated maintenance team at Navi Mumbai (Under the AMC Period) to upkeep and maintain all the UPS assets under AMC during aforesaid period 24X7 round the clock in 3 shifts who shall be able attend all types of faults of UPS system as recorded in TPC daily logs/BMS/.NET and any other faults informed through Whats-App/Over Telephone.
5. The service shall include providing all tools like spanners, ladders, testing equipment to work at any height / any floors as and where required, and as directed by Engineer-in-charge of Maha- Metro (NMML1).
6. Maha-Metro/AMC contractor will provide UPS spares as mentioned in BOQ for preventive and breakdown maintenance (Transportation of spares from Maha-Metro store to site is in scope of Contractor. Any special need of Spare/Parts shall be communicated to Maha-Metro well in advance of 15 Days. The AMC Agency shall be responsible for providing preventive & corrective maintenance of UPS unit. The AMC will include:
   i. **<u>Preventive Maintenance:</u>**
      a. The Agency shall provide preventive maintenance for all UPS systems & associated accessories at site (Annually 4 visits for each UPS System).

b. Preventive maintenance of UPS system shall be carried out in Night hours after completion of Metro revenue services or at a time specified by Engineer in Charge of Maha-Metro
c. Cleaning up of Unit, Visual Inspection to check any deformation.
d. Checking healthiness of all battery cells (float/on load voltage)
e. Cleaning of battery terminals of all cells and checking loose connections & leakages from cells
f. Perform a 60 Minutes discharge test with C10 load to assure the individual cells are functional
g. Check charging current / battery voltage after load test
h. To/From Bypass operation of each unit
i. Check all fan status and cleaning
j. Check audible alarm/ LED indication / LCD Panel indications / status
k. Abnormal sound/Abnormal noise
l. Check any overheating
m. Replacement of parts if found damaged/unusable/rusted.
n. Cleaning by blower/vacuum cleaner
o. Checking of the power availability at both source end changeover checking
p. Visual check of output end isolation transformer for any abnormality, which may affect UPS system.
q. Cross check after maintenance status of both unit
r. Any other maintenance requirement as suggested by the Employer.
s. Record keeping for all checklist & updating on SAP/Digital platform as suggested by the Employer time to time
t. Yearly check of Battery bank using TORKEL kit is in scope of contractor (including movement of torkel kit).
u. Checking and Adjustment (If needed) of Power parameters like input, Output, DC voltage and current.
v. Checking and Adjustment (If needed) of Control parameters on different PCBs.
w. Tightness of all connections, if shut down possible.
x. Functional Checking up of the Rectifier section.
y. Functional Checking up of Inverter section.
z. Functional Checking up of Static Switch Section.
aa. With the approval of the Engineer-in-charge of Maha-Metro (PMRP) operational tests of the system shall be performed including unit transfer and battery discharge.

ii. **Breakdown Services (BDS):**

a. During the AMC contract period the agency shall be bound to attend unlimited breakdown calls of UPS Systems, if any within a period of 4 hours of intimation through WhatsApp/Telephone/Mobile phone/ or any other mean by Maha-Metro,

b. Breakdown Maintenance includes fault-finding, repair or replacement of defective parts and functional checking of UPS system, Battery Banks, SCVS, Isolation Transformer, Spare Cell chargers etc.

c. Agency shall maintain the complaint register as per Performa before performing the routine/breakdown service, the contractor should get due permission from the concerned Engineer in charge or his authorized person and demonstrate the working

d. While performing the routine/breakdown service, the contractor shall have consent from the engineer in charge or his authorized person before making any replacement of parts/major systems.

e. Upon completion of the routine service or breakdown service the contractor shall enter the details of work done, parts replaced if any and specific remarks if any with date in the Job Card as per the format. Job Card Performa duly signed by the Engineer-in-Charge.

f. In case any part of UPS is not repairable within the office, the same shall be carried to the workshop at your own expenses with written permission of competent authority. The units shall be repaired within 48 hours failing which there will be an imposed penalty @Rs. 1000/- per day.

g. During the course of UPS Preventive or Corrective Maintenance service any damages or losses that may occur to the UPS units or any other equipment or assets of Maharashtra Metro Rail Corporation Ltd. (due to careless/improper handling or faulty/improper adjustment, the contractor shall be responsible for the same and he will be bound to compensate for the losses suffered to the Maha-Metro in that respect.

h. Contractor should be taking proper care of the safety of their men, material, and equipment. Maha-Metro will not be responsible for any accident/injuries occurring to the Contractors's men due to their negligence during service of UPS & Accessories Systems.

i. Contractor will be responsible for their man deployment at work under the regulations/legislation of labor's laws and other prevailing laws. Contractor to follow all Government prevailing regulations.

j. Any work related to the replacement of parts to be carried out by the contractor at no additional cost to Maha-Metro.

k. It shall be the responsibility of the contractor to hand over the UPS Systems to this office under contract in working condition at the expiry of the contract.

l. In case of non-performance/unsatisfactory maintenance and inability to meet service requirements, Maha-Metro shall reserve the right to terminate the AMC contract with Agencies after giving 30 days' notice in writing. Maha-metro reserve right to terminate such contracts after giving 30 days' notice in writing

iii. **Scope Of Incidental Works/Spares in UPS AMC**

i. UPS AMC Incidental/Emergency works/spares items shall be utilized on case-to-case basis

5.2.2 Penalty Clauses

Sr No	Penalty Clause	Penalty in Rs
1	Non deploying highly skilled/skilled/Unskilled staff within 15 Days of LOA OR Staff absent from duty without prior approval of Maha-Metro	Rs 1500/Per Person Per Day
2	Not awarding AMC to OEM/OEM Authorized dealer/Reputed Agencies within 20 Days of LOA & Submitting details to Maha-Metro office.	Rs.1500/- Per Day
3	Not attending E&M and UPS faults of within 24 Hrs after intimation from Maha-Metro by any means	Rs.2000/- Per Fault Per Day
4	UPS System - Not attending Major faults (which leads shutdown of UPS/Critical load) within 2 Hrs after intimation from Maha-Metro by any means	Rs.5000/- Per Hours
5	Not attending preventive maintenance of as per checklists within 3 days from schedule dates (Schedules date will be provided by Maha-Metro)	Rs.1500/- Per Maintenance Per Day
6	Not obtaining Form-B on or before date of Expiry	Rs.1000 Per Day Per Location after Expiry date
7	Not supplying material/spares/tools/Boom lifter as per BOQ within 24 Hrs Days from date of official requisition	Rs.5% of BOQ value of said spares

Sr No	Penalty Clause	Penalty in Rs
	by Maha-Metro	Per Day
8	Contractor fails to perform its duties/functions satisfactory as prescribed by Maha-Metro. For first instance later on Maha-Metro's Decision.	Rs.10,000.00
9	Contractor fails to carry out any Preventive/Corrective/Breakdown Maintenance as per their scope of Work	Actual Cost of the work + Supervision Charges of Maha-Metro (5 % of Actual cost of the work paid by Maha-Metro)

5.2.3 Reliability, Availability, Maintainability and Safety (RAMS):

5.2.3.1 Contractor's achievement of maintenance evaluated against the Reliability, Availability, and Maintainability and Safety (RAMS) targets as per below RAMS target. Contractor will compile all data, records and reports of each month performance and submit to the Maha-Metro for review and acceptance. Maha-Metro will review the RAMS achieved by the Contractor against the target and accord approval on monthly basis.

5.2.3.2 Contractor will compile all data, records and reports of each month performance and submit to Maha-Metro for review and acceptance.

5.2.3.3 Maha-Metro will review the RAMS achieved by the Contractor against the target and accord approval on monthly basis.

RAMS Target:

S.No.	Metro System	RAMS
1.	**HVAC System**	
a)	Availability	0.9950
b)	Maintainability	-
c)	MTTR [min]	-
d)	MTBF [hrs]	23184
2.	**Lighting System**	
a)	Availability	0.9999
b)	Maintainability	-
c)	MTTR [min]	-

d)	MTBF [hrs]	40000
3.	**Essential & very essential panels**	
a)	Availability	0.9999
b)	Maintainability	-
c)	MTTR [min]	-
d)	MTBF [hrs]	40000
4.	**Domestic water pumps**	
a)	Availability	0.9995
b)	Maintainability	-
c)	MTTR [min]	-
d)	MTBF [hrs]	40000
5.	**Firefighting pump system**	
a)	Availability	0.9995
b)	Maintainability	-
c)	MTTR [min]	-
d)	MTBF [hrs]	40000
6.	**Fire Alarm system**	
a)	Availability	0.9995
b)	Maintainability	-
c)	MTTR [min]	-
d)	MTBF [hrs]	40000
7.	**Firefighting system**	
a)	Availability	0.9995
b)	Maintainability	-
c)	MTTR [min]	-
d)	MTBF [hrs]	40000
8.	**DG set**	
a)	Availability	0.9995
b)	Maintainability	-
c)	MTTR [min]	-
d)	MTBF [hrs]	23000
9.	**E&M UPS**	
a)	Availability	0.9999
b)	Maintainability	-
c)	MTTR [min]	-

d)	MTBF [hrs]	40000

5.2.4 General Term & Conditions

5.2.4.1 All Tools & Tackles, Plants, equipment and materials required to carry out the repair and maintenance work at site are to be provided by the Contractor. The contractor should maintain all necessary safety precautions for their labours with personnel protective equipment (PPE's).

5.2.4.2 Contractor shall maintain all records in

List of Registers to be maintained (Digital Form)			
Sr.No	**SYSTEM**	**FREQUENCY**	**REMARK**
1	Work Distribution Register	Daily	
2	Common Fault Register	Daily	
3	Daily Energy Register	Daily	
4	DG run Register/Log book	Weekly	
5	PD Energy Register	Monthly	
6	Maintenance Checklists for all equipment (indicative list as below)	As per maintenance schedules	

5.3 Technical Specification:

5.3.1 LOW VOLTAGE CABLES

Standards:

All equipment, components, materials and entire work shall be carried out in conformity with applicable and relevant Bureau of Indian Standards and Codes of Practice, as amended up to date and as below. In addition, relevant clauses of the Indian Electricity Act 2003 and Indian Electricity Rules 1956 as amended up to date shall also apply. Wherever appropriate Indian Standards are not available, relevant British and /or IEC Standards shall be applicable.

It is to be noted that updated and current standards shall be applicable irrespective of dates mentioned along with IS in the tender documents.

IS:1554 (Part-I) – 1988	PVC insulated (heavy duty) electric cables: Part 1 For working voltages up to and including 1100 V
IS:7098 Part-I 1988	Cross-linked polyethylene insulated PVC sheathed cables: Part 1 For working voltage up to and including 1 100 V
IS 1255 – 1983	Code of practice for installation and maintenance of power cables up to and including 33 kV rating
IS 8130 – 1984	Conductors for insulated electric cables and flexible cords
IS 10418 –1982	Drums for electric cables
IS 10810	Methods of test for cables (All latest)
IS 3961	Recommended current rating for cables (All latest)
IS 5891–1970	Recommended short circuit rating of high voltage PVC cables
BS:7671 - 2001	Requirements for electrical installations. IEE Wiring Regulations - Sixteenth edition
BS 6724	Conductor (Cu/Al) /XLPE/FRLSZH inner sheath/steel wire armour / FRLSZH outer sheath
IEC 60502	Conductor (Cu/Al) /XLPE/FRLSZH inner sheath/steel wire armour/FRLSZH outer sheath
IS 7098	Conductor (Cu/Al) /XLPE/FRLSZH inner sheath/steel wire armour/FRLSZH outer sheath (No ISI seal will be marked on the cable. Also, FRLSZH is not covered in IS and BIS licensed not available).

5.3.2 Cable trays

Cables shall be so laid that the maximum bending radius is 12 times the overall diameter of the cable for medium voltage cables and 15 times the overall diameter for 11 kV cables or in accordance with the manufacturer's recommendations whichever is higher.

In the case of cables buried directly in ground, the cable route shall be parallel or perpendicular to roadways, walls etc. Cables shall be laid in an excavated, graded trench, over a sand or soft earth cushion to provide protection against abrasion. Cables shall be protected with brick or cement tiles. Width of excavated trenches shall be as per code of practice.

Cables laid in Masonry Trenches

Wherever so specified, cables shall be laid in indoor/outdoor masonry/RCC trenches with chequered plate/RCC covers. Cables shall be laid on GI supports/ Cable trays of may be

grouted in trench walls at intervals not exceeding 600 mm. If required, cables shall be arranged in tier formation inside the trench. Cables shall be dressed properly so that the clear spacing between the cables shall not be less than the diameter of the cable. Suitable clamps, hooks and saddles shall be used for securing the cables in position.

Cable laid On Trays/Walls

Cables shall be secured in position and dressed properly by means of suitable clamps, hooks, saddles etc. Clamping of cables shall be at minimum intervals as below:

Type of Cables	***Size***	***Clamping by***	***Fixing intervals***
MV	*Up to and including 25-sqmm*	*Purpose made, approved GI clamp minimum 2 mm thick, 19 mm wide*	*300 mm*
MV & HV	*35-sqmm to 120-sqmm*	*Clamps 3 mm thick 25 mm wide*	*- 600 mm*
MV & HV	*150-sqmm and above*	*Clamps 3 mm thick 40 mm wide*	*- 600 mm*
Note: *The fixing intervals specified apply to straight runs. In the case of bends, additional clamping shall be provided at 30 cm from the center of the bend on both sides.*			

Cable laid On Trays/Walls

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MV & HV	*35-sqmm to 120-sqmm*	*Clamps 3 mm thick 25 mm wide*	*- 600 mm*

MV & HV	*150-sqmm and above*	*Clamps 3 mm thick 40 mm wide*	*- 600 mm*
Note: *The fixing intervals specified apply to straight runs. In the case of bends, additional clamping shall be provided at 30 cm from the center of the bend on both sides.*			

Buried Directly in Ground

Cables should be so laid that they will not interfere with underground structures.

All water pipes, sewage lines or other structures which become exposed by excavation shall be properly supported and protected from injury until the filling has been rammed solidly in places under and around them. Cables shall be laid and protected at such locations.

Any telephone or other cables coming in the way are to be properly shielded as directed by Employer's representative.

Surface of the ground shall be made good so as to conform in all respects to the surrounding ground to the satisfaction of Employers' representative.

Cable trays

Cable trays shall be erected in perfect level and plumb and shall comply with the following:

- Trays shall not have sharp edges, burrs or projections injurious to cable insulation. Trays shall include fittings such as bends, risers etc. for changes in direction and elevation. Each run of cable tray shall be completed before laying of cables. Cable trays shall be exposed and accessible.
- Trays shall be supported adequately at minimum 1 m distance from the building structure by means of painted / galvanized (as specified) MS structural members secured to the structure by dash fasteners or by grouting. This support should be capable of withstanding the weight equivalent of 3m length of the cables that can be laid in the trays. At turns the support has to be double and at both ends of the bend.
- Minimum support should be 40 x 6mm angle. Anchor fasteners of Hilti / Fischer make of suitable size (not less than 12mm) to be provided.

5.3.3 LIGHTNING & EARTHING PROTECTION SYSTEM

Scope

The scope of work under this section covers the installation, connection, testing and commissioning of lightning protection system.

Standards Applicable The lightning protection system shall comply with I.S. 2309:89-code of practice for the protection of buildings and allied structures against lightning, Indian Electricity Act and Rules.

General

The lightning protection system consists of:

- Air termination network.
- Roof conductors.
- Down conductors.
- Testing joint
- Earth termination network.

System

The lightning protection system shall be installed as per British CP 326 or IS 2309:89.

As air terminals shall be installed on the highest roof of the building, the air terminals shall be joined to horizontal roof conductor by means of rivets/clamps.

Roof conductor shall be laid horizontally on the roof.

Down conductor shall be installed on the vertical surface of the building. The down conductor shall be joined with roof conductors in the method as prescribed by the code.

A test joint shall be provided in the down conductor 100mm above the ground level at a place which is easily accessible for testing.

The down conductor shall be joined with earth termination network or to the earthing station as indicated on the drawing.

The earthing station and the earthing conductor shall be as per section under heading "EARTHING".

Component Part

Air Terminals and Roof Conductors

An air termination shall consist of vertical conductor or a system of horizontal conductors and shall be installed along the outer perimeter of the roof.

No part of the roof shall be more than 9m from the nearest horizontal protective conductor.

All metallic projections, chimneys, ducts, vent pipe, railings, gutters etc., on or above the main surface of the roof of the structure shall be bonded to and form part of the air termination network. The method and nature of the fixing shall be simple, solid and permanent.

The minimum dimension of the air termination network shall be as follows:

Aluminum - 40 x 6mm

Aluminum, aluminum alloy copper and bronze rods -10mm dia.

The Air terminal shall be installed vertical on the highest point of the roof and shall be clamped firmly with the structure. The roof conductor shall be laid horizontally below the finishing of the roof surface.

Earth Resistance

The resistance from any part of the lightning protection system to earth shall not exceed 1 Ohm before any bonding has been affected to metal in or on a structure or to services below ground. If the value obtained exceeds the specified one Ohm, it shall be reduced by adding to the number of earth electrode.

5.3.4 EARTHING SYSTEM

Scope

This section covers the requirements for providing "Earthing" connection to metal parts of equipment etc., The contractor shall supply all materials, labour, tools, plant etc., as per the tender document and everything necessary for the complete Earthing installation".

Standards Applicable

The following standards shall be applicable:

IS 3043-Code of practice for earthing.

IEEE - 80:86.

IEEE - 142:92.

General

All the non-current carrying metal parts of electrical installation shall be earthed as per IS: 3043. Earthing shall be in conformity with the provisions of Rules 32, 61, 62, 67 and 68 of IER 1956.

G.I. Pipe Earth Station

Electrodes shall be made of G.I. pipe of internal diameter of 100mm dia. The pipe electrode shall be as far as practicable embedded below permanent moisture level. The length of the pipe electrode shall not be less than 2.5 m. Except where rock is encountered, pipes shall be driven to a depth of at least 2.5mtr where rock is encountered at a depth of less than 2.5mtr. The electrode may be buried inclined to the vertical and the inclinations not more than 30deg C from the vertical. The pipe electrode shall be made of one piece. Earth leads to the electrode shall be laid in a heavy-duty GI pipe and connected to the pipe electrode with brass bolts, nuts and washers. GI pipe shall be terminated in a wire meshed funnel. The funnel shall be enclosed in a masonry chamber of 450mm x 450mm dimensions. The chamber shall be provided with C.I/ RCC. frame and

CI / RCC Work Assessment cover. The earth station shall also be provided with a suitable permanent identifications label tag. The earth electrode shall conform to IS:3043 latest editions. The soil around the earthing electrode shall be treated to reduce the resistively of the soil by filling the complete depth of electrode with alternative layers of charcoal and salt.

Plate Earth Station

Plate electrodes shall be made of copper (CU) plate of 3mm thick and 600 x 600mm size. The plate shall be buried vertically in ground at a depth of not less than 2.5 meters to the top of the plate, the plate being encased in charcoal to a thickness of 300mm all round. It is preferable to bury the electrode to a depth where subsoil water is present. Earth leads to the electrode shall be laid in a heavy-duty GI pipe and connected to the plate electrode with brass bolts, nuts and washers. A GI pipe of not less than 19mm dia shall be clamped with bolts vertically to the plate and terminated in a wire meshed funnel. The funnel shall be enclosed in a masonry chamber of 450mm x 450mm dimensions. The chamber shall be provided with GI frame and CI / RCC Work

Assessment cover. The earth station shall also be provided with a suitable permanent identifications label tag. The earth electrode shall conform to IS:3043.

Earthing Conductors

All earthing conductors of Transformers / DG neutral shall be of high conductivity copper and shall be protected against mechanical damage and corrosion. The connection of earth electrodes shall be strong secure and sound and shall be easily accessible. The earth conductors shall be rigidly fixed to the walls, cable trenches, cable tunnel, conduits and cables by using suitable clamps.

Main earth bus shall be taken from the main medium voltage panel to the earth electrodes. The number of electrodes required shall be arrived at taking into consideration the anticipated fault on the medium voltage network.

Earthing conductors for equipment shall be run from the exposed metal surface of the equipment and connected to a suitable point on the sub main or main earthing bus. All switchboards, distribution boards and isolators disconnect switches shall be connected to the earth, bus. Earthing conductors shall be terminated at the equipment using suitable lugs, bolts, washers and nuts.

All conduits cable armoring etc., shall be connected to the earth all along their run by earthing conductors of suitable cross sectional area. The electrical resistance of earthing conductors shall be low enough to permit the passage of fault current necessary to operate a fuse/protective device or a circuit breaker and shall not exceed 2 ohms.

Precautions

Earthing system shall be mechanically robust and the joints shall be capable of retaining low resistance even after subjection to fault currents.

Joints shall be tinned, soldered and/or double riveted. All the joints shall be mechanically and electrically continuous and effective. Joints shall be protected against corrosion.

Testing

On the completion of the entire installation, the following tests shall be conducted:

i) Earth resistance of electrodes

ii) Impedance of earth continuity conductors as per is 3043.

iii) Effectiveness of earthing as per is 3043.

All meters, instruments and labour required for the tests shall be provided by the contractor. The test results shall be submitted in the prescribed tabulated form in triplicate to the consultants for approval.

Measurement

Mode of measurement is as follows:

Earth strips (GI/Cu), earth conductor are measured in linear meter (Rm).

Earthing station with all associated works (G.I pipe or copper plate) is measured in number (No).

5.3.5 Fire Hydrant system

GENERAL REQUIRMENTS

Introduction

All equipment, supply, erection, testing and commissioning shall comply with the requirements of Indian Standards and code of practices given below as amended. All equipment and material being supplied by the contractor shall meet the requirement of IS.

Tariff advisory committee's regulation (fire insurance), electrical inspectorate and Indian Electricity rules and other Codes / Publications as given below:

Standards, Codes and Regulations

TAC	Tariff Advisory Committee fire protection manual Part –1
NFPA: 12, 1993	Standards on Carbon Dioxide Extinguishing System
NBC-2005	National Building Code – 2005, Part 4 (Fire and Life Safety)
NFPA 10	Standard for Portable Extinguishers
NFPA 13	Standard for the Installation of Sprinkler Systems
NFPA 14	Standard for the Installation of Standpipe and Hose Systems
NFPA 130	Standard for Fixed Guideway Transit and Passenger Rail Systems
IS: 636	Non-percolating flexible firefighting delivery hose.
IS: 884	Specification for first aid hose reel for firefighting.
IS: 901	Specification for couplings, double male and double female, instantaneous pattern for firefighting.
IS: 902	Suction hose couplings of firefighting purposes.
IS: 903	Specification for fire hose delivery couplings, branch pipe, nozzles and nozzle spanner.

IS: 904	Specification for 2-way and 3-way suction collecting heads for firefighting purposes.
IS: 907	Specification for suction strainers, cylindrical type for firefighting purposes.
IS: 908	Specification for fire hydrant stand post type.
IS: 909	Specification for underground fire hydrant sluice valve type.
IS: 910	Specification for portable chemical foam fire extinguisher.
IS: 933	Specification for portable chemical foam fire extinguisher.
IS: 1648	Code of practice for fire safety of building (general): Firefighting equipment and its maintenance.
IS: 2171	Specification for portable fire extinguishers dry powder (cartridge type)
IS: 2190	Selection, installation and maintenance of first aid fire extinguishers-code of practice.
IS: 2871	Specification for branch pipe, universal, for firefighting purposes.
IS: 2878	Specification for fire extinguishers, carbon dioxide type (portable and trolley mounted).
IS: 3844	Code of practice for installation and maintenance of internal fire hydrants and hose reel on premises.
IS: 5290	Specification for landing valves.
IS: 5714	Specification for coupling, branch pipe, nozzle, used in hose reel tubing for firefighting.
IS: 8423	Specification for controlled percolation type hose for firefighting.
IS: 10658	Specification for higher capacity dry powder fire extinguisher (trolley mounted).
IS: 11460	Code of practice for fire safety of libraries and archives buildings.
IS: 1309	External hydrant systems – Provision and maintenance – Code of practice.
IS: 5514 (Parts 1-7)	Reciprocating internal combustion engines: Performance

5.3.6 Wiring

All wiring for relays and meters and other associated equipments shall be with FRLSZH, 1050 class PVC insulated, stranded copper conductor wires.

The wiring shall be colour coded and labelled with approved ferrules for identification. PVC ferrules yellow in colour, locked to avoid movement & with black engraved letters shall be provided at each end of all wires marked to correspond with equipment/circuit designation & termination numbers as specified / approved or as required.

A separate bunching & separate route shall be followed for AC& DC wiring.

The minimum size of copper conductor control wires for switch-boards shall be 2.5 mm2.

Wiring shall be terminated through cage clamps or using crimping lugs where former not feasible, without joints or Tee on their run. Wiring shall be run on sides of panels, neatly bunched, secured without affecting equipment mounting.

Standards

The following updated and current Indian Standard Specifications and Codes of Practice will apply to the equipment and the work covered by the scope of this contract irrespective of those listed.

IS: 8828 – 1996	Electrical Accessories - Circuit Breakers for Over Current Protection for Household and Similar Installations
IS 8623: Part 1: 1993	Specification for Low-Voltage Switchgear and Control gear Assemblies - Part 1: Requirements for Type-Tested and Partially Type-Tested Assemblies
IS 8623: Part 2: 1993	Specification for Low-voltage Switchgear and Control gear Assemblies - Part 2: Particular Requirements for Busbar Trunking Systems (Busway)
IS: 13947	Specification for Low-voltage Switchgear and Control gear
IS: 10118 - 1982	Code of Practice for Selection, Installation and Maintenance of Switchgear and Control gear
IS: 2675 - 1983	Enclosed distribution fuse boards and cut-outs for voltages not exceeding 1000 V Ac and 1200 V Dc
IS: 5578 - 1984	Guide for marking of insulated conductors
IS: 11353 - 1985	Guide for Uniform System of Marking and Identification of Conductors and Apparatus Terminals
IS: 9926 - 1981	Fuse wires used in rewireable type electric fuses up to 650 volts

In addition, the relevant clauses of the Indian Electricity Act 2003 and Indian Electricity Rules 1956 as amended up to date shall also apply. The installation shall generally follow the relevant Indian Standard/ Codes of Practice or the British Standard/ Codes of Practice or IEC Standards in the absence of Indian Standard unless specified otherwise.

Necessary test certificates in support of the certification shall be submitted prior to supply of the equipment.

5.3.7 Wiring System for Light Fixtures & Small Power Sockets.

Scope

Standards Applicable

The applicable standards for above work shall be as listed below:

IS: 732	Code of practice for electrical wiring installation (System voltage not exceeding 650V).
IS: 1646	Code of practice for fire safety of buildings (General Electrical installation).
IS: 2667	Fittings for rigid steel conduits for electrical wiring.
IS: 3480	Flexible steel conduits for Electrical wiring.
IS: 3837	Accessories for rigid steel conduit for electrical wiring.
IS: 694	PVC insulated cables.
IS: 2509	Rigid - non-metallic conduits for electrical wiring.
IS: 6946	Flexible (Pliable) non-metallic conduits for electrical installation.
IS: 1293	3 Pin plugs and sockets.
IS: 8130	Specifications for conduits for electrical installation.
IS: 3854	Switches for domestic purpose.
IS: 3415	Fittings for rigid non-metallic conduits.
IS: 4648	Guide for electrical layout in residential building.
IS: 9537	Conduits for electrical installation.
IS: 302	General and safety requirements for household and similar electrical appliances.
IS: 3043	Code of practice for earthing.
IS: 5216	Guide for safety procedures and practices in electrical work.Indian Electricity Act and Rules.

Regulations for the electrical equipment in buildings issued by the Bombay Regional Council of Insurance association of India, CEIG Maharashtra, MSEB.

All standards and codes mean the latest.

Point Wiring for Lights, Fans, Exhaust fans & 5 Amps Convenience Sockets

A point wiring shall consist of the branch wiring from the lighting panel together with a switch/fan regulator as required, including providing conduit and accessories, the ceiling rose or pendant holder or a swan holder, or ceiling fan hook box or socket etc., with suitable termination. Point wiring shall include, in addition, the earth continuity conductor/wire from the distribution board to the earth pin/stud of the outlet/switch box and to the outlet points.

The point wiring shall be carried out in the under mentioned manner:

a. Supply, installation, fixing of conduits and GI pull wire with necessary accessories, junction/pull/Work Assessment /switch boxes and outlet boxes/Fan hook box etc. Switches, switch plates and switch boxes are not required for the lights, which are controlled directly from the MCB DB's.

b. Supplying and drawing of wires of required size including earth continuity FRLS ZH, wire.

c. Supply, installation and connection of flush type switches, sockets, cover plates, switch plates, and fixing fan regulator, lamp holder, ceiling rose etc.,

d. The point shall be complete with the branch wiring from the lighting panel to the outlet point, through switch board, conduit with accessories, junction, pull, Work Assessment boxes, control switch, socket, outlets boxes, ceiling roses, lamp holder, connector, extension cord wire, flexible conduits etc.,

Point Rate

For purposes of measurements and payments the rate for point wiring for lights/fans etc., is divided into two parts.

a) Circuit Main
b) Point Wiring.

a) Circuit Main for Light/Fan Point

The circuit main for lights/fan/6A sockets (where 6A sockets connected to light circuit) shall include the wiring from the MCB distribution boards upto the first switch/light point/fan point. This is measured in linear meter. The scope of work under this section shall include

i. Supply and wiring in concealed/surface conduit from DB's to first switch/light /fan point.
ii. Providing and installing copper conductor earth wire.
iii. Providing and installing GI fish wire (pull wire) in the conduit.
iv. Termination of wires in lighting panels and switches using proper tinned copper lugs of crimping type.
v. Providing and installing necessary pull/junction boxes where necessary.

b) Point Wiring

The rate for point shall include supply, installation, and connection, testing and commissioning of point wiring in conduit. The points shall be measured in No/sets for the set/group of lights controlled as mentioned in BOQ.

The exact scope of work included in the point wiring for the purposes of measurement is enumerated as stated below. Wiring starting from the first switch/light/fan point, where the circuit main is terminated to the various lights/fans/sockets (where 6A sockets connected to light circuit loop), and then looping between the switches/lights/fans/6A sockets etc., Providing and installing all necessary switches, switch plates, sockets, pull/junction/fan hook boxes etc. as called for. Providing and installing earth continuity wire in each conduit along with the wiring system. Providing and installing G.I. fish wire (pull wire) in the conduits. Providing and installing FRLSZH insulated, flexible three core 2.5 sq.mm extension cords including flexible conduits from light/fan outlet points mounted at ceiling point to the light/fan outlet.

Wiring for 6A Sockets, 16A Power Sockets for Equipment Wiring\ Except where 6A sockets connected to the lighting loop which are measured.

System of Wiring

Unless otherwise mentioned on the drawings, the system of internal wiring shall be as follows:

The system of wiring shall consist of single core, FRLSZH insulated, 1100 Volt grade, stranded copper conductor wires/cables laid through concealed or exposed GI conduits as mentioned elsewhere or as directed by owner/consultant.

GENERAL: Prior to laying and fixing of conduits and light outlet boxes, contractor shall carefully examine the layout drawings and prepare detailed shop drawings, indicating the exact location of light outlets, with distances marked, conduit routing, with sizes, number of wires run in each conduit, control switch location etc., The contractor shall obtain the approval of all shop drawings by the owner/consultant prior to the installation of conduits. Any discrepancy noticed

in the design drawings shall be brought to the notice of the owner/consultant. Any suggestions or modification suggested by the contractor shall have approval of Client/ Engineer before execution.

Type of Installation

Unless otherwise specified all conduits for surface wiring shall be heavy gauge rigid GI conduits and all concealed installation including conduits running above false ceiling shall be heavy gauge GI.

All conduits buried in grade or in damp wet areas shall be heavy gauge G.I. conduits.

a) Concealed Wiring shall be done using GI conduits in the following areas Staircase area lighting. Wiring inside offices. Wiring in the false ceiling area. All other areas where surface conduit is not specifically mentioned.

b) Surface Wiring shall be done using Heavy Gauge G.I Conduit. i) Wiring installation in the electrical sub-station room, D.G. room.

- Pump room.
- Ventilation fan room, AHU room, electrical room.

c) Conduit Installation in False Ceiling Area

The GI conduits shall run exposed above false ceiling

5.3.8 Conduits

Type of Conduit

All conduits for wiring system irrespective of surface or concealed shall be of G.I

Generally concealed electrical wiring installation shall be in GI conduits and surface wiring also in G.I. conduits.

i. Conduit Accessories
ii. GI Conduit Bends & Collars

The GI conduit bends & collars shall be of heavy duty and preferably of the same make as of conduit. This shall conform to IS 9537/1983 with ISI Mark where necessary bends or diversion may be achieved by means of using bends and or circular Work Assessment boxes with adequate and suitable inlet and outlet termination. In case of recessed installation system. The bends shall be properly secured & flush with the finished wall

surface. Elbows shall not be used. No bends shall have radius less than 2 1/2 times the outside diameter of the conduit. Max bends in a length shall be two.

Work Assessment /Junction/Pull Boxes

The Work Assessment /pull box/junction box, where used, with relevant GI conduit installation shall be of heavy gauge GI and conform to IS specification and shall match with the conduit sizes. The box shall be round/square rectangular with conduit stub projection for termination of conduit. The box shall be of minimum 50mm deep and the size of box shall be suitable to pull/make necessary joints of wires inside the boxes. Extra deep boxes are preferred. The boxes shall have flush type cover. The color of plate shall match the color of paint of the surface where installed.

5.3.9 Switch Outlet & Socket Outlet Boxes

Concealed Type Outlet Boxes

The concealed outlet boxes for switches, sockets, power outlets, telephone outlet, fan regulator etc., shall be of standard factory made and to match the exact requirement of combination of outlets. The boxes shall be fabricated out of heavy gauge CRCA cold rolled carbon alloy sheet steel with zinc plating (G.I). The size of boxes shall match the type of outlet/switch plate to be mounted on the box. Adequate No. and size of knockout holes shall be provided to terminate the conduits in the box. These boxes shall be of standard factory-made product and of same make as of switch plates and sockets. Separate switch boxes shall be provided for each phase. Separate screwed earth terminal shall be provided in the box for earthing.

The outlet box shall be of minimum depth of 50mm.Boxes shall be suitable for grid mounting type of accessories. Long screw shall be provided to take care of the extra plaster thickness to mount the switch plates. Provision shall be made in the box and switch plate to have the minor adjustment of alignment of switch plate to plumb level.

Light Outlet Boxes

For concealed GI conduit installation, the light outlet box shall be of GI round/square with knock-out holes. Conduit projection shall be suitable to terminate the conduit to the box. The box shall be made of heavy gauge GI and the sample to have the approval of Construction Manager before use. The boxes shall have concealed screwed socket to fix the ceiling rose. The boxes shall be minimum 50mm deep.

For surface conduit installation the light outlet box shall be of G.I. The boxes shall have threaded stub projection having internal threading to terminate the conduits of different

sizes. The boxes shall have concealed screwed socket for fixing the ceiling rose. The boxes shall be minimum 50mm deep.

Ceiling Fan Hook Boxes

The ceiling fan hook box shall be fabricated of 2mm thick G.I/ Casting with adequately sized G.I rod/hook to fix the ceiling fan. The hook shall be concealed within the fan hook box. The side extensions of rod shall be sufficiently long to provide adequate anchorage in the concrete. The size of the box shall be such that it should be totally covered by the plastic canopy of the ceiling fan. The box shall have anticorrosive primer coating.

Switches

Switches shall conform to IS: 3854, and IS: 4615. Switches shall be single pole, single or two ways as shown on the drawings. They shall be modular type rated for 250V, 6/16A. They shall be provided with insulation covers.

The switches shall be rocker operated with a quiet operating mechanism with bounce-free, snap acting mechanism in an arc resistant chamber. The switches shall have pure silver and silver cadmium contacts. The switches shall be of approved make as indicated in the `List of Approved Makes'. Switches installed outdoors shall be industrial, metal clad type, and shall be provided in weather-proof enclosure, complete with weather proof gasketed covers.

Cover Plates for Switches & Outlets

Switches/sockets/wiring devices plates shall be of the same make as of switches/sockets/wiring devices. These shall be of best quality. Moulded plastic grid mounting type device plates/frames shall be used and these shall match with the type of switches/sockets and boxes.

Cover Plates for Work Assessment /Junction/Pull Boxes

G.I. boxes, shall be of G.I plates. The shape of the plate shall match with that of the box.

Receptacles

The sockets shall conform to IS 1293. Each socket shall be provided with control switch of appropriate rating. The sockets shall be moulded type rated for 250 volts and of 6 A or 16 A capacity as mentioned on the drawings. All 6A sockets shall be 5 pin universal type. The 16 Amps sockets shall be multi pin (6 pin) automatic shutter type suitable for plugging 6 A/16 A plugs. The shutter shall open when the earth pin of the plug is inserted in the socket. Where called for, the 16 A socket shall have indicated lamp. Where called for sockets shall be provided with three pin plugs top suitable to the socket and of the same

make as of socket. The plug shall conform to IS 6538. The socket outlets installed outside the building/open to sky or in damp/wet areas shall of weather-proof, water-tight type.

Industrial Type Sockets

The socket outlets single phase or three phase installed in electrical room, D.G room etc., shall be 5 pin industrial type with MCB (1 phase or 3 phase) control. The socket and MCBs shall be mounted in a sheet steel enclosure and shall be standard factory-made product.

Conductors

All FRLSZH insulated copper conductor wires shall conform in all respects to standards as listed under sub-head 'Regulations and Standards' and shall be of 1100V Grade.

FRLSZH Insulated Wires (For Light & Small Power Wiring)

The FRLSZH cables shall conform to IS: 694/1990. For all internal wiring FRLSZH insulated cables of /1100V grade, single core shall be used.

The conductors shall be plain, circular stranded annealed copper conductors complying with BS : 6360.

The minimum number and diameter of wires for circular stranded conductor shall meet the requirements set out in the relevant British Standards.

The cores of all cables shall be identified by colors in accordance with the following sequence.

Single phase	-	Red
Three phase	-	Red, Yellow, Blue
Neutral	-	Black
Earth	-	Green or Green/Yellow.

A means of identifying the manufacturer shall be provided throughout the length of cable.

Unless otherwise specified in the drawings, the sizes of the cables/wires used for internal wiring shall be as follows :

In case of circuit wiring for lights, exhaust fans, ceiling fans, bells, convenience socket outlet points:-

2.5 Sq.mm - For Lights/fans/5A socket wiring from DB's upto the outlet points including control wiring where the circuit length from the DB's to 1st outlet is less than 40 m.

In case of power socket outlet circuit.

6.0 Sq.mm - From DB's 20/32 A Industrial type sockets.

4.0 Sq.mm - From DBs to 16 A sockets.

The earth continuity conductor size as indicated in the drawing/BOQ shall be drawn through conduit along with other circuit cables/wires. The size of the earth continuity conductor shall be as follows :-

UNLESS OTHERWISE SPECIFIED MINIMUM SIZE OF EARTH CONTINUITY CONDUCTOR WIRES NOT FORMING PART OF THE SAME CABLE AS THE ASSOCIATED CIRCUIT CONDUCTOR.

Nominal cross-sectional area of largest associated copper circuit conductor in sq.mm	Nominal cross-sectional area of earth continuity conductor in sq.mm (PVC insulated green colour wire)
2.5	2.5
2.5	2.5
4.0	2.5
6.0	4.0
10.0	6.0
16.0	6.0
25.0	10.0
35.0	10.0
50.0	10.0

Separate circuits shall run for each water heater, pantry/kitchen equipment, window air conditioner, and similar outlets at locations as shown on drawings.

5.3.10 OEM for critical equipment

SN	Equipment	OEM
1	DG Set	Cummins, KOEL
2	HVAC	Carrier/Toshiba
3	FACP	Honeywell, Simplex
4	LT Panel	Schneider, L&T, Legrand
5	Pumps	Kirloskar, Wilo
6	Isolation Transformer	Vertiv, Numeric, Reillo
7	E&M UPS	Vertiv, Numeric, Reillo

For critical equipment, corrective maintenance must be done in presence of OEM representative.

OEM representative all charges to be Bourne by successful bidder.

5.3.11 UPS:

Total 4 Quarterly Preventive Maintenance Service Visits in a 1 Year covering unlimited breakdown calls/Corrective Maintenance covering following scope of work: Checking of all parameters and alarms and warnings, Individual battery voltage check, Servo Voltage Control Stabilizer (SVCS), Cleaning UPS & electronics cards, Fan check, UPS overall operation check (Loading, Synchronization, Bypass), Connection checking & tightening, Mechanical Check & software upgrade.

PREVENTIVE MAINTENANCE SERVICE includes

- Cleaning up of Unit, Visual Inspection to check any deformation.
- Checking and Adjustment (If needed) of Power parameters like input. Output, DC voltage & Current.
- Checking and Adjustment (If needed) of Control parameters on different PCBs.
- Tightness of all connection, if shut down possible.
- Functional Checking up of Rectifier section.
- Functional Checking up of Inverter section.
- Functional Checking up of Static Switch Section.
- With customer approval, perform operational test of the system including unit transfer and battery discharge.
- Individual battery voltage check, (boost charge battery if required)
- Replacement of batteries, Battery bank if required.

Other services:

- Replacement / Repair of any spare parts.
- Annual Total Productive Maintenance (TPM) & System Health Checks
- Battery Health checks • Environmental Audit & Power Mapping

Unlimited corrective maintenance of UPS including repair/replacement.

Format of Checklist

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DAILY MORNING SHIFT REGISTER	**Staff Name:-**	**Date:-**

S NO.	STATION →						REMARK
	ACTIVITY↓						
A	**OPERATION OF FIRE PUMPS & WATER PUMPS**						
1	Station entry time						
2	Inspection Time						
3	Water leakage from Pump						
4	Any other water leakage in Pump Room & Pipe Line						
5	Abnormal Sound from water/ Fire Pumps if Running						
6	Status of water in tanks (Low / Med / High) in BMS / Visual, operate pumps if required						
7	Check pressure in fire pipeline and record (Maintain 7 kg/cm2)						
8	Status of Jockey (Auto / Manual)						
9	Status of MAIN FIRE PUMP (A/M)						
10	Status of Standby FIRE PUMP (A/M)						
11	Status of Sump PUMP (A/M)						
12	Status of water in Sump Pump Pit, operate Pump if required						
13	Status of Borewell (A/M)						

S NO.	STATION → / **ACTIVITY↓**						**REMARK**
B	**OPERATION OF DG SET**						
1	Check the Physical condition and Cleanliness of DG Set & AMF Panel						
2	Check DG & AMF Mode of operation (A/M)						
3	Check Battery Voltage and record						
4	Check charging current and record						
5	Check coolent level						
6	Check DG run hours and record						
7	Check Diesel available and record						
8	Check and record availability of Fire Extinguishers & Sand Bucket						
C	**OTHERS**						
1	Any Abnormal indication on FACP & Repeater Panel						
2	Check UPS status (ON / OFF) & Load status						
3	Check which VRV/ VRF ODU are in service (ON or OFF) and record						
4	Working of CRC and Schedule Timer						
5	Check for any abnormalities in all Panels						
6	All Panel Gas Flooding System healthiness						
7	If Extra lights found glowing , action taken						
8	Any other abnormalities						
9	Check pressure in fire FHC & Record if any obnormality.						

Any other activities done / Remarks –

Note :A - Auto / M – Manual

SIGNATURE OF STAFF

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DAILY EVENING SHIFT REGISTER	**Staff Name:-**	**Date:-**

Sr NO.	**STATION→**						
	ACTIVITY↓						**REMARK**
1	Ensure water availability in tanks, operate pumps if required						
2	Inspection of DG Room, Diesel status (Note time)						
3	Any Abnormal indication on FACP						
4	Check All Panels for proper functioning						
5	Split AC Timer mode (A/M) if available						
6	Any other abnormality						
7	Normal Status of PD area Meters if any (Proper Working)						
CHECKING OF CIRCULATING LIGHTS OF STATION							
1	Check Station Sinages / Name Boards / Façade Lights - Record if any faults						
2	Check all circulating lights/ Station lights.						
3	Action taken If circulating Lights/ Station lights found faulty.						

Sr NO.	STATION→						
	ACTIVITY↓						REMARK
EQUIPMENT ROOM TEMP.							
1	SER						
2	TER						
3	S&T UPS						
4	E&M UPS						
5	SCR						
6	TOM						

Any other activities done / Remarks: -

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DAILY GENERAL SHIFT REGISTER	**Staff Name:-**	**Date:-**

S NO.	**STATION→**					**REMARK**
	ACTIVITY↓					
1	Station entry time					
2	Inspection Time					
3	Check Lift - Working status					
4	Check Escalator - Working status					
5	Check LT Panels - Working					
6	Status of E&M UPS					
7	LDB & Timer Status (A/M) - Platform -1					
	Platform - 2					
	Pump Room					
	Concourse 1 & 2					
	Other Area if any					
8	Continue Any other Maintenance activities assigned					

Any other activities done / Remarks :-

SIGNATURE OF STAFF

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		Doc. No.	**MMRCL/NMM /E&M/O&M/10**
		Revision No.	**01**
		Page	**1 of 1**
		Station	
		Date	

MOCKDRILL OF DG, FIRE PUMP AND SUMP PUMP	**Frequency Of Mockdrill : - Monthly**
Date/ Time:	
Station :	
Staff on Duty :	
Please Tick 'ü' or 'x'	
Check after switching OFF the Supply	

SR. NO.	OPERATIONS	YES	NO	REMARK (if any)
1	Auto start of DG set			
2	Change- over of supply at EPP , MLP, FPP			
3	Running of Fire Pumps on DG SET in auto mode in proper direction			
4	Checking of all emergency lights and DG lights at platform, concourse and Ground level.			
5	Checking of Voltage and Frequency			
6	Checking of working of Ammeter & Note down running current.			
7	Checking of DG Diesel Level before Mockdrill			

SR. NO.	OPERATIONS	YES	NO	REMARK (if any)
8	AMF Run Hour Reading before Mockdrill			
Checks after 33 KV Auxiliary power supply is switched ON .				
SR. NO.	**OPERATIONS**	**YES**	**NO**	**REMARK (if any)**
1	Stopping of DG set in auto mode after normalization of supply			
2	Change over of supply to normal mode at EPP,MLP and FPP			
3	Manual operation of pressure release valve			
4	Auto operation of Jockey & Main fire pump			
5	Auto operation of sump pump after restoration of the supply			
6	Any abnormal vibration in the pipeline			
7	Any blockage in the pipe line till the main sewer line			
8	Spill over in pump room/collection of water in sump pit			
9	Diesel Balance After Mockdrill			
10	AMF Run Hour Reading after Mockdrill			

ATTENDED BY :

SIGNATURE OF SUPERVISOR : **1)** **4)**

NAME OF SUPERVISOR : **2)** **5)**

3) **6)**

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		Doc. No. **MMRCL/NMM /E&M/O&M/11**
		Revision No. **00**
		Page **1 of 1**
		Station

VRV/ SPLIT AC FILTER CLEANING REGISTER

Sr.NO	ROOM / LOCATION	VRV/ SPLIT AC IDU NO.	CLEANING DATE	NAME AND SIGN OF STAFF	REMARKS

Sr.NO	ROOM / LOCATION	VRV/ SPLIT AC IDU NO.	CLEANING DATE	NAME AND SIGN OF STAFF	REMARKS

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/19**
		Revision No.	**00**
		Page	**1 of 1**
		Station	
Staff Name:-		**Frequency of Maintenance: - Weekly**	

S NO.	**DATE→** **ACTIVITY↓**						**Remarks**
1	Check the general condition of DG Set & AMF Panel						
2	Run DG For 3 Min in Auto Or manual Mode						
3	Check Vaccum Indicator In DG ON Condition						
4	Note Down AMF kWh Reading						
5	If Vaccum Indicator Not oK						
6	Check Battery Electrolyte Level						
7	Check Level of Fuel in tank and record						
8	Check for any Abnormal sound from engine, Alternator & AMF						
9	Check all Engine parameters						

S NO.	DATE→ / ACTIVITY↓						Remarks
a	Temperature						
b	RPM						
c	Alternator Voltage (R,Y,B) Phase to Phase						
d	Alternator Voltage (R,Y,B) Phase to Neutral						
e	Alternator current R,Y,B						
f	Alternator frequency						
g	Alternator KW						
h	Alternator KWH						
i	Total Engine running hrs.						
J	Lube Oil Pressure On HMI Screen						
10	Any other abnormalities						
Signature of Staff							
Date							

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/20**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance :- Monthly**	

S NO.	ACTIVITY	Done/ Not Done	Remarks
1	Check the general condition of DG Set		
2	Check and clean the DG set, Battery & AMF Panel		
3	Check Light of DG cabin (working / not working)		
4	Check Lube oil level (Low/normal/high/ % Around)		
5	Check Lube oil colour (yellow/Black)		
6	Check for Any oil leakage in engine cabinet		
7	Check for Any fuel leakage in engine, fule pipe or tank		
8	Check coolent level (% Around), fill if required		
9	Check V-belt tension/wear,tear and damage if any		
10	Check Earthing of Alternator neutral and body connection (OK/Not OK), tighten if required		
11	Check all electrical connection		
a	At charging Alternator (OK/Not OK)		
b	At Starter (OK/Not OK)		
c	At Power Alternator (OK/Not OK)		
12	Check general condition of Battery		
13	Check Battery Voltage (after charger switched OFF)		
14	Check for Battery charging (OK/Not OK)		

S NO.	ACTIVITY	Done/ Not Done	Remarks
15	Check the Water level in battery (Top up if required)		
16	Check Battery specific gravity by Hydrometer and record		
17	Clean the connection of battery and tighten, if required		
18	Apply petroleum jelly on battery terminals after cleaning, If required		
19	Check & clean Vent Plug of Battery		
20	Check whether DG is stopping on pressing Emergency Stop Plunger from DG cabinet.		
21	Check whether DG is stopping on pressing Emergency Stop Plunger from AMF Panel.		
22	Check Manual operation of DG set from AMF panel		
23	Check Auto operation of DG set from AMF panel		
24	Check Level of Fuel in tank and record		
25	Check for any Abnormal sound from engine, Alternator & AMF		
26	Check all Engine parameters		
a	Temperature		
b	RPM		
c	Alternator Voltage (R,Y,B) Phase to Phase		
d	Alternator Voltage (R,Y,B) Phase to Neutral		
e	Alternator current R,Y,B		
f	Alternator frequency		
g	Alternator KW		
h	Alternator KWH (AMF)		
i	Total Engine running hrs.		
j	Lube Oil Pressure On HMI Screen		
27	Any other abnormalities		
		SIGN OF STAFF:	

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**LT Panel Monthly Maintenance Register** **Doc. No.** MMRCL/CIDCO/E&M/O&M/06 **Revision No.** 00 **Page** 1 of 1 **Station Name** **Date**
Staff Name :		**Frequency of Maintenance: Monthly**

Sr No	Description	Main Panel	EPP	VEPP	NPP1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
1	Cleaning of panel enclosure													
2	Cleaning of all feeders													
3	Check Panel Earth Connection tightness													
4	Check all outgoing feeders current (R,Y,B) – Balanced or unbalanced													
	Current in Amps – R													
	Current in Amps – Y													

Sr No	Description	Main Panel	EPP	VEPP	NPP1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
	Current in Amps – B													
5	Check Insulation Rubber MAT status (Damage Condition)													
6	Clean Electrical Room													
7	Ensure electrical room is free from unwanted material													
8	Check MFM meter functions													
9	Check condition of equipments inside panel													
	Remarks													
	Date And Time													
	Sign of Staff													
*	**Remarks If Any :**													

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**Fire Pumps Monthly Maintenance Register**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/15**
		Revision No.	**01**
		Page	**1 of 1**
		Station Name	
		Date	

Staff Name:-	**Frequency Of Maintenance:- Monthly**

S NO.	ACTIVITY	JOCKEY PUMP	MAIN PUMP	STANDBY PUMP	SPRINKLER JOCKEY	SPRINKLER MAIN	Observation/Remark
1	Check the general condition of the pump and motor and clean						
2	Check foundation bolts						
3	Check the coupling bolts						
4	Ensure that the body earthing of Pump is connect and tight.						
5	Run the pump in both auto and manual mode and observe for any abnormalities like excessive heat, noise, vibration, leaks etc.						
6	Check for excessive leakage from the glands/ seal.						

S NO.	ACTIVITY	JOCKEY PUMP		MAIN PUMP		STANDBY PUMP		SPRINKLER JOCKEY		SPRINKLER MAIN		Observation/Remark
7	Check the cut In pressure and record											
8	Check the cut Off pressure and record											
10	Check connections in terminal box of motor and tighten if necessary.											
11	Check and ensure that the pressure gauges are working properly.											
12	Check whether the current and Voltage are within the specified Limit and record .	IR -	VRY-	IR -	VRY-	IR -	VRY-	IR -	VRY-	IR -	VRY-	
		IY-	VYB-	IY-	VYB-	IY-	VYB-	IY-	VYB-	IY-	VYB-	
		IB -	VBR-	IB -	VBR-	IB -	VBR-	IB -	VBR-	IB -	VBR-	
13	Any other abnormalities											
	Remarks If Any :											

SIGNATURE OF SUPERVISOR :

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**Domestic Water Pumps Monthly Maintenance Register** **Doc. No.** **MMRCL/CIDCO/E&M/O&M/E&M/16** **Revision No.** **00** **Page** **1 of 1** **Station Name** **Date**

Staff Name:-	**Frequency Of Maintenance - Monthly**

Sr. NO.	ACTIVITY	RAW / Borewell	Domestic 1	Domestic 2	Sump Pump 1	Sump Pump 2	Other Pumps	Observation/Remark
1	Check the general condition of the pump and motor and clean							
2	Check foundation bolts							
3	Ensure that the body earthing of Pump is connect and tighten.							
4	Run the pump in both auto and manual mode and observe for any abnormalities like excessive heat, noise, vibration and leaks.							
5	Check for excessive leakage from the glands/ seal, tighten if necessary.							
6	Check connections in terminal box of motor and tighten if necessary.							

Sr. NO.	ACTIVITY	RAW / Borewell	Domestic 1	Domestic 2	Sump Pump 1	Sump Pump 2	Other Pumps	Observation/Remark
7	Check and ensure that the pressure gauges are working properly, if provided							
8	Check whether Automation of Pumps is working or not							
9	Check whether the current and Voltage are within the specified Limit and record .	Ir -	Ir -	Ir -	Ir -	Ir -	Ir -	
		Iy -	Iy -	Iy -	Iy -	Iy -	Iy -	
		Ib -	Ib -	Ib -	Ib -	Ib -	Ib -	
10	Any other abnormalties							
	Remarks if any :							
								SIGNATURE OF SUPERVISOR

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**HVAC Indoor Unit Monthly Maintenance Register**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/18**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name :		**Frequency Of Maintenance :- Monthly**	

Sr No.	Description of Work	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
1	Check the condition of IDU do they required cleaning & brushing of Cooling coil													
2	Check for Abnormal noise from bearing of blower motor.													

Sr No.	Description of Work	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
3	Measure Room temperature and adjust the Set Point Value if required.													
4	Check the Working of automatic rest system to indoor unit (IF Provided).													
5	Check Condition of wiring and mains feeding IDU.Tight if required													
6	Check proper working of MCB													

Sr No.	Description of Work	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
7	Any other abnormalties													
Remarks If Any :														
										SIGN OF SUPERVISOR:				

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**HVAC Outdoor Unit Monthly Maintenance Register** **Doc. No.** MMRCL/CIDCO/E&M/O&M/E&M/19 **Revision No.** 00 **Page** 1 of 1 **Station Name** **Date**

Staff Name:	**Frequency Of Maintenance :- Monthly**

Sr No.	Description of Work	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
1	Check & Dry/ wet clean Condenser Coil and outside body with air blower and brush													
2	Do the General cleaning and brushing of compressor section as well as electronic section Using vacuum cleaner/ Air Blower													
3	Check for oil leakage from the joints , 4 way valve and report.													

Sr No.	Description of Work	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
4	Check the condition of Insulation of refrigerant piping and ducts.													
5	Check the Working of condenser fan motor, Check for any abnormality with regard to bearing noise, speed, air flow, obstruction in the direction of air delivery.													
6	Check Condition of dressing of wiring, fixation of contactors, MCBs, Relays etc . Tighten connections if found loose													
7	Check & Measure Mains power supply feeding ODU.													

Sr No.	Description of Work	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
8	Checking of Refrigerant leakage and ice formation on pipe lines.													
9	Check proper working of MCB													
10	Check that all the covers including terminal cover are fitted back with Screws													
11	Check Voltage drawn current in each phase and record	Ir -										Ir -	Ir -	
		Iy -										Iy -	Iy -	
		Ib -										Ib -	Ib -	
12	Any other abnormalties													
Staff Name & Sign.:														

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/17**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance:- Monthly**	

Sr. NO.	ACTIVITY	Done/ Not Done	Observation/Remark
1	Check whether FACP panel is functioning properly .	Done	
2	Clean FACP, Mimic Panel and Repeater Panel internally and externally by vacuum cleaner/ Air Blower.	Done	
3	One MCP of any one loop should be operated to test (MCP & Loop/ Zone Must be changed each Month) . Give adress of MCP	Done	
4	One detector of any one loop(Other than Point- 3) to be operated to test (Detector & Loop/Zone Must be changed each Month) Give address of Detector	Done	
5	The ability of the FACP/Repeter Panel/Mimic panel to receive the signal and to sound the alarm and operate other warning devices	Done	

Sr. NO.	ACTIVITY	Done/ Not Done	Observation/Remark
6	A visual examination of the battery and connections should be made to ensure that they are in good condition.	Done	
7	Check Battery Voltage on load , charger output voltage and its Healthiness	Done	
8	Any other abnormalities, report immediately		
	Remarks if any :		
			SIGN OF SUPERVISOR

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/28**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	

Staff Name:-	**Frequency Of Maintenance:- Monthly**

Sr.No	**Location**	**S&C UPS Room (Below False Ceiling)**	**S&C UPS Room (Above False Ceiling)**	**TER (Below False Ceiling)**	**TER (Above False Ceiling)**	**SER (Below False Ceiling)**	**SER (Above False Ceiling)**	**Remarks**
1	Conduct a Complete External Visual Inspection							
2	Checking of system after Deactivation of Solenoid Valve from the system							
3	Pressure check							
4	Cross Zoning Check							
5	Release Switch check							
6	Abort Switch check							
7	Battery Condition& Voltage							
Remarks If Any :								
								Signature of Staff

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/10**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	

MOCKDRILL OF DG, FIRE PUMP AND SUMP PUMP	**Frequency Of Mockdrill : - Monthly**
Date/ Time:	
Station:	
Staff on Duty:	
Please Tick '□' or 'x'	

Check after switching OFF the Supply

SR. NO.	OPERATIONS	YES	NO	REMARK (if any)
1	Auto start of DG set			
2	Change- over of supply at EPP, MLP, FPP			
3	Run Fire Pumps on DG in auto mode in proper direction			
4	Check all emergency lights at all locations			
5	Check Voltage and Frequency			
6	Check working of Ammeter & Note down running current.			
7	Check DG Diesel Level before Mockdrill			
8	Note AMF KWH Reading before Mockdrill			
Checks after 33 KV Auxiliary power supply is switched ON .				
SR. NO.	**OPERATIONS**	**YES**	**NO**	**REMARK (if any)**
1	Stopping of DG set in auto mode after normalization of supply			

SR. NO.	OPERATIONS	YES	NO	REMARK (if any)
2	Changeover of supply to normal mode at EPP,MLP and FPP			
3	Manual operation of pressure release valve			
4	Auto operation of Jockey & Main fire pump			
5	Auto operation of sump pump after restoration of the supply			
6	Any abnormal vibration in the pipeline			
7	Any blockage in the pipe line till the main sewer line			
8	Spill over in pump room/collection of water in sump pit			
9	Diesel Balance After Mockdrill			
10	Note AMF KWH Reading after Mockdrill			

ATTENDED BY :

SIGNATURE OF SUPERVISOR :

NAME OF SUPERVISOR :

1)

2)

3)

4)

5)

6)

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/12**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
MOCKDRILL OF FIRE ALARM CONTROL PANEL (FACP)		**Frequency Of Mockdrill : - Monthly**	

Date/Time:	
Station:	
E&M Staff on duty:	
Station Controller on Duty :	
Please Tick '✓' or 'x'	

Sr. No.	**OPERATIONS**	**YES**	**NO**	**REMARK(IF ANY)**
1	Detector is Latching			
2	Alarm on FACP			
3	Location of detector			
4	Is MCP working			
5	Hooter is blowing			
6	Indication of Repeater Panel			
7	Zone indication on Mimic Panel			
8	Passenger Announcement "Fire Alert" Start			Time taken for acknowledgement-
9	Passenger Announcement "Station Evacuation" Start			
10	Fire Mode Activate In All Lifts			

Sr. No.	OPERATIONS	YES	NO	REMARK(IF ANY)
11	Fire Mode Activate In All Escalator			
12	All AFC Gates Open			
13	Acknowledge the fire alarm			
14	Signal silence			
15	Make system normal			
16	Reset all the operations through FACP			
	SIGN OF E&M STAFF:		SIGN OF ON DUTY STATION CONTROLLER:	
	STAFF NAME:		NAME:	
	EMP NO :		EMP NO :	

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/14**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	

MOCKDRILL OF UPS	**Frequency Of Mockdrill : - Monthly**
Date: -	
Start Time: -	
End Time: -	
JE In-charge on duty: -	
E&M Staff on duty: -	

S. No.	**OPERATIONS**	**Yes**	**No**	**Remarks (If any)**
1	Change- over from normal to UPS supply working properly			
2	Change- over from UPS to Normal supply working properly			

INDIVIDUAL BATTERY BANK VOLTAGE MEASUREMENT : -				
Battery Bank No	**Standard Voltage**		**Float Voltage (On Line)**	**On Load Voltage (After 15 Minutes)**
1				
2				
Remarks				
			SIGN OF SUPERVISOR :	
			NAME OF SUPERVISOR :	

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**VRV/SPLIT AC FILTER CLEANING QUARTERLY MAINTENANCE REGISTER**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/11**
		Revision No.	**00**
		Page	**1 of 2**
		Station Name	
		Date	
Staff Name:		**Frequency Of Maintenance :- Quarterly**	

Sr.NO	ROOM / LOCATION	VRV/ SPLIT AC IDU NO.	CLEANING DATE	NAME AND SIGN OF STAFF	REMARKS
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Sr.NO	ROOM / LOCATION	VRV/ SPLIT AC IDU NO.	CLEANING DATE	NAME AND SIGN OF STAFF	REMARKS
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
	Remarks If Any :				
					SIGN OF SUPERVISOR:

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**Smoke Detector, Isolator Module, Monitor Module & MCP Quarterly Maintenance Register**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/31**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance: - Quarterly**	

Sr No	**ACTIVITY**	**DETECTOR**	**MODULE DEVICES**	**MCP**
1	Check Exterior For Sign Of Damages			
2	Clean			
3	Randomly Operate Detector/MCP and Write Down location (Different from previous maintenance location)	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	Not Applicable	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
REMARK :				
			Signature of Staff	

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/24**
		Revision No.	**00**
		Page	**1 of 2**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance: - Quarterly**	

Sr. No.	**Location & Type Of Fire Extinguisher**	**Asset ID (5D BIM)**	**Date of refilling**	**Due date of refilling**	**Pressure of DCP/ Water Type**	**Weight In Kg**	**Physical condition of Extinguisher**			**Remarks**
							Cylinder Body for corrosion	**Discharge Pipe/Horn/Nozzle**	**Any Leakage/ other abnormality**	
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										

Sr. No.	Location & Type Of Fire Extinguisher	Asset ID (5D BIM)	Date of refilling	Due date of refilling	Pressure of DCP/ Water Type	Weight In Kg	Physical condition of Extinguisher			Remarks
							Cylinder Body for corrosion	Discharge Pipe/Horn/Nozzle	Any Leakage/ other abnormality	
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
Staff Sign:										
									Supervisor Sign	

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	UPS Quarterly Maintenance Register	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/22**
		Revision No.	**00**
		Page	**1 of 2**
		Station Name	
		Date	

Staff Name:-	*Frequency Of Maintenance :- Quarterly*

Sr No.	ACTIVITY	UPS 1	UPS 2	REMARK
1	Check parameters with Mains Supply			
a	Check DC Voltage Of Battery Bank			
b	Check input AC Volt			
c	Check output AC Volt			
2	Check parameters without Mains Supply			
a	Check DC Voltage Of Battery Bank			
b	Check output AC Volt			
c	Check output load current			
3	Clean internally and externally by blower/vacuum cleaner.			
4	Check and ensure that the all connections are firm and tight.			
5	Ensure that all the connectors are fixed properly.			
6	Ensure that the body earthing is connect and tight.			

7	Report the abnormalities immediately.			
8	Clean the batteries & check all connections should be tight.			
9	Carry out Floating test of all battery Cells			
a	Qty of healthy battery and record their voltage (Refer Back Side this Of sheet)			
b	Qty of weak battery and record their voltage (Refer Back Side this Of sheet)			
c	Check the charging current after Load testing			
14	Any other abnormalities			
Remarks If Any :				
				SIGN OF SUPERVISOR:

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**Exhaust Fan Quarterly Maintenance Register**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/25**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance:- Quarterly**	

	Room/Location			**-**	**-**
1	Check the unit for proper operation				
2	Throughtly Clean in and around				
3	Check Termination and tightness				
4	Check for Vibration and Abnormality				
	Remarks :				

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**FHC, YH Quarterly Maintenance Register** **Doc. No.** **MMRCL/CIDCO/E&M/O&M/E&M/26** **Revision No.** **00** **Page** **1 of 1** **Station Name** **Date**
Staff Name:		**Frequency Of Maintenance :- Quarterly**

	FHC,YH Number																		
A	**FHC,YH of Fire fighting System**																		
1	Check for Broken , Cloudy or Cracked glass																		
2	Check for Overall condition of cabinate																		
3	Check the lock is functioning properly																		
4	Check to see if cabinet door will open																		
5	Check all Valves, RRL hose, Nozzles																		
6	Check functioning of Ball valve in hose																		
7	Check for any leakage in hose reel Drum																		

8	Checkk for female coupling are not Damaged																		
9	Check for hose reel nozzle is attached																		
10	Check for hose reel nozzle is not block																		
11	Pressure Gauge reading																		
12	Check for handle , key available																		
REMARK																			
																			Signature of Supervisor

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**Light Fixture Quarterly Maintenance Register**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/28**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:		**Frequency Of Maintenance:- Quarterly**	

Sr.No	Location	PF-1	PF-2	TECHNICAL ROOMS / OTHER ROOMS	PAID CONCOURSE AREA	UNPAID CONCOURSE AREA	EXTERNAL LIGHTS	FAÇADE LIGHTS
1	Check Terminal Connection & Dock Chain Connectivity							NA
2	Light Fitting Cleaning							
3	Check Illumination level & Any Black Spot on Light							
4	Check availability of Terminal Box cover							
5	Check MCB functioning							
6	No Of Faulty Lights							
7	Remarks							
Remarks If Any :								

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**Power Socket Quarterly Maintenance Register**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/E&M/32**
		Revision No.	**00**
		Page	**1**
		Station Name	
		Date	
Staff Name:		**Frequency Of Maintenance:- Quarterly**	

Sr.No	AREA	Check Physical Condition Of Socket	Check Terminal Voltage of any Two Socket randomly	Check Operation Of All Socket Indicators	Remark
1	ASS Room		1. 2.		
2	UPS Room		1. 2.		
3	SCR		1. 2.		
4	TOM-1		1. 2.		
5	TOM-2		1. 2.		
6	Store & Audit Office 1		1. 2.		
7	Store & Audit Office 1		1. 2.		
8	Security Room		1. 2.		
9	First Aid Room		1. 2.		
10	Cleeaner's Room		1. 2.		
11	SER		1. 2.		
12	TER		1. 2.		
13	S&C UPS		1. 2.		
14	Gents toilet		1. 2.		

Sr.No	AREA	Check Physical Condition Of Socket	Check Terminal Voltage of any Two Socket randomly	Check Operation Of All Socket Indicators	Remark
15	Ladies toilet		1. 2.		
16	PWD Toilet		1. 2.		
17	Pump Room		1. 2.		
18	Paid Concource		1. 2.		
19	Unpaid Concource		1. 2.		
20	Platform 1		1. 2.		
21	Platform 2		1. 2.		
					Signature of Staff

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**MOCKDRILL REGISTER**	
		Doc. No.	**MMRCL/CIDCO/E&M/O&M/13**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
MOCKDRILL OF FIRE EXTINGUISHER		**Frequency Of Maintenance :- Quarterly**	

Date/Time:	
Station:	
Staff on duty:	
Station Controller on Duty :	

Fire Extinguisher type	**Sr. No. of Fire Extinguisher**	**Name of Staff**	**REMARK (if any)**
CO2			
Water			
DCP			

Please Tick '✓' or 'x'

SR. NO.	**OBSERVATION**	**YES**	**NO**	**REMARK (if any)**
1	Operating of CO2 Fire Extinguisher			
2	Operating of Water Fire Extinguisher			
3	Operating of DCP Extinguisher			
4	Condition of Hoses			

SIGN OF E&M STAFF:
STAFF NAME:
EMP NO:

SIGN OF STATION CONTROLLER :
NAME :
EMP NO :

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/06A**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance:- Half Yearly**	

Sr NO	ACTIVITY	Main Panel	EPP	VEPP	NPP 1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
1	Switching OFF the panel properly and ensure supply status of panel before work													
2	Clean the panels internally and externally by Air blower/vacuum cleaner													
3	Ensure that the body earthing of panel is connect and tighten if required													
4	Check isolation covers of live parts													

Sr NO	ACTIVITY	Main Panel	EPP	VEP P	NPP 1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
5	Check Rack in and Rack out of ACBs													
6	Check the tightness of cables, Lugs/ thimble terminations, Tighten if found loose													
7	check rusting on panel													
8	check the condition of bus- bars													
9	check any damage in insulators													
10	Check Danger plates on panel													
11	Check all the nut bolts and screws for tightness, tighten them if found loose													
12	Check and tighten all electrical connections													
13	Ensure that the all doors of panel are locking properly.													
14	Refit all covers & enclosers, check for													

Sr NO	ACTIVITY	Main Panel	EPP	VEP P	NPP 1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
	unwanted opening, Plug if found													
15	Re-energize all the incoming & out going feeders as Previous.													
16	Check inside light of Panel (Working/ Not Working)													
17	Check clearance and working of space heater of Panel													
18	Check Ventilation Fans of Panel (Working /Not Working)													
19	Check the operation of all selector switches and push buttons													
20	Check operation of ACB, MCCB, MCB, Contactor etc (Both Auto / Manual Operation)													
21	Check all the indicators (working / not Working)													
22	Check APFC relay & Capacitor Banks by													

Sr NO	ACTIVITY	Main Panel	EPP	VEP P	NPP 1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
	manual operation (For MDB)													
23	Check condition of all Capacitor Bank.(For MDB)													
24	Check all Panel gas flood system piping for sign of heating, crack etc.													
25	Check Panel Gas Flooding cylinder for proper pressure and record													
26	Check all Electrical & mechanical interlocking of ACBs & MCCBs.													
27	Check Voltage Of Incoming MFM Meter (In Volts)	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**
		VYB-	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**
		VBR-	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**
28	Check Voltage Of Incomer using Multimeter (In Volts)	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**	**VRY-**
		VYB-	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**	**VYB-**
		VBR-	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**	**VBR-**

Sr NO	ACTIVITY	Main Panel	EPP	VEP P	NPP 1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
29	Check Incoming Current on MFM (In Amps)	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**
		IY-	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**
		IB-	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**
30	Check Incoming Current using Clampmeter (In Amps)	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**	**IR-**
		IY-	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**	**IY-**
		IB-	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**	**IB-**
31	Any other abnormalities													
Date And Time														
Sign Of Staff														

Remarks If Any :

	महाराष्ट्र मेट्रो रेल कॉर्पोरेशन लिमिटेड **Maharashtra Metro Rail Corporation Limited** **Navi Mumbai Metro CIDCO Project** **(A Joint venture of Govt. of India and Govt. of Maharashtra)**	**Fire Pumps Half Yearly Maintenance Register** **Doc. No.** MMRCL/CIDCO/E&M/O&M/E&M/15A **Revision No.** 01 **Page** 1 of 1 **Station Name** **Date**

Staff Name:- **Frequency Of Maintenance:- Half Yearly**

Sr NO.	ACTIVITY	JOCKEY PUMP	MAIN PUMP	STANDBY PUMP	SPRINKLER JOCKEY PUMP	SPRINKLER MAIN PUMP	OBSERVATIONS/ REMARK
1	Check Pressure Gauges						
2	Ensure Free Rotation Of Pump						
3	Check alignments of rotating parts						
4	Check Coupling for Damage						
4	Check and clean Y-Stainer						
5	Check And Tight bolts						
6	Check Motor cooling Fan for Damage						
11	Check Current	Ir -	Ir -	Ir -	Ir -	Ir -	
		Iy -	Iy -	Iy -	Iy -	Iy -	
		Ib -	Ib -	Ib -	Ib -	Ib -	
12	Any other abnormalties						

Remarks If Any :

SIGN OF SUPERVISOR:

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/18A**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:		**Frequency Of Maintenance :- Half Yearly**	

Sr No	Location→	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
	Description of Work													
1	Check the condition of IDU and do the required cleaning & brushing of Cooling coil													
2	Check for Abnormal noise from bearing of blower motor.													

Sr No	Location→	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
3	Measure and record the Grill Temp. and Room temperature and adjust the Set Point Value, if required.													
4	Check for Refrigerent leakage and Ice formation on Cooling Coil.													
5	Check Condition and fixing of return air temperature sensor.													
6	Check Insulation on pipe line for any damage													
7	Clean the drain holes, water outlets of indoor units, if required.													

Sr No	Location→	SCR ROOM	E&M UPS ROOM	S&C UPS ROOM	SER ROOM	TER ROOM	TOM-1 ROOM	TOM-2 ROOM	STORE & AUDIT OFFICE-1	STORE & AUDIT OFFICE-2	EFO-1	EFO-2	FIRST AID ROOM	Remarks
8	Check the Working of automatic rest system (scheduler) of indoor unit.(Working/ Not Working)													
9	Check Condition of wiring, Electrical components and mains feeding IDU.													
10	Check proper working of MCB													
11	Any other abnormalties													

Signature of Staff

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/22A**
		Revision No.	**00**
		Page	**1 of 2**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance :- Half yearly**	

Sr NO.	ACTIVITY	UPS 1	UPS 2	REMARK
1	**Check parameters with Mains Supply**			
a	Check DC Volt with Battery			
b	Check DC Volt without Battery			
c	Check input AC Volt			
d	Check output AC Volt			
2	**Check parameters without Mains Supply**			
a	Check DC Volt with Battery			
b	Check output AC Volt			
c	Check output load current			
3	Clean internally and externally by blower/vacuum cleaner.			
4	Check and ensure that the all connections are firm and tight.			
5	Ensure that all the connectors are fixed properly.			

Sr NO.	ACTIVITY	UPS 1	UPS 2	REMARK
6	Ensure that the body earthing is connect and tight.			
7	Check Neutral to Earth Voltage (V)			
8	Check whether all the indicating lights are working or not.			
9	Check and ensure that all MCB's are working properly.			
10	Ensure that the all covers are locking properly.			
11	Report the abnormalities immediately.			
12	Clean the batteries & check all connections should be tight.			
13	**Carry out Load testing of all battery Cell (After 15 Min On Load)**			
a	Qty of healthy battery and record their voltage (Reffer Back Side this Of sheet)			
b	Qty of weak battery and record their voltage (Reffer Back Side this Of sheet)			
c	total load current givien for load testing			
d	Measure the total battery backup found in Load testing			
e	Check the charging current after Load testing			
14	Any other abnormalities			
Remarks If Any :				
				SIGN OF SUPERVISOR:

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/23**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance:- Half Yearly**	

S. No.	ACTIVITY	LDB-1	LDB-2	LDB-3	LDB-4	LDB-5	LDB-6	REMARKS
1	Switching OFF the LDB properly and ensure supply status of LDB before work							
2	Clean the LDB internally and externally by Air blower/ vacuum cleaner							
3	Ensure that the body earthing of LDB is connect and tighten if required							
4	Check isolation plate of live parts							
5	Check the tightness of cables, Lugs/ thimble terminations, Tighten if found loose							
6	check rusting on LDB							
7	check any damage in isulators							

8	Check all the nut bolts and screws for tightness, tighten them if found loose							
9	Check and tighten all electrical connections							
10	Ensure that the all doors of LDB are locking properly.							
11	Refit all covers & enclosers, check for unwanted opening, Plug if found							
12	Re-energize all the incoming & out going feeders as Previous.							
13	Check the operation of all selector switches and push buttons							
14	Check operation of Timer (Both Auto / Manual Operation)							
15	Check all the indicators (working / not Working)							
16	Any other abnormalties							

SIGN OF SUPERVISOR:

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/20A**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance :- Yearly**	

S NO.	ACTIVITY	Done/ Not Done	Remarks
1	Repeat all activities of Monthly-Check		
2	Check the general condition of DG set.		
3	Replace oil filters		
4	Replace fuel filters		
5	Replace air filters , if required		
6	Check external fuel tank leakage and termination joints		

S NO.	ACTIVITY	Done/ Not Done	Remarks
6	Ensure the tightness of all type of filters.		
7	Change Lube oil (prescribed as - C14+_15W40) (every 500 hrs or Yearly)		
8	Check Coolant level in radiator & recovery bottle. If required top up by premix complete EG 50:50 only		
9	Clean battery leads		
10	Ensure for no leakage of Lube oil and fuel inside or out side DG set and Tank.		
11	Any other abnormalities		

SIGN OF SUPERVISOR

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/06B**
		Revision No.	**00**
		Page	**1 of 1**
		Station Name	
		Date	
Staff Name :		**Frequency of Maintenance : Yearly**	

Sr.No	Description	Main Panel	EPP	VEPP	NPP1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
1	Check Interlocking For All Incomer													
2	Check Operation of breaker(Auto/Maunal)													
3	Check function of ATS if available (Auto/Manual /Replace)													
4	Check Spring Charging Manually													
5	Clean The Breaker													
6	Clean The Breaker Contact With CRC													
7	Check For No Traces Of Overheating													
8	Tight Bolts of Busbars													
9	Vaccum Cleaning Of Panel													

Sr.No	Description	Main Panel	EPP	VEPP	NPP1	NPP2	Spare Feeder Panel	HVAC DB-1	HVAC DB-2	ATS-1	ATS-2	FPP	Capacitor Panel 1	Capacitor Panel 2
10	All Vents And Grills Be In Proper Conditions													
11	Clean The Heater Elements													
12	Check The Top OF Panel													
13	Check All Connecting Bolts													
14	Check Proper Connection Of Conductor													
15	Check For Sign Of Deterioration Of Conductor													
16	Clean And Tighten All Connections													
17	Check grouting bolts of panel													
18	Other Abnormality If any													
Date And Time														
Sign Of Staff														

Remarks If Any:

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/30**
		Revision No.	**00**
		Page	**1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance:- Yearly**	

Sr.No	Location Of Valve	Check Any Leakage In Valve	Operate Valve And Keep It Back In Original Position	Remark
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Sr.No	Location Of Valve	Check Any Leakage In Valve	Operate Valve And Keep It Back In Original Position	Remark
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				

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		Doc. No.	**MMRCL/CIDCO/E&M/O&M/27**
		Revision No.	**00**
		Page	**1**
		Station Name	
		Date	
Staff Name:-		**Frequency Of Maintenance:- Yearly**	
EARTHING RESISTENCE MEASUREMENT ON MET & EARTH PITS			

S. No.	MET/ CET Earth Pit No.	Risers Size	Location	Date Of inspection	Visual Check for any damage of earth strip	Measured value of earthing resistance (in ohms)	Next due date of inspection	Name and Sign of Staff	Name and Sign of Sup.	Name and Sign of PSI staff	Name and Sign of S&T staff
1											
2											
3											
4											
5											
6											
7											

S. No.	MET/ CET Earth Pit No.	Risers Size	Location	Date Of inspection	Visual Check for any damage of earth strip	Measured value of earthing resistance (in ohms)	Next due date of inspection	Name and Sign of Staff	Name and Sign of Sup.	Name and Sign of PSI staff	Name and Sign of S&T staff
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											

Indicative summary of Maintenance

Sr No	Maintenance Activities	Monthly Maintenance	Quarterly Maintenance	Half Yearly Maintenance	Yearly Maintenance
1	LT Panel				✓
2	DG		✓		✓
3	Fire Pump	✓		✓	
4	HVAC ODU		✓		
5	HVAC IDU/Split AC		✓	✓	
6	FACP		✓		
7	Modules, SD, Isolators, MCPs		✓	✓	
8	Fire extinguishers		✓		
9	FHC, YH		✓		
10	Earth Value Measure				✓
11	DBs & Isolators				✓
12	Butterfly & Other Valve				✓
13	Highmast				✓
14	UPS & Batteries		✓		

E&M

5.2.1 Assets of a typical station (indicative list)

Sr No	Location	Equipment's	Description	Qty
1	**ASS**	MDB	Main distribution board	1
		EPP	Essential power panel	1
		PLC	BMS PLC Panel	0
		ATS – 630 A	Automatic Transfer Switch	2
		ATS – 250 A	Automatic Transfer Switch	2
		VEPP	Very Essential Power panel	1
		ACDB	AC Distribution panel	1
		NPP	Normal Power Panel	2
		SPP	Spare Feeder Panel	1
		VDB	Via Duct Lighting DB	1
		Light Fixture	40W Suspended lights	27
		Switch Socket	6/16 A Switch socket	9
		Switch	6A Switch	7
		Co2 Extinguisher	4.5Kg Co2	3
		DCP Extinguisher	5 Kg DCP	3
		MCP (set)	Manual Call point with hooter	1
		Detector	Multi Sensor Detector	6
		Fault Isolator Module	Fault Isolator Module	1
		Monitor Module	Monitor Module	8
		Exhaust Fan	Exhaust Fan	2
		Gas Flooding Panel	Gas flooding control panel	7
		Gas Flooding Cylinder	2.5 LBS	5
		Gas Flooding Cylinder	5 LBS	4
		Rubber Mat	Insulating Rubber Mat	20
3	**Maintenance Room**	Light Fixture	40W Suspended lights	4
		Switch Socket	6/16 A Switch socket	2
		Switch	6A Switch	2
4	**Corridor To SER/TER Or Technical Room**	FM 200	Room Flooding System	3
		Light Fixture	18 W Down lights	6
		Co2 Extinguisher	4.5Kg Co2	1
		Detector	Multi Sensor Detector	2

Sr No	Location	Equipment's	Description	Qty
6	**DG Area**	AMF Panel	AMF Panel	1
		DG Set	250KVA DG Set	1
		Light Fixture	40 W surface mounted	4
		Switch	6A Switch	2
		External Tank	990 Litter external tank	1
		BFV	Butterfly Valve 100mm	1
		Fuel delivery Pipe	Pipe between external tank and DG	1
		Exhaust pipe	DG exhaust pipe	1
		Gas Flooding Panel	Gas flooding Manual control panel	1
		Gas Flooding Cylinder	Gas flooding 5 LBS Cylinder	1
		Foam Type Extinguisher	9 Ltrs	1
		Co2 Extinguisher	4.5Kg Co2	1
9	**External Area**	4-way connection	4-way connection	2
		Yard Hydrant	Yard Hydrant	4
		BFV	Butterfly Valve 150mm	4
		Draw Out Connection	Draw Out Connection	1
		BFV	Butterfly Valve 100mm	1
		GI Pipe Pits	Earth Pits for LA	10
		MAT	Earth Mat	2
		Flood Lights	80 W Light	26
		Street Light	Street Light	10
		High mast	Depot area	10
10	**Gents Toilet**	Light Fixture	18W Led down light recessed Round	8
		Switch Socket	6/16 A Switch socket	1
		Switch	6 Switch	3
		Detector	Multi Sensor Detector	1
		RI	Response Indicator	1
		Exhaust Fan	Exhaust Fan	1
11		Light Fixture	18W Led down light recessed Round	2

Sr No	Location	Equipment's	Description	Qty
	Specially Abled Toilet	Switch Socket	6/16 A Switch socket	2
		Switch	6 Switch	2
		Exhaust Fan	Exhaust Fan	1
		Detector	Multi Sensor Detector	1
		RI	Response Indicator	1
12	**Ladies Toilet**	Light Fixture	18W Led down light recessed	8
		Detector	Multi Sensor Detector	1
		Switch Socket	6/16 A Switch socket	2
		Switch	6A Switch	2
		RI	Response Indicator	1
		Exhaust Fan	Exhaust Fan	2
14	**Ground Level (Entry Exits Area)**	Light Fixture	40W Batten lights	40
		Flood Lights	Flood light 70W Lights (Rectangle)	4
		Switch Socket	6/16 A Switch socket	6
N 14	**Concourse Area (Paid & Unpaid)**	Light Fixture	40W Baffle lights	250
		LCP	Lighting Control Panel	4
		VESPDB	Vert Essential Power Socket DB	2
		NSPDB	Normal Power Socket DB	2
		Repeater Panel	Repeater Panel	1
		Switch	6A Switch	3
		Switch Socket	6/16 A Switch socket	5
		FHC	Fire hose cabinet	6
		BFV	Butterfly Valve 80 mm	6
		Pressure Gauges	Pressure Gauges	6
		DCP Extinguisher	5 Kg DCP	6
		Co2 Extinguisher	4.5Kg Co2	6
		MCP	Manual Call point with hooter	6
		Strobe cum Hooter	Strobe cum Hooter	6
		Detector	Multi Sensor Detector	20
		RI	Response Indicator	12
16	**Platform 1**	Light Fixtures	40 W IP 67	150
		LCP	Lighting control panel	2

Sr No	Location	Equipment's	Description	Qty
		Switch Socket	6/16 A Switch socket	10
		FHC	Fire hose cabinet	3
		BFV	Butterfly Valve 100mm	3
		Pressure Gauges	Pressure Gauges	3
		DCP Extinguisher	5 Kg DCP	3
		Co2 Extinguisher	4.5Kg Co2	3
		MCP	Manual Call point with hooter	3
		NSPDB	Normal Power Socket DB	1
		VESPDB	Vert Essential Power Socket DB	1
17	**Platform 2**	Light Fixtures	40 W IP 67	150
		LCP	Lighting control panel	2
		Switch Socket	6/16 A Switch socket	10
		FHC	Fire hose cabinet	3
		BFV	Butterfly Valve 100mm	3
		Pressure Gauges	Pressure Gauges	3
		DCP Extinguisher	5 Kg DCP	3
		Co2 Extinguisher	4.5Kg Co2	3
		MCP	Manual Call point with hooter	3
		NSPDB	Normal Power Socket DB	1
		VESPDB	Vert Essential Power Socket DB	1
18	**Pump Room**	Light Fixture	40 W suspended mounted	8
		PLC Panel	PLC Panel	0
		Switch	6A Switch	2
		WPP	Water Pump Panel	0
		FPP	Fire Pump Panel	1
		LCP	Lighting Control Panel	1
		Air Vessel Tank	Air Vessel Tank	2
		BFV	Butterfly Valve 200mm	5
		BFV	Butterfly Valve 150mm	6
		BFV	Butterfly Valve 100mm	7
		Delivery Line	Delivery Line	1

Sr No	Location	Equipment's	Description	Qty
		Expansion Bellows	150mm Expansion Bellows	3
		Expansion Bellows	100mm Expansion Bellows	2
		Co2 Extinguisher	4.5Kg Co2	1
		Jockey Pump	Jockey Pump 7.5 HP	1
		Main Pump	Hydrant Pump 75HP	1
		Standby pump	Diesel Engine standby pump 90 HP	1
		Domestic Pumps	Domestic Water Pumps with panel (Nematic)	2
		Sump Pump	Sump Pump	0
		MCP	Manual Call point with hooter	0
		Gas Flooding Panel	Gas flooding Manual control panel	2
		Gas Flooding Cylinder	Gas flooding 5 LBS Cylinder	2
		Manifold	Manifold	1
		Detector	Multi Sensor Detector	2
		NRV	Non return valve 200 mm	3
		NRV	Non return valve 150mm	3
		NRV	Non return valve 100mm	2
		NRV	Non return valve 80mm	2
		Pressure Gauges	Pressure Gauges	7
		Pressure Switches	Pressure Switches	5
		Pressure Transducer	Pressure Transducer	2
		Snubber ball valve	Snubber ball valve	6
		Suction Header	Suction Header	2
		Test line	Test line	1
		Delivery Header	Delivery Header	2
		Y-Stainer	Y-Stainer 200mm	3
		Y-Stainer	Y-Stainer 100mm	2
19	**Roof Level**	Lightning Arresters	Lightning Arresters Conductor	1
20	**SCR**	Light Fixture	2*2 Recessed 38 W	9

Sr No	Location	Equipment's	Description	Qty
		Metal Gland Box	20A MCB for IDU & Metal Box	3
		Switch Socket	6/16 A Switch socket	6
		FACP	4 loop FACP	1
		BMS PC	BMS PC	1
		DCP Extinguisher	5 Kg DCP	1
		Co2 Extinguisher	4.5Kg Co2	1
		Detector	Multi Sensor Detector	5
		RI	Response Indicator	3
		IDU	Indoor Unit	4
		AC Controller	AC Controller	1
		Temp Sensor	Temp/Humidity sensor	1
21	**TOM Rooms – I & II**	Light Fixture	2*2 Recessed 38 W	6
		Metal Gland Box	20A MCB for IDU & Metal Box	0
		Switch Socket	6/16 A Switch socket	4
		Switch	6A Switch	4
		Split AC	Split AC	2
		DCP Extinguisher	5 Kg DCP	2
		Co2 Extinguisher	4.5Kg Co2	2
		RI	Response Indicator	2
		Temp Sensor	Temp/Humidity sensor	0
		VESDA	VESDA Control Panel	1
		Detector	Gas Flooding Multi Sensor Detector	4
22	**TER**	Light Fixture	40 W surface mounted	12
		Metal Gland Box	20A MCB for IDU & Metal Box	3
		IDU	Indoor Unit	2
		CRD	Corded remote for IDU	2
		Switch Socket	6/16 A Switch socket	2
		Switch	6A Switch	2
		Proximity Sensor	Motion Sensor	2
		Temp Sensor	Temp/Humidity sensor	1
		DCP Extinguisher	5 Kg DCP	1
		Co2 Extinguisher	4.5Kg Co2	1

Sr No	Location	Equipment's	Description	Qty
		Detector	Multi Sensor Detector	4
		BMS Patch Panel	BMS Patch Panel	1
		Nozzle	FM 200 Nozzle	1
		Split AC	Split AC	6
		RI	Response Indicator	2
23	**SER**	Light Fixture	40 W surface mounted	6
		Metal Gland Box	20A MCB for IDU & Metal Box	0
		IDU	Indoor Unit	2
		CRD	Corded remote for IDU	2
		DCP Extinguisher	5 Kg DCP	1
		Co2 Extinguisher	4.5Kg Co2	1
		Detector	Multi Sensor Detector	3
		Proximity Sensor	Motion Sensor	2
		Humidity & Temp Sensor	Humidity & Temp Sensor	1
24	**S&T UPS Room**	Isolator	Isolator for S&T UPS supply	2
		Isolation Transformer	Isolation Transformer	1
		Light Fixture	40 W surface mounted	10
		Proximity Sensor	Motion Sensor	2
		Humidity & Temp Sensor	Humidity & Temp Sensor	1
		Metal Gland Box	20A MCB for IDU & Metal Box	3
		Switch Socket	6/16 A Switch socket	2
		Switch	6A Switch	2
		DCP Extinguisher	5 Kg DCP	1
		Co2 Extinguisher	4.5Kg Co2	1
		Detector	Multi Sensor Detector	3
		IDU	Indoor Unit	3
		CRD	Corded remote for IDU	3

*** Note: - The list of Assets is tentative and may vary from station to stations.**

5.2.2 Assets of a Depot (indicative list)

5.2.3 Work Assessment /Maintenance frequencies

5.3 Abbreviations and glossary

AC	Alternating Current
AFC	Automatic Fare Collection
AGE	Automatic Gate Entry
AGX	Automatic Gate Exit ASS Auxiliary Sub Station
ASS	Auxiliary Sub Station
BMS	Building Management System
BCC	Backup Control Centre
CER	Central Equipment Room
CMRS	Commissioner of Metro Railway Safety
CIDCO	City and Industrial Development Corporation of Maharashtra
CSB	Central Store Building
CPWD	Central Public Works Department
DCC	Depot Control Center
DG	Diesel Generator
DLP	Defect Liability Period
E&M	Electrical & Mechanical
EOT	Electric Overhead Travelling Cranes
HMI	Human Machine Interface
HR	Human Resources
HSB	Hazardous Store Building
HSQE	Health, Safety, Quality & Environment guidelines
km	Kilometer(s)
KPI	Key Performance Indicators
kWh	Kilowatt Hour(s)
kV	Kilovolt(s)
MCB	Miniature Circuit Breaker
MDB	Main Distribution Board
MEP	Mechanical Electrical Plumbing
MMS	Maintenance Management System
MoU	Memorandum of Understanding
MSEDCL	Maharashtra State Electricity Distribution Company Limited

MSETCL	Maharashtra State Electricity Transmission Company Limited
MTBF	Mean Time between Failures
MTTR	Mean Time to Repair
NMMC	Navi Mumbai Municipal Corporation
NMML1	Navi Mumbai Metro Line 1
NFPA	National Fire Protection Association
OCC	Operation Control Centre
OEM	Original Equipment Manufacturer
O&M	Operations & Maintenance
OHE	Overhead Equipment
QC	Quality Controls
PCB	Printed Circuit Board
PMC	Panvel Municipal Corporation
PLC	Programmable Logic Controller
PWD	Public Works Department
PTR	Playback and Training Room
RAMS	Reliability, Availability, Maintainability, and Safety
RFP	Request for Proposal
RSS	Receiving Sub Station
RTGS	Real Time Gross Settlement
RDSO	Research, Design, and Standards Organisation
SCR	Station Control Room
SCADA	Supervisory Control and Data Acquisitio
SER	Signaling Equipment Room
TER	Telecom Equipment Room
UPS	Uninterrupted Power Supply
WS	Workstation

Part B

SCOPE OF WORK & EXPLANATORY NOTES FOR FOCS OHE, PSI & SCADA SYSTEMS

5.1. General

Contractor has to carry out Preventive and Corrective Maintenance of OHE & Power Supply for One year for 22.4 TKM OHE, 1 Depots, 11 Station ASS & depot ASS, & 2 RSS of Navi Mumbai Metro Line 1.

I- OHE- Over Head Equipment (FOCS- Flexible Overhead Catenary System)

SN	Description of work
1	To carry out the PM (Preventive Maintenance/Corrective) Maintenance of Navi Mumbai Metro Line 1
2	Maintenance of Cantilever assembly, OHE Structure, TTU, DA and allied OHE SPS and structures.
3	Maintenance of Catenary system (Contact wire, catenary wire, OPC, BEC, Briddle wire, droppers, 1.1 KV return cable), Current Collection Test
4	Maintenance of all types of 25 KV OHE Jumpers, cross feeder wire
5	Maintenance of Anti Creep Center (ACC), Anti Creep, Anchor (ACA) and Fix Termination Anchor (FTA) arrangement
7	Maintenance of depot and Mainline Isolators, Interrupters, Voltage Transformers
8	Maintenance of Overlaps (insulated and uninsulated)
9	Maintenance of 25 KV OHE at Turnouts
11	Maintenance of All types of Section Insulator Assembly & Neutral Section
12	Maintenance of BWA (Balance weight ATD)/Spring Type Auto Tensioning Device (ATD)
13	Breakdown attention by a gang for restoration of 25 KV OHE/PSI during accidents/ unusual occurrence for checking OHE parameters. Breakdown attention gang shall be a part of CM/PM maintenance team.
14	Pantograph entanglement due to OHE components like Turn out, Overlap, Non-OHE zone, Jumper, Dropper, Cantilever steady arm & other component of Cantilever, Section insulator Foreign Material etc.
15	Erection of Catenary wire splicing or Contact wire splicing, OPC/BEC splicing.
16	Pre-Manson Checks, Tree Trimming, Daily Foot Patrolling at Depot & Monthly on Main Line
17	Mock drill of OHE (Over hear equipment)

5.1.1. Commencement of Work:

The Annual Maintenance Contract (AMC) for the OHE, PSI & SCADA System will start on 17-11-2026. It will cover all stations, RSS and the depot of Navi Mumbai Metro Line-1. Before the contract officially starts for PST System, the contractor may visit and inspect the stations and depot. The purpose of this visit is to check and assess the PST equipment that will be included under the AMC. The equipment to be maintained will be as defined in the Scope of Work and the BOQ (Bill of Quantities).

5.1.2. Work content:

The contractor is required for maintenance activities as specified in the Bill of Quantities. The contractor shall be responsible for management of the manpower supplied by him including arranging timely arrival at duty place, punctuality, payments to the manpower in compliance with statutory requirements and other terms & conditions of the contract. The successful bidder has to deploy the services of following indicative manpower within 10 days from the date of issue of LOA

Qualification of staff to be deployed by Contractor is as under:

Sr. No	Category	Minimum Educational Qualification	Minimum Experience Post Qualification
1	Supervisor (OHE/PSI)	B.E. / B. Tech. or Three years Diploma in Electrical/ Mechanical/ Electrical & Electronics discipline from Govt. recognized Institution/ University.	Candidate should have minimum 02 years of experience for BE/BTech and 03 years of Experience for Diploma candidate in the field of OHE/PSI department (PSI and OHE of Metro or Railways System).
2	Technician (OHE/PSI)	ITI (NCVT/SCVT) course in Electrician/Fitter Trade from a Govt. recognized university/ Institute.	Candidate should have minimum 03 years of experience in the field of OHE/PSI/Electrical Department (PSI and OHE of Metro or Railways System). 04 years for 10th matriculation of experience for non-ITI candidate.

***** Contractor shall provide the Police verification of the staff engaged by him.

Detailed roles and responsibilities of the Contractor Staff are as below; Contractor shall deploy minimum manpower as below;

S. No.	Skill Set and Shift	Minimum Number	Location	Duties Assigned
1	Supervisor (Round the clock 24 x 7)	02 (minimum)	Depot, RSS & Station	Day to Day Planning of Preventive Maintenance, Timely Attending Breakdown/Corrective Maintenance as reported by TPC/SC/Maha-Metro Staff, Day to day Manning of Personnel in Shift, any other duties assigned by Maha-Metro
2	Technician/Electrician/Maintainer (Round the clock 24 x 7)	4 (minimum)	Station, RSS & Depot	Preventive Maintenance as per checklist Provided by Maha-Metro, Timely Attending Breakdown/ Corrective Maintenance as reported by TPC/SC/Maha-Metro Staff under supervision of concerned Supervisor, any other duties assigned by Maha Metro.

Maintenance requirements

1. During preventive/corrective maintenance, the work assessment will be done by agency along with metro officials. Based on above work assessment/measurement, report will be prepared and will be jointly signed (if required) by metro officials & supervisor of the agency. Based on above work assessment report, work order will be placed to the agency for any kind of preventive/ corrective maintenance. The set procedures shall be carried out as per requirement.

2. **Work order -**

   Work order will be issued based on Work Assessment report from time to time, which will be decided by Navi Mumbai Metro Line 1 or by following stipulated schedules mentioned in the Maha-Metro manuals for preventive maintenance. For corrective and breakdown maintenance affecting the train services should be done on immediate basis to restore the traffic.

3. **Tools, Consumables, Hardware, PPE's, Uniform**

   a) Maha-Metro office of Operation & Maintenance shall provide the Spares to be used for replacing defective equipment.

   b) Maha-Metro representative shall inform about the schedule /corrective maintenance arising during the shift, based on the availability of power blocks.

   c) The Agency must ensure sufficient manpower availability to handle emergency breakdown situation during revenue and non-revenue hours.

   d) The list of tools required for maintenance works is provided by Maha-Metro in Section. The contractor shall arrange all required tools, consumables, hardware items, PPEs, and uniforms at their own cost as per site requirements. However, if any required tool is available in Maha-Metro's store, the contractor may issue the same from the store and shall return it to Maha-Metro in good condition after use. For any items provided by Maha-Metro to Contractor, if any damage occurs or is missing by contractor, Maha-Metro shall recover the cost from the contractor as per market rate at that time.

   e) All consumables during maintenance shall be provided by contractor at his own cost.

4. **Vehicle –**

   i. Road Vehicles for transportation of men and material (spare movements from Store to station & return) shall be arranged by contractor at his own cost. Contractor shall provide vehicle to the employer for routine or emergency inspection of Maintenance activity.

   ii. Any other special purpose vehicle/equipment for carrying out special maintenance shall be arranged by the contractor at his cost.

5. The future requirement may vary depending upon time-to-time requirement of MAHA-Metro which will be intimated to the Contractor separately. Contractor will carry out the preventive/corrective maintenance and attending of breakdown at any time of day & night.

6. The payment shall be made as per certified BOQ, and not based on actual deployment of manpower.

7. Contractor shall not have any claim upon the deployment of manpower as well as payment towards total numbers of manpower as detailed above.

8. The contract shall continue for a period of Three (3) year. The period of the contract may be further extended up to 1 year as per requirement and discretion of MAHA-Metro.

9. The contract may be terminated before the contract period owing to deficiency in service or substandard quality of manpower deployed by the selected contractor or cessation of the requirement of work. MAHA-Metro, however, reserves the right to terminate the contract at any time after giving 30 days' notice to the selected service providing firm/company.

10. The Service provider should have adequate facilities (infrastructure with qualified and expert manpower) for testing / screening, recruitment, and training of personnel. This is also subject to evaluation / verification by MAHA-Metro. (Proof of such facilities in terms of Photographs,

List of experts/ trainers engaged by the bidders shall be enclosed with the Technical Bid)

11. **Office & Store -** Contractor shall establish office at his own cost within 30 days after issuing of LOA.
12. The list of employees proposed to be deployed by contractor; shall be submitted to MAHA-Metro along with educational qualification and experience and its documentary proof. MAHA-Metro reserves the right to seek details of educational qualification and experience certificate verify and scrutinize the CVs and educational details of proposed/ deployed employee.
13. The contractor shall perform the all-maintenance practice and procedures (Daily checks, Preventive, corrective, as per the requirement of MAHA-METRO (Ref: ACTM Maha Metro, Navi Mumbai Metro Line 1) and submit the suitable detailed reports on monthly basis of each wing or as directed by Maha- METRO
14. The contractor shall be responsible for attending and rectifying general complaints pertaining to O&M systems which have already been maintained by the contractor and should resolve the problems/complaints within the prescribed limits.
15. Any other work, as and when directed by the authorized person from MAHA-METRO other than mentioned above falling under the domain of O&M Works, directly or indirectly. (Such additional works like wiring, piping's, false ceiling adjustment and any minor installations etc. as per MAHA-METRO requirement wherever required).
16. If any Equipment's or Systems of MAHA-METRO are damaged due to mishandling by contractor's staffs. The whole responsibility for it will be with contractor. The contractor has to rectify the same at their own risk and cost.
17. The contractor shall maintain records of the activities performed by them, by filling up in register and in computerized (In DOT Net) format also.
18. The contractor will be handling maintenance data, maintenance manuals, and maintenance records of different OHE/PSI systems. These are proprietary to MAHA-METRO and should not be shared with anyone.
19. At the end of the contract period or termination, all the equipment's, hand tools, software, maintenance data, hard copies of maintenance documents, maintenance manuals or any other items pertain to MAHA-METRO shall be handed back in good condition. Any damages found shall be recovered from the contractor whatever amount MAHA-METRO feels necessary.
20. The contractor shall maintain a database for all their employees in computerized form. The relevant equipment required for maintenance of data is under the scope of contractor and all computerized documents/maintenance reports shall be submitted by contractor as per requirement.
21. The contractor shall perform random audits at their discretion to evaluate the quality of maintenance performed by the contractor.
22. The employer shall have the right to remove any employee of the contractor who is considered to be undesirable, poor workmanship, skills, poor quality of work, misconduct, disobey the lawful command. The contractor shall remove such employee with immediate

effect and provide a suitable replacement at his own cost.

23. In case of any Emergency, Contractor should be able to assemble all required man-power within stipulated time to carry out emergency related works.
24. The agency shall have transportation facilities for their staffs and for material/tools shifting and One dedicated vehicle separately having sitting arrangement for at least four staffs should have enough space for Maha-Metro officers' inspection, breakdown, visit etc. shall be available in good condition at site with driver having valid driving license and fuel for the vehicle to be arranged by the contractors.
25. The 8- wheeler (CMV) will be available. Similarly ladder trolleys shall be arranged by Maha-Metro, Navi Mumbai Metro Line 1. However, assembling and transportation of ladder trolleys to work sites shall be done by the contractor. The Luminaire shall be arranged by the Agency. And CMV fuel (HSD Diesel) for maintenance, breakdown, inspections etc. shall be arranged by contractor.
26. If there will be any extension of service contract period, then price escalation will be 5% on every year as per contract condition.
27. Round the clock availability of qualified maintenance personnel for fault/breakdown attendance and system restoration.
28. Immediate attendance to breakdowns within the defined response time (e.g., 20 min of the intimation)
29. Prior approval from OCC is mandatory before commencing work for maintenance on live or isolated system. Power Block meeting will be attended by contractor.
30. Any incident/accident must be reported immediately to the Maha-Metro concerned officers, Engineers/Supervisors etc.
31. Stock of critical spares and tools shall be maintained by maintenance contractor.
32. All breakdown maintenance of GIS, SCADA, Control & Relay Panel (CRP), Transformers, IGBT, RMU shall be carried out strictly as per OEM recommendation using OEM approved spares and procedures.
33. The contractor shall ensure uninterrupted power supply of diesel to all CMV deployed for maintenance activities as per maintenance schedules and breakdown requirements.
34. CMV driver shall be provided by maintenance contractor and must be trained and certified.
35. Office space will be provided by Maha-Metro.
36. All maintenance of PST (OHE, PSI, SCADA) system shall be done in night time after revenue hours for main line and some activities like depot OHE equipment and station ASS, depot ASS and both RSS maintenance can be executed in day time also as per power block availability.
37. Key Person/Responsible person for all maintenance activity shall be deputed by maintenance contractor.
38. All 25KV OHE signage boards/caution boards should be checked on yearly basis, if any discrepancy is found, should be replaced with new one.

39. KPIs shall mean those key performance indicators to be achieved by the Contractor in providing the Maintenance Services.

40. The payment is subject to submission of the first year RAMS report (RAMS achieved against target) of all Metro Systems.

Power Supply System RAMS	**Target**
Availability	0.9989
Maintainability	
MTTR (in Mins)	120
MTBF (in Hrs)	3731

41. **Reports**

Daily Reports

Every 24 (twenty-four) hours, maintenance will be summarized in a daily report. The day after (between 3 and 4 AM), the daily report will be checked by Maha-Metro representatives and sent out to the management team. During the night the daily executive report will be summarized for review following morning. The format of daily executive report will be prepared by the Contractor and approved by Maha-Metro representatives.

Monthly and Yearly Operations and Maintenance Reports

At the end of the month or year, Contractor shall prepare various Monthly or Yearly Maintenance Reports and submit the same to the Maha-Metro office before 3rd of every month.

These reports will include but not limited to the following sections:

(a) Performance of operations achieved against each Key Performance Indicator;
(b) Traction and non-Traction energy consumption;
(c) Incidents and accidents on MRTS;
(d) Metro Systems failures and RAMS achieved for PST and SCADA;

Weekly Reports

At the end of the week, Contractor shall prepare weekly Maintenance Reports and submit the same to the Maha-Metro office on Monday of every week.

42. **Annual O&M Plan Report**

The Annual Maintenance Plan Report will be developed and will become the means by which the Contractor consider, discuss, and seek to agree an approach to be adopted by the parties, in relation to:

(a) Strategic issues affecting the performance under the Contract, including issues affecting infrastructure development, infrastructure capacity.

(b) Any steps to be taken by the Contractor or its assignee that are necessary to implement each Annual O&M Plan in that given year.

43. All maintenance staff roster shall be prepared and submitted by contractor in advance on monthly basis.
44. Cab patrolling
45. shall be done by contractor staff on daily basis as well as cab piloting in the morning before first revenue train in first pilot train.
46. Mock drill activity of OHE (Over Head Equipment) shall be done on monthly basis under the supervision of Maha-Metro staff.
47. All discharge rods and operating rods maintenance shall be done by contractor on monthly basis.

Work Description of Outsourced Manpower: -

The deployed manpower, by successful bidder, under various categories as describe below shall perform following works at the operational stations located in NMML1 office, Depots, offices located in different parts of NMML1.

Sr. No.	Category	Brief description of duties / work
A	B	C
1	Supervisor (OHE/PSI)	1. Responsible for preventive & corrective maintenance of OHE/PSI systems pertaining to his section. 2. Custody of maintenance equipment for his section. 3. Training for maintenance staff. 4. Upkeep records and documents pertaining to OHE/PSI systems of section under maintenance.
2	Technician (OHE/PSI)	1. Carry out preventive maintenance as per roster. 2. Fault tracing, root cause analysis and rectification.

The above description of duties is not exhaustive, the deployed staff may be assigned other works pertaining to establishments, sites or any other issues in case of urgency.

5.1.3. Place of Deployment: -

The outsourced staff provided by successful bidder (Service provider) under the categories described above shall be deployed at any office of Maha Metro Navi Mumbai Metro or any site of MAHA Metro as per requirement & discretion of MAHA-Metro. The outsourced staff or service provider shall not have any claim or preference in place of deployment.

5.1.4. Discipline, Behavior & Integrity

The deployed manpower shall maintain discipline, well behaved & possess high level of integrity. He/she should follow highest level of professional ethics. The service provider shall provide induction courses related to discipline, basic official etiquette, discipline &

integrity prior to deployment of the manpower to MAHA-Metro. Any manpower showing indiscipline, misbehavior, violation of basic official etiquette or doubtful integrity shall be removed immediately. In case of any serious offence committed by such persons, suitable penal action may be taken as per prevailing law & act and the service provider shall also be penalized in terms of partial or full forfeiture of performance security.

5.1.5. Training, Skill Development & Competency

Candidates provided by the contractor for different maintenance positions shall undergo a written test or interview conducted by Contractor in consultation with MAHA-Metro Navi Mumbai Metro Rail Line 1 Project, and there after only qualified staffs shall be allowed to undergo training.

The service provider shall provide durational training at his own cost & place for skill development, refresher course on professional & official behavior of deployed staff with MAHA- Metro.

After successful completion of training program, competency test/interview will be first carried out by the contractor based on past experience and training given by contractor. After issue of competency by contractor, interview will be carried out by MAHA-Metro and competency/permission to work shall be awarded accordingly as per MAHA-Metro competency procedure. If any of the contractor's staff leaves the company, for new contractor staff the entire cost of training and salary during training period shall be borne by contractor.

5.2. Verification of Character, Credentials, and Integrity of deployed manpower

The service provider (successful bidders) shall deploy the persons with verified credentials antecedents and characters. Such verification shall be done by service provider at his own cost & keep it as a record. It shall be produced as & when required by MAHA-Metro. Any person with doubtful characters' antecedents & credential shall be immediately removed by service provider failing which lead to partial or full forfeiture of performance security and / or termination of contract.

5.3. Safety While Working On OHE

5.3.1. Induction Effects of 25 KV ac 50 Hz Single Phase Traction

I. The attention of all staff is drawn to the fact that under 25 kV ac 50 Hz single phase traction, there is heavy induction on all metallic structures and conductors in the vicinity of the track. The induction is two-fold:

   a) Electro-static, which results from the high potential of 25 kV on the OHE system.

   b) Electro-magnetic, which is proportional to the currents passing from the sub-station to the OHE to the locomotives / EMUs and back partly through the track and partly through the earth.

II. The voltage induced is quite appreciable on overhead conductors running parallel to the tracks depending, on the length of parallelism. This explains why most of the

overhead telecommunication lines are replaced by underground cables. Special protective measures are required to reduce the adverse effects of induction.

III. Earthing should be done individually by each working party as close to the work- spot as possible. The distance between the two earth rods shall not exceed 1 km.

IV. Such inductive effects occur on large metallic structures such as fencings, structural steelwork of platforms running parallel to the track. They will therefore have to be earthed suitably to achieve safety.

5.3.2. Safety rules for working on OHE by Ladder

i. Ladder should be carried in horizontal position only and do not lift above the shoulder height.

ii. Tools, tackles and other materials should not be carried out on the ladder.

iii. Rubber packing should be available at the bottom ends of the ladder.

iv. Hanging hooks should be available at the upper ends of the ladder.

v. Ensure two nos. extra rod / bolts to be provided at the both end steps.

vi. After taking of power block and providing of discharge rod, ladder should be lifted outside and along with the track and it should put on the mast first and then OHE.

vii. Ropes used with ladders should be cotton or jute. Use of metallic ropes is prohibited. Ladder should be held by one person on the ground to prevent slipping, while the top end should be tied to the supporting structure on conductor to keep it in position and prevent it from sliding away.

viii. Maximum one person should climb on the ladder at a time while working.

ix. Person should not climb on a ladder with wet or slippery foot ware.

x. A rope should be used to pass tools or any equipment to the man working on ladder.

xi. After taking of power block and providing of discharge rod, ladder should be lifted outside and along with the track and it should put on the mast first and then OHE.

5.3.3. Safety rules while working on OHE by ladder trolley.

i. Ladder trolley should not be taken on the track without power block.

ii. Ladder trolley should not be kept near and across the track. It should be kept away (5 to 6 meter) and along the track with safety tie-up by the chain & lock.

iii. Movement of ladder trolley is to be done after taking traffic and power block only.

iv. Ladder trolley should not be used for carrying the materials.

v. More than two people should not be working together in ladder trolley on upper platform.

vi. Ensure safety against other traffic movements.

vii. Safety belt and protective helmet is to be used while working on ladder trolley.

viii. A person should not climb on a ladder trolley with wet or slippery footwear.

ix. A rope should be used to pass tools or any equipment to the man working on a ladder.

x. A safety guard railing is to be raised on ladder trolley platform while working.

xi. Luminous stop board of 1 feet diameter should be hanged on a proper height on both side of ladder trolley across the track while working.

xii. Sufficient Illumination should be provided for the staff working on ladder trolleys.

5.3.4. Safety rules to be observed while working at height

i. Before entrance in the section from the station the power block and traffic block shall be obtained by the OHE/Traction supervisor from the TPC by exchanging the private numbers.

ii. Before commencement of any work on any part of dead OHE or within two meters of live OHE, the OHE shall be made dead and earth by providing the discharge rod on both side of the working place.

iii. The distance between two discharge rod on same elementary section and same line should not be more than 1000 meter.

iv. After making OHE dead and earthed, the ladder can be put on the messenger wire or the staff can climb on the OHE maintenance vehicle with the following safety equipment.

   a. Protective Helmet: At the working site, all staff shall wear their Helmet to protect their head against falling of any tools, equipment and spares which may drop accidentally, as well as minimize the head injury in case a fall from heights

   b. Safety Belt: Staff working on structure (cantilever Assembly, OHE mast/ portal) or a Ladder/ Ladder Trolley Shall protect themselves against the accident/incident fall by wearing a safety belt for supporting themselves by a rope sling.

   c. Safety shoes: All traction staff shall wear the safety shoe to protect themselves from hitting of any material at ground or from accidentally fall of any material from height.

   d. luminous jacket should be available with all contractor maintenance staff during all type of maintenance activity and Illumination in night hours: Before commencement of any work on height (on ladder/ladder trolley/centenary maintenance vehicle) the working site shall be illuminated properly by providing the portable lights to protect the staff for any injury

v. Before commencement of work, ensure that all PPE, Discharge Rod, ladders, safety tools/tackles are in healthy condition.

Safety rules to be observed while working on Isolator

While working on isolator, the special precaution to be taken is to provide two discharge rods on both sides and in addition a jumper short circuiting the incoming and outgoing Busbar of the isolators be provided. This is required because when the isolator is opened during its maintenance it will form two sections of OHE.

5.3.5. Safety rules to be observed while working at Section insulator

i. Do not start any work on section insulator till such time it is made dead from both ends. Obtain power block/P.T.W. on both the elementary section connected by section insulator.

ii. Do not work on Section Insulator without adequate protection. Test, discharge and earth the section insulator from both the sides along with jumper across it before starting work.

iii. Do not rest the ladder over the section insulator while attending it. Always use ladder trolley/tower wagon while attending section insulator.

5.3.6. SAFETY DO'S AND DON'T'S:

The premises are having High Voltage Over Head Electric Lines, High Voltage Equipment's on Main Line and Depot, the movement of Trains in the depot, Rail Track, Sophisticated Equipment's etc. which can cause major injury, electrocution, death to the personnel and thus requirements for safety observance are very high.

5.4. The following rules / guidelines must be followed to ensure personal safety as well as depot safety: -

5.4.1. While moving in the Depot

- Do not cross the track, always use the walkway provided adjacent to the track for accessing the Depot / Main Line.
- Do not cross in front of energized train (when its head light is glowing).
- Do not put your leg or other body part in between of any points
- Do not move idle on track.
- Do not move under high tension line with long bar & rods.
- Be careful of high tension overhead line.
- Be careful of movement of points while crossing the track near point machine.
- Be careful of uneven way due to spreading of ballast.
- Always response to horn (whenever heard of horn just check around).

5.4.2. While working in the Main Line

- Do not move anywhere in the Metro Premises until asked to do so.

- Do not move on the track (when OHE is charged/Track access not provided) without prior permission of competent Maha Metro Navi Mumbai Metro staff/supervisor.
- Do not provide temporary Earths/Operating rods on OHE when it is in charged condition without prior permission of competent Maha Metro Navi Mumbai Metro Supervisor/Maintainer.
- Do not touch or disturb any setup or equipment without prior permission of Maha Metro Navi Mumbai Metro supervisor.
- Do not work on traction equipment when it is in charged condition without prior permission of Maha Metro Navi Mumbai Metro traction Supervisor.
- Do not work without safety belt on OHE line (while working on the heights/Insulators on Main Line).
- Do not move under high tension line with long bar or rods when it is in charged condition.
- Do not try to access any of the roof platform other than the designated gate/door. Power block has to be ensured.
- Do not try to access the CMV roof platform without any prior permission.
- Do not jump from the CMV in Main line (use ladder/Walkways) as CMV floor is very high at ramps on Main Line.
- Do not jump from the CMV in Main line when it is in moving condition (whether how slow it is).
- Do not put ladder or other equipment on charged OHE.
- During Single Line working,OHE line of the track on which train is and of adjacent line must be isolated.
- Always wear safety belt while working on the roof of CMV/ladder and belt must be properly secured.
- Before accessing the roof, isolation of overhead line must be sured by checking status of discharge rod hanging.
- Be careful while working on roof (for slippery roof & sharp edges).
- Be careful of other activities happening around.
- Report any damage caused (to traction equipment or other property) or any other suspicious object to Traction Supervisor.
- Be cautious when CMV/ladder trolley is in the section.
- Always wear neat &clean uniform and safety shoes.

5.4.3. While working on OHE by CMV (Catenary Maintenance Vehicle)/BEML / Phooltas

- Do not board/jump off moving CMV (doesn’t matter how slow it is).

- Do not ground the CMV (when it is started).
- Do not touch any part or equipment mounted under CMV.
- Do not touch or disturb any setup or equipment in any open boxes/cubicle.
- Do not direct water jet towards high tension overhead line.
- Do not work on OHE without safety belt with overhead line (while working on the roof).
- Do not run on slippery area or wet floor.
- Do not try to climb on the roof platform of CMV without power block. Power block has to be ensured.
- Do not try to access the roof platform without any prior permission.
- Do not jump from the CMV roof or OHE in depot and main line use ladder of CMV.
- Always wear safety belt while working on the roof and belt must be properly secure.
- Before accessing the roof of CMV, isolation of overhead line must have been sured by checking status of discharge rod hanging.
- Be careful while working on roof (for slippery roof &sharp edges).
- Be careful of other activities happening around.
- Report any damage caused (to CMV or other property) or any other
- suspicious object to OHE In- charge or TRACTION Supervisor.

5.4.4. Safety While working in RSS & ASS

- Always equipped with PPE(Safety helmet, Safety Shoes, Safety jacket,Safety gloves, safety belt) to be used and proper permit of work to be taken before starting of work.
- Shut down of the Equipment under maintenance to be ensured properly with coordination with TPC & Panel Indications/Voltage detector.
- In case of maintenance of Panels ,CBs to be rackout for proper isolation followed by provision of earth switch.
- In case of working on Power transformers and shunt reactors Earth rods to be provided
- NIFPS to be kept out of service while working on Power transformers
- The incomer panel's emergency push button to be pressed for respective power transformer maintenance, and "DO NOT OPERATE" caution board to be hung on panel.
- TBT to be provided to all maintenance teams so that everyone has knowledge about

the work to be performed and identify charge and discharge sections.

- No interlocking to be bypassed while maintenance of any Panel, Power Transformer Etc.
- After completion of maintenance all man , material and temporary earthing to be removed and checked by Contractor supervisor and Maha Metro Staff.
- During maintenance of depot SSP equipment to be taken to the whole SSP power block.

5.5. OHE Maintenance activities

5.5.1. Preventive Maintenance Schedule for OHE (FOCS):

SN	OHE ASSETS	MAINTENANCE PERIODICITY			
		Monthly	Quarterly	Half yearly	Yearly
1	Cantilever assembly, OHE Structure, TTU, DA and allied OHE SPS and structures.				(✓)
2	Catenary system (Contact wire, catenary wire, droppers, OPC & BEC, Return conductor), Current Collection Test				(✓)
3	All type of 25 KV OHE Jumpers (FOCS)				(✓)
4	Anti creep Centre (ACC), Anti Creep Anchor (ACA) and Fix Termination Anchor (FTA) arrangement				(✓)
5	Depot and Mainline Isolators (Motorised & manually)			(✓)	
6	Overlaps (insulated and uninsulated)				(✓)
7	Neutral Section	(✓)			
8	All type Section Insulator Assembly (Mainline)		(✓)		
9	All type Section Insulator Assembly (Depot)			(✓)	
10	BWT ATD/Spring Type ATD				(✓)
9	Maintenance of ITL				(✓)
11	Earthing System with its whitewash/ painting & value writing in depot				(✓)

SN	OHE ASSETS	MAINTENANCE PERIODICITY			
		Monthly	Quarterly	Half yearly	Yearly
12	Earthing Pits				(✓)
13	Interrupter				(✓)
14	Voltage Transformer (PT)				(✓)
17	OHE at Turn outs				(✓)
18	Foundation			(✓)	
19	Foot Patrolling	(✓)			

5.5.2. Preventive Maintenance Schedule for PSI (RSS/ASS):

SN	PSI ASSETS	MAINTENANCE PERIODICITY			
		MONTHLY	QUARTERLY	HALF YEARLY	YEARLY Y
1	25 KV GIS		(✓)	(✓)	(✓)
2	33 KV GIS		(✓)	(✓)	(✓)
3	220KV GIS		(✓)	(✓)	(✓)
4	RMU		(✓)	(✓)	(✓)
5	TRACTION TRANSFORMER with NIFPS		(✓)	(✓)	(✓)
6	AUXILIARY TRANSFORMER with NIFPS		(✓)	(✓)	(✓)
7	DRY TYPE TRANSFORMER		(✓)	(✓)	(✓)
8	BATTERY CHARGER		(✓)	(✓)	(✓)
9	BATTERY BANK		(✓)	(✓)	(✓)
10	ACDB		(✓)	(✓)	(✓)
11	DCDB		(✓)	(✓)	(✓)
12	RTU/SCADA		(✓)	(✓)	(✓)
13	UPS		(✓)	(✓)	(✓)
14	EARTHING PITS				(✓)
15	Buried Rail				(✓)
16	FACP		(✓)	(✓)	(✓)
17	IDU AC		(✓)	(✓)	(✓)

SN	PSI ASSETS	MAINTENANCE PERIODICITY			
		MONTHLY	QUARTERLY	HALF YEARLY	YEARLY Y
18	ODU AC		(✓)	(✓)	(✓)
19	CRP		(✓)	(✓)	(✓)
20	IGBT	(✓)	(✓)	(✓)	(✓)
21	RTCC		(✓)	(✓)	(✓)
22	Viaduct Lighting & Socket			(✓)	(✓)

5.6. Formats and Checklist

The formats and work assessment checklist attached as Annexure A tentative for tender purpose only. It may be updated/modified or revised or added as per latest revision during execution of works as per requirement.

5.6.1. OHE (FOCS) Installation and maintenance checklist:

Schedule A - Preventive Maintenance for Over Head Equipment (FOCS OHE).

Preventive Maintenance for Over Head Equipment (FOCS OHE). Preventive maintenance for Overhead Equipment (OHE), including Flexible Overhead Catenary System (FOCS), is critical to ensure the reliable and safe operation of electrified railway systems. These systems supply electric power to trains via overhead

5.6.1.1. FOCS Maintenance of Cantilever Assembly, OHE Structure, TTU, DA and allied OHE SPS and Structures

SN	Checklist	Yearly
1.	Check for tightness of all nut, bolt of cantilever assembly	Yes
2.	Check for rust on nut bolts or any other part of cantilever. Apply paint on rusted part, if any. Replace if any nut bolt is in badly rusted condition	Yes
3.	Check for either spring washer or locknut on bolt. Mouth of split pin should be opened fully	Yes
4.	Note down the CW height & stagger in grade section and adjust if required	Yes
5.	Condition of strands of catenary wire should be checked, especially locations where HV sleeve is provided	Yes

SN	Checklist	Yearly
6.	Check for hot-spots & flashing mark especially at cantilever support locations & rigid dropper locations. Condition of steady arm for any damage to crimped portion has to be checked especially at rigid dropper location.	Yes
7.	Check for any broken strands of jumpers	Yes
8.	Check for proper tightening of nut bolts of caution board & number plate	Yes
9.	ST, BT & 9 Tonne anchor insulator has to be cleaned with soft and clean cloth and check insulators for flash mark. Apply insulating spray paint at any flash mark on insulators	Yes
10	Check for any kink or twist remove, if any	Yes
11	Nut Bolt of Portal/mast/DA/BFBU at viaduct & depot to be checked and tightened if required.	Yes
12	Marking with paint/ marker pen to be done to avoid unnecessary tightening. (Torque marking)	Yes
13	While checking the cantilever also check that there is no gap below base flange of mast and is filled up with the compound.	Yes
14	Cleaning of ST, BT & 9 tone insulator if required	Yes
15	Check cantilever parts for any damage and replace if required	Yes
16	Check stagger, contact wire height as per SED	Yes
17	Check Cantilever plumb	Yes
18	Check verticality of all masts with plumb bob and take remedial action as required	Yes

5.6.1.2. Maintenance of Catenary system (Contact wire, catenary wire, droppers, OPC & BEC, 1.1 kv)

SN	Checklist	Yearly
1.	Check of contact wire dia should be taken in different locations where wear rate is high.	Yes
2.	Check of catenary wire if more than 20% broken, catenary splice is required.	Yes
3.	Clean the conductors by emery paper, if there is a sign of overheating.	Yes
4.	The locations where more wear of contact wire is possible to be checked: Support points	Yes

5.	At curves, Section insulators, Splices, Turn outs, Insulated Overlap (IOL) having rigid droppers, approaches to tunnels and over line structures, Pull offs.	Yes
6.	Check carefully condition of contact wire, particularly for kinks and twists in contact wire	Yes
7.	Check the height and gradient of contact wire.	Yes
8.	Check that droppers should be vertical and tight. Replace if found loose with appropriate dropper.	Yes
9.	Check droppers for any damage or rubbing at multi cantilever location. Correct if required.	Yes

5.6.1.3. Maintenance of all type of 25 KV OHE Jumpers

SN	Checklist	Yearly
1	Check for broken/ damage strands/tension. Overheating or corrosion especially at LA, CVS, feeding supply & BM connection.	YES
2	Check Jumper and PG clamp for tightness	YES
3	Replace frayed or damaged jumpers. remove kinks if noticed.	YES
4	Check safety pins & nuts in catenary and contact clip	YES

5.6.1.4. FOCS Maintenance of Anti Creep Centre (ACC), Anti Creep Anchor (ACA) and Fix Termination Anchor (FTA) arrangement

SN	Checklist	Yearly
1	Anti-creep wire must be checked for any strand breakages.	YES
2	Check proper tightness of Double Messenger Suspension Clamp.	YES
3	9 Tonne anchor insulator to be cleaned. Flashing, chipping of insulator should be Checked, Check for any skirt damage.	YES
5	Check for proper tightness of all nut bolts, check nuts and tighten if required	YES
6	Check the availability of pin in anchor bolt and provide pin if found missing	YES
7	Check the availability of pin in guy rod and provide pin if found missing	YES
8	Check for any rusting of Anchor bolt and apply anti-rust paint/spray if required.	YES

5.6.1.5. Maintenance of depot and Mainline Isolators (Manual & Motorised)

SN	Checklist	Half Yearly
1	Lubricate of all moving parts and locks.	YES
2	Check the proper alignment of male and female contact a fixed as well as moving end. There should be no air gap between male contact and female spring leaf in close condition of isolators.	YES
3	Check that the distance between male and female contacts in open position around 50cm and adjust them as specified.	YES
4	Check the operation in local and remote mode, keeping the front door open, observe whether the mechanism functions smoothly without any rubbing or obstruction.	YES
5	Check electrical interlocking between isolator and associated CB/other equipment's.	YES
6	Check operation with handle after placing castle key at other slot provided for opening of door slot for insertion of handle.	YES
7	Check all wiring connections for any looseness and tighten if required.	YES
8	Check nuts and bolt for any looseness and tighten if required.	YES
9	Check the alignment of arcing horn provided on male and female contact of isolator. Adjust if required.	YES
10	Clean the contact with cotton cloth and apply the thin film of petroleum jelly to the contact surfaces. Remove excessive jelly.	YES
11	Measure and record insulation resistance of motor winding using of 500 V megger. (IR>1M Ohm). Measure and record insulation resistance in between isolator contact and earth, measure for contact CRM resistance, tripping Coil and closing Coil resistance. check for operating Rod Guider rubbing	YES
12	Check remote operation by TPC before cancellation of Power Block	YES

5.6.1.6. Maintenance of overlaps

SN	Checklist	Yearly
1	Check height and stagger of OHE in the overlap section	YES
2	Check clearance between two OHE (500 mm in case of IOL and 200 mm in case of UIOL)	YES
3	Check the length of parallelism of contact wire (minimum 2 meters.)	YES
4	Check whether the lifting of out of run OHE is correct by running tower wagon pantograph.	YES
5	Check jumper and PG clamp for tightness	YES

6	Check for tightness of all clamp	YES

5.6.1.7. Maintenance of 25 KV OHE Cross over & Turnouts

SN	Checklist	Half Yearly
1	Check CW Height of Mainline and Turnout OHE. Check that the height of mainline CW is 50 mm below that of turnout CW	YES
2	Check stagger of both the OHE at turnouts. It shall not exceed 300mm	YES
3	Check sag of section insulator at turn out/cross over. It should be zero	YES
4	With Tower wagon running on mainline check if pantograph glides smoothly under the Turnout OHE, correct if required.	YES
5	With Tower wagon running on turnout check if pantograph glides smoothly under the mainline OHE, correct if required.	YES
6	Stagger of section insulator at cross over/turn out. It should be ± 100mm (max).	YES
7	Check for any hard spot near rigid dropper. Take corrective action if required.	YES
8	Check at obligatory location for bracket plumb, RT to be horizontal, Dip of steady arm to be 25 to 30 cm	YES
9	Checking of Take-off /take (550-600mm) on points at Turnout/crossover locations	YES

5.6.1.8. Maintenance of all type section insulator Assembly

SN	Checklist	Half Yearly
1	Clean core insulator of section insulator with detergent	YES
2	Rinse thoroughly with potable (drinking water) Clean with dry and fluff less cloth.	YES
3	Longitudinal & Transversal parallelism of section insulator with regards to the running plane should be checked and corrected, if necessary.	YES
4	Carbon deposition on runner is to be cleaned by carbon cleaner and roughness at runners to be removed by soft emery paper.	YES
5	All nut & bolt, split pin of runner, dropper checked for proper tightness.	YES
6	Smooth gliding of pantograph at SI is to be checked and any hitting or problem in smooth transition is to be adjusted by adjustable droppers	YES
7	Diameter of contact wire at both ends of SI is to be measured.	YES

8	Check condition of feeding jumper wire for any broken strands. Check Stiffeners & PG clamp for tightness	YES
9	9- Tonne Cut in Insulator to be cleaned by soft clean cloth and check it for flash mark, if any	YES

5.6.1.9. Maintenance of ATD

SN	Checklist(5-pully type)	Yearly
1	Free Movement of balance weight checked and Greasing, if required	
2	Tightness of all nut bolt & position of split pin get checked	
3	Condition of SS rope checked if any strand found damage same to be replaced	
4	Overriding of SS rope observed & get attended	
5	SS rope rubbing with pulley block checked & get attended	
6	Position of compensatory or equalizing plate should be checked if any tilt is there, get it attended	
7	9 Tonne anchor insulator to be cleaned. Flashing, chipping of insulator should be checked	
8	Anti-slipping clamp or bolt should be tightened and position of anchor fitting to	
9	Check Condition of anti-falling arrangement	
10	Check Condition of guideube, 9 ton adjusters & 9 ton insulator and clean if required	
11	Check Counter weights for any crack and also Check the appearance of counter weights paint, if required apply paint	
12	Check the max, min & normal markings of temperature, if faded repaint	
13	Check the alignment and replace the guide tube if it is bent	

5.6.1.10. Maintenance of ITL

SN	Checklist	Yearly
1	Check of tightness& rusting of nuts & bolts of all ITL	YES
2	Check of each connection with ITL, cad welding copper cable coming from up and down line rail, PG clamps, BEC, OPC connection, lugs of I/C connection at ITL ,Broken strands if any.	YES
3	Check of ITL mounting pedestal	YES

5.6.1.11. Maintenance of Earthing System with its whitewash/painting & value writing in depot

SN	Checklist	Yearly
1	Check all bonds, earthing jumpers (portal, mast, pier, hand rail, platform area, plinth) and replace defective or missing bonds. check for Earthing conductor Strand Broken .	YES
2	Check of all OHE equipment earthing	YES
3	Tightness of all PG clamp OPC, BEC & earthing jumper etc.	YES
4	Inspect earths and record earth resistance. Earths having resistance of over 10 ohms should be attended to.	YES
5	Writing of measured earth value on earth pit	YES

5.6.1.12. Reconditioning of Earth pit with material as & when required

SN	Checklist	Yearly
1	Reconditioning of Earth pit with material (industrial salt, charcoal etc.) & when required.	YES
2	Check for nuts & bolts rusting & tightness of earth electrode with earth flat.	YES
3	All Measurement shall be done within the limit Individuals value of Earthing Pit – Should be 1 to 5 (In ohms) Combined value of Earthing Pit – Should be less than 1 (In ohms)	YES

5.6.1.13. Maintenance of 25 KV OHE at Turnouts & Cross over

SN	Checklist	Yearly
1	Check CW Height of Mainline and Turnout OHE.	YES
2	Check stagger of both the OHE at turnouts.	YES
3	With Tower wagon running on mainline check if pantograph glides smoothly under the Turnout OHE, correct if required.	YES
4	With Tower wagon running on turnout check if pantograph glides smoothly under the mainline OHE, correct if required.	YES
5	With Tower wagon running on cross over location check if pantograph glides smoothly under the both mainline conductor rail, correct if required.	YES
6	Check stagger of both the OHEs at turn outs. It shall not normally exceed 300 mm.	YES
7	Check that the main line OHE of overlap type turn out is about 30-50 mm below that of the turnout OHE.	YES

SN	Checklist	Yearly
8	Check Take ON & Take OFF position of pantograph	YES
9	Check up for hard spots near rigid droppers, if any.	YES

5.6.1.14. Section Insulator (Depot Tram Way)

SN	Checklist	Half-yearly
1	Clean insulators and replace badly chipped or even slightly cracked insulators.	YES
2	Check runners for flash-marks.	YES
3	Check level of the assembly and adjust as required.	YES
4	Check for excessive contact wire wear near anchor clamps.	YES
5	Measure and record min. Electrical clearance between runners and core insulator. Correct if less than specified.	YES
6	Check stagger value and adjust if required	YES
v	Check that pantograph passes underneath the SI smoothly.	YES

5.6.1.15. Interrupter

SN	Checklist	Yearly
1	Carry out a general inspection	YES
2	Measurement of insulation resistance.	YES

5.6.1.16. Voltage Transformer (PT)

SN	Checklist	Yearly
1	Check for electrical and mechanical connections are securely tight.	YES
2	Check condition of components	YES
3	Check for any damage to the insulator (arcing traces, veins, holes, cuts)	YES
4	Check water ingress or high condensation inside the secondary box.	YES
5	Clean the Insulator with dry cotton cloth. Check for any flash, crack or chipping. Anti track paint should be applied on the chipping flash marks.	YES
6	Check tightness of all nut and bolts of busbar connector and	YES

SN	Checklist	Yearly
	secondary terminals.	
7	Check earthing connections for tightness.	YES
8	Check PT fuse and fuse holders on the LV side for healthiness.	YES
9	Check rod gap setting, if provided	YES
10	Measure insulator resistance.	YES
11	The number plate VT as per the approved LOP	YES

5.6.1.17. Return Conductor (25 kv &1.1 kv)

SN	Checklist	Yearly
1	Cable support brackets and cable termination joints for both end terminals should be examined	**YES**

5.6.1.18. OPC & BEC

SN	Checklist	Yearly
1	Check strands cut, unwanted wear, bulge or rubbing in wire	**YES**
2	Check OPC clamp tightness	**YES**
3	Check safety pins, nuts & check nuts at the termination and all the supports	**YES**
4	Clearance as per the technical specification	**YES**
5	Tension Load	**YES**
6	Tapping & ferruling at all opc support	**YES**

5.6.1.19. Foundation

SN	Checklist	Yearly
1	Damaged or Cracked	YES
2	Sinking or Tilted	YES
3	Water Collection Around Foundation	YES
4	Side Earth Filling Required.	YES
5	Top of Foundation Not Clear	YES

5.6.1.20. Pre-Manson Checks

SN	Checklist	Yearly
1	Earth continuity and earth resistance shall be checked for all equipment installed in section and recorded, rectification action shall be taken as required.	YES
2	Special check shall be carried out to ensure working of isolators.	YES
3	Where there is dripping of water on Flexible OHE/Rigid OCS from over line structure the same should immediately be informed to Civil Engineering department.	YES
4	If any tree branches in the section shall be trimmed to avoid any untoward incident.	YES
5	Removal of bird nest if any	YES
6	Cleaning of insulator to be done if necessary	YES
7	Removal of foreign bodies like kites, threads etc.	YES

5.6.1.21. Neutral Section

SN	Checklist	Monthly
1	Check the installation as per SI installation manual. Also ensure tested tools as per below: a) ring and open spanner, b) wire cutter, c) torque Spanner – up to 100Nm, d) flat nose pliers, e) folding, f) rules, Sprit Level g) Tirfor with come along clamp, h) 2 nos. spring balance 20 kg, i) tape etc recommended by vendor are being used for installation as per tool list in installation manual (clause 6.2)	YES
2	Check for lifting of Contact wire upward with spring balance with load 100 N at SI location	YES
3	Check the level of Track with help of sprit level and corresponding maintain the same level in Section Insulator.	YES
4	Check the position the clamping jaws one hole towards air gap of SI (refer clause 6.1.1).	YES
5	Ensure the SI Droppers are in adequate tension.	YES
6	Check Kink and twist at contact wire if any.	YES
7	Check the SI Runners clearance from adjacent lines (min 2 mtr)	YES
8	Check Stagger at SI (Tolerance ± 50 mm).	YES

SN	Checklist	Monthly
9	Bending of contact wire should be few millimeter upwards and should have projection of 120 mm apprx. (refer clause 6.4.10)	YES
10	Check the tightness of Contact wire dead end clamps (M10 bolts) from outside with torque 60 Nm. Check tightness thrice at each bolt after 1 min interval as per clause 6.4.2 -4. Also mark with red paint at contact clamp	YES
11	Check the tightness of runner clamps with tightening torque 43 Nm (twice after 2 min interval). Ensure lock nut and washers as per clause 6.4.2 -5. Also mark with red paint at bolt	YES
12	Check for Runner alignment and should not hit to Pantograph during movement with RRV/CMV movement	YES
13	For checks not listed above may be refer from installation instruction manual for better clarifications.	YES
14	Ensure the Quality person is present at site for quality work	YES

5.6.1.22. Check list of Foot patrolling in Depot and Main Line-

Sr. No.	Equipment Name	Check list	Daily
1	Foundation	Damaged or Cracked	YES
		Sinking or Tilted	YES
		Water Collection Around Foundation	YES
		Side Earth Filling Required.	YES
		Top of Foundation Not Clear	YES
2	OHE Mast & Portals	Mast Deflected Towards Track	YES
		Mast Deflected Away From Track Other Than Those Already Under Observation & Thus Painted With Yellow Band	YES
		Hit Mark or Damage to Mast	YES
		Number Plate Missing	YES
		Number Plate Damaged	YES
		HRL/IMP Not Painted/ Faded	YES
3	Anchor	Nut Check nut or Lock Plate	YES
		Pin Missing from Anchor Bolt	YES
		Pin Missing from Guy Rod	YES
		Anchor Bolt Rusting	YES

Sr. No.	**Equipment Name**	**Check list**	Daily
		Looseness of Guy Rod	YES
4	Bracket Assembly	Bracket Insulator Damaged	YES
		Stay Insulator Damaged	YES
		9-Tonne Anchor Insulator Damaged	YES
		Any Other Defect Noticed	YES
5	Section Insulator	Abnormal Wear on Runners	YES
		Core Insulators Very Dirty	YES
		Core Insulators Having Flash Mark/Damaged	YES
		Abnormal wear of contact wire under SI splice.	YES
6	Regulating Equipment (5-Pulley ATD)	Guide tube should not be bent & all fasteners and fitting must be intact	YES
		Twisting of OOR catenary wire	YES
		Twisting of OOR contact wire	YES
		Check whether, Equalising plate is tilted	YES
		Check all nuts & bolts for any damage	YES
7	OHE Span	Span droppers abnormally out of plumb.	YES
		Span droppers damaged.	YES
		Any other abnormality in respect of jumper.	YES
		Catenary strand damaged	YES
		Excessive sagging or hogging of contact wire	YES
		Excessive wear of contact wire under swivel clip, curve, splices, PG clamps etc.	YES
8	Switching Station	Post insulator damaged	YES
		Integral and pad lock missing/damaged	YES
		Any signs of sparking/over heating	YES
		Equipments number plates missing	YES
		Check tightness of PG Clamp & connectors	YES
		Equipment’s operation in local and remote mode	YES
9	Earthing	Connection of plinth jumper	YES

Sr. No.	**Equipment Name**	**Check list**	Daily
		Connection between main BEC to plinth	YES
		Connection between segment to segment	YES
		Connection between mast & OPC	YES
		Connection between mast & hand rail	YES
		Connection between BEC to steel structure at platform	YES
		Connection between ITL & BEC, OPC	YES
10	General Checks	Station staff and public caution boards condition DA Protective screen Tree branches nearby OHE Bird nest, pieces of stray wire, kite or anything foreign material Minor defects to be rectified during patrolling Major defects noticed	
Note- Monthly a complete section foot patrolling also to be done.			

5.6.1.23. Current Collection Test check list and procedure-

- Current Collection test shall be done with own (contractor) latest Oliver-G Kit for the section from Belapur Terminal station to Pendhar station.
- Details Test Reports shall be submitted with FHD Images, texts and FHD video recording data with description of each spark along with intensity.
- Test results shall be submitted with latest specification of RDSO guidelines.
- All data shall be submitted in storage devices like pen drive etc.

Procedure:

- Current collection and checking of OHE by OLIVER-G is carried out consecutively for two to three trips at an interval of two days, covering entire section. Same cycle to be repeated in scheduled maintenance activity.
- Current collection is carried out during night-time only.
- GPS coordinates of main line from Pendhar to Belapur should be taken before starting current collection test.
- Limit of flashes in the Mega pixel unit and the time frame for its attention will be as follows:

- More than 100 units (High Intensity) - Attend within a week
- Between 60 – 100 units (Medium Intensity) - Attend within a fortnight
- Between 40 – 60 units (Low Intensity) - Attend within a month.

Spark detection and analysis unit: -

For test run, enter the details like date, train number & the person conducting the test in the OLIVIR-G program provided in the LAPTOP.

- Connect the GPS receiver to the LAPTOP.
- Align the digital camera & focus light so that it focuses on the pantograph.
- In case of Continuous motion recording (CMR) is required; select the CMR option available in the program.
- Press the start button then onwards the recording will start. At the end of the test, press stops.

After the test run is over

- The unit generates report stating the locations of sparks
- The image where the spark has occurred can be viewed with the location on the top of the image. CMR data can also be viewed.
- With the noted Coordinates we shall conclude the location of spark.
- Once the spark is identified the cause of the spark shall be analyzed.
- The remedial action
  a) If the spark is on account a kink /bend this shall be removed by using a kink remover by using a wooden mallet till the surface becomes homogenous and reaches the level of healthy conductor.
  b) If the spark is on account of discontinuity between pantograph and contact wire the reason like lurches on the track to be made good through track maintenance,
  c) If the spark on account of poor pantograph pressure, advise RS to check & maintain the required r pressure.

5.6.1.24. Maintenance of all types of boards/number plate-

Sr. no.	Checklist	Yearly
1	Check the tightness of nuts and bolts of all types of boards	Yes
2	Ensure all the boards and number plates are clean, free from	Yes

	rust or fading and text or numbers are clearly legible	
3	Check the reflective surface (If applicable) are intact and visible, especially under low light conditions	Yes

Schedule B

5.6.2. Schedule of maintenance & Check list for Preventive Maintenance of PSI equipment (RSS),ASS.

5.6.2.1. Maintenance of 25 KV & 33 KV GIS

SN	Checklist	Schedule
1	Chck deficiency of panels	Q
2	Dust cleaning by vacuum cleaner	Q
3	Chck connection & tightness	Q
4	Chck working of heater & lamp	Q
5	Chck gasket & replace if faulty	Q
6	Local/Remote status from SCADA	Q
7	Chck CB mechanism Open/Close	Q
8	Chck spring charging	Q
9	Chck CB Operation in Manual/Remote	Q
10	Chck interlocking of CB Isolator	Q
11	Chck CB counter	Q
12	Chck gas pressure	Q
13	Clean and Check CB compartment	Q
14	Clean and Check Bus Bar compartment	Q
15	Check Alarm/Trip Test	Q
16	Chck earth connection	Q
17	Cap voltage indication	Q
18	Check cable termination & armor earthing	Q
19	Chck CT & PT terminals for tightness	Q
20	Chck % SF6 Gas	Q
21	Chck dew point	Q
22	Drive mechanism	Q

5.6.2.2. Maintenance of 220 KV GIS

SN	Checklist	Schedule
1	Check deficiency	Q
2	Record alarm if any	Q
3	LED test of alarm window	Q

SN	Checklist	Schedule
4	Clean by vacuum cleaner	Q
5	Clean control box front glass	Q
6	Check connection & tightness	Q
7	Check working of heater & lamp	Q
8	Check door gasket replace if faulty	Q
9	Verify local/remote SCADA status	Q
10	Check Operation of CB in Local/Remote	Q
11	Check semaphore indication	Q
12	verify open/close in SCADA	Q
13	Check CB counter	Q
14	Check hydraulic pump counter	Q
15	Interlocking between CB & Isolator	Q
16	Check earth conn. & Cable Termination	Q
17	LA counter & leakage current	Q
18	Check cable termination	Q
19	Check % of SF6 Gas	Q
20	Check dew point of SF6 Gas	Q
21	Drive mechanisms	Q
22	Check SF6 leakage	Q
23	CT & PT Terminals tightness	Q
24	Chk the SF6 press from gauge CB(560kpa)	Q
25	Chk SF6 prsh from gauge ISO-I(450kpa)	Q
26	Chk SF6 prs from gauge ISO-II(450kpa)	Q
27	Chk SF6 prsh from gauge Cbl(450 kpa)	Q
28	Chk SF6 prsh from gauge VT(560 kpa)	Q
29	Chk SF6 prsh from gauge LA(450 kpa)	Q
30	Chk SF6 prsh from gauge BUSBAR-I(450kpa)	Q
31	Chk SF6 prsh frm gauge Busbar-II(450kpa)	Q
32	Chk SF6 prsh from gauge ES(450kpa)	Q

5.6.2.3. Maintenance of RMU

SN	Checklist	Schedule
1	General Cleanliness	Q
2	LV Connection Tightness/Rust/Oxidation	Q
3	Traces of Flashover/damages/dirt/flaws	Q
4	Apparatus doesn’t show any deformation	Q

5	Mech Operation & Verify status with OCC	Q
6	Motor Spring Charged or not	Q
7	Check L/R Indication In scada	Q
8	Check Voltage Indication & FPI	Q
9	General Cleaning	Q
10	Chk tightness control wiring Connection	Q
11	Check SF6 pressure of RMU	Q
12	Chk MVCB Breaker Trip Test	Q
13	Chk Earthing Connection of RMU	Q
14	MVCB Breaker Counter Reading	Q
15	VIP Relay OC/EF Tripping Counter	Q

5.6.2.4. Maintenance of Traction and Auxiliary Transformer

SN	Checklist	Schedule
1	Check working of fans	Q
2	Check manual test of fans	Q
3	Check fan start by WTI Operation	Q
4	Check WTI, OTI, ALARM,TRIP in SCADA	Q
5	Check silica Gel	Q
6	Check oil level in breather cup	Q
7	Check oil lvl,leakage in Main Tank, OLTC	Q
8	Check Bushing for chipping,oil level	Q
9	Check tightness of bushing connector	Q
10	Check oil level in WTI, OTI, in pockets	Q
11	Local/remote position of switch in SCADA	Q
12	Clean radiator & tank	Q
13	Clean all monitoring all glass gaskets	Q
14	Chck tap Position manually/electrically	Q
15	Test BDV of OLTC/Main Tank	Q
16	Test DGA, PPM, Acidity	Q
17	Measure winding Insulation Resistance	Q
18	Alarm/Trip of Buchholz, OSR,PRV function	Q
19	Clean marshling box by Vacuum cleaner	Q
20	Check gaskets	Q
21	Chck connection of control wiring	Q
22	Overheating of electrical connection	Q
23	Heater & Lamp	Q

SN	Checklist	Schedule
24	Tan delta & Capacitance of bushing	Q
25	Tan delta of windings	Q
26	Chck isolator Operation of NGR	Q
27	Chck oil & Gas collection in Buchholz	Q
28	Working of AVR	Q
29	MCB, Switch & other auxiliary	Q
30	Checking of PNRV/TCIV	Q
31	Checking of NIFPS	Q

5.6.2.5. Maintenance of Dry Type Transformer

SN	Checklist	Schedule
1	Note Temp of all Phases,observed sound	Q
2	Trafo Enclosure cleaning with Vacuume	Q
3	Tightness of HV/LV Termination	Q
4	Visual Check of HV/LV Connection	Q
5	Working of Temp Monitoring Unit	Q
6	Clean All Temp Sensor	Q
7	Tap Changer link Tightness	Q
8	Check tightness of Earthing strip	Q
9	IR/Megger of Trafo	Q

5.6.2.6. Maintenance of Battery Charger

SN	Checklist	Schedule
1	Observe Abnormal Sound	Q
2	Measure output of FCBC	Q
3	Automatic Changeover	Q
4	Check Alarm Indication Switches	Q
5	Clean Dust with Cleaner	Q
6	Check Cable Connection & Tightness	Q
7	Measure Temp in Control Card Area	Q
8	Clean FCBC with Blower	Q
9	Check Earthing Tightness	Q
10	Check Lamps Working & Indication	Q
11	Complete Cleaning OF FCBC	Q
12	Painting if rusted	Q
13	Check & Clean PCB Card	Q

5.6.2.7. Maintenance of Battery Bank

SN	Checklist	Schedule
1	Measure voltage in Float/Boost	Q
2	OFF both Charger then Measure Vol >110	Q
3	work with Precaution Wear Gloves/Goggles	Q
4	Clean Accumulated Dust	Q
5	Check Electrolyte Level	Q
6	Check Leakage & Bulging	Q
7	Measure & Record Cell Voltage after 1hr	Q
8	Apply Petroleum Jelly	Q
9	Check Appearance of Battery	Q
10	Check Stand & Paint	Q
11	Check appearance of Battery	Q
12	Partial Load Test after 12 month	Q
13	Complete Load Test after 24 Month	Q

5.6.2.8. Maintenance of ACDB and DCDB

SN	Checklist	Schedule
1	Check Earthing tightness	Q
2	Check opening, closing of door	Q
3	Check door gasket	Q
4	Check exterior cleaning	Q
5	Clean dust & remove unwanted materials	Q
6	Check indications, LED of Under Voltage	Q
7	Check for any Flash mark in DB	Q
8	Check Electrical connection tightness	Q
9	Check for UV indication test	Q
10	Check for Safety Interlock	Q
11	Check Operation of MCCB	Q
12	Check termination temperature for overloading	Q
13	Check protection & relay healthiness	Q
14	Check change over Operation	Q

5.6.2.9. Maintenance of RTU / SCADA

SN	Checklist	Schedule
1	Inspection of LED status of all cards	Q

SN	Checklist	Schedule
2	Diagnose configuration of RTU with tool	Q
3	Take the backup of RTU files	Q
4	Check the voltage at every DI-TB	Q
5	Check working of supply units/converters	Q
6	Cleaning of RTU panel	Q
7	Check the tightness of all terminations	Q
8	Checking of interposing relay & marking	Q
9	Check the earthing connections & holes	Q
10	Check the working of heater & lightning	Q

5.6.2.10. Maintenance of UPS

SN	Checklist	Schedule
1	Clean UPS system internally & Externally	HY
2	Check Fan Running in UPS cabinet	HY
3	Check DC Volt. with Mains in ON Cond.	HY
4	Check Input & Output AC Voltage Mains ON	HY
5	Check DC Volt. with Mains in OFF Cond.	HY
6	Check Input & Output AC Volt. Mains OFF	HY
7	Check Output LOAD Current	HY
8	Check all Connections are tight	HY
9	Check Body Earthing Connection tight	HY
10	Check all Indication light working	HY
11	Check MCBs working Properly	HY
12	Check change over Operation	HY

5.6.2.11. Maintenance of Earthing Pits

SN	Checklist	Schedule
1	Measured value with Sheet Attached	Y
2	Removed dust/Rust	Y
3	Paint	Y
4	Check for Damage on Earth Strip	Y

5.6.2.12. Check-List for Maintenance of Buried Rail

SN	**Check list**	**Schedule**
1	Clean the connections of the return conductor to the Buried rail.	Y

2	Remove rust and apply zinc paint on the rusted parts.	Y
3	Replace the rusted nut-bolts.	Y

5.6.2.13. Maintenance of FACP

SN	Checklist	Schedule
1	Check panel & detect any fault recorded	Q
2	Test of LED of FACP	Q
3	Test smoke detector of each zones	Q
4	Test smoke detector and loop test	Q
5	Sand bucket to be check	Q
6	Clean extinguisher with cotton cloth	Q
7	Check outlets, holes & threaded portion	Q
8	Record weight of cylinder	Q
9	Check pressure of cylinder (FM 200)	Q
10	Alarm to be checked	Q
11	Clean all systems inside out	Q
12	Check all MCP working and Location	Q
13	Visual Check of Battery inside FACP	Q
14	Check of Battery Voltage on Load	Q
15	Check Exterior Damage in Smoke Detector	Q
16	Clean Smoke Detector and MCP	Q

5.6.2.14. Maintenance of IDU HVAC

SN	Checklist	Schedule
1	Check IDU Cleaning inside out	Q
2	Clean the IDU by brushing cooling coil	Q
3	Check for Any Abnormal Noise	Q
4	Check for wiring Condition & Tightness	Q
5	Check for Gas Leakage & Ice on Coil	Q
6	Check Condition & Fixing of Temp. Sensor	Q
7	Check for Insulation Damages on Pipe	Q
8	Clean Drain holes, water outlets	Q
9	Check Working of MCB	Q
10	Filter Cleaning	Q
11	Check for working of IDU	Q

5.6.2.15. Maintenance of ODU HVAC

SN	Checklist	Schedule
1	Clean Condenser Coil & Outside Body	Q
2	Check Oil Leakage	Q
3	Check Insulation Damages on Pipe & Duct	Q
4	Check for working of ODU	Q
5	Check for wiring Condition & Tightness	Q
6	Check and Measure Supply feeding ODU	Q
7	Check Gas Leakage & Ice on Pipe Lines	Q
8	Check Working of MCB	Q
9	Check All Covers fitted back with Screws	Q
10	Clean the ODU inside out	Q

5.6.2.16. Maintenance of CRP

SN	Checklist	Schedule
1	Clean dust on the panel	Q
2	Check Earth terminal & Earth strips	Q
3	Check Voltage level indication lamp	Q
4	Check fuse with continuity tester	Q
5	Check tightness of CT link	Q
6	Test with relay test kit	Q
7	Check Switch,MCB, Annunciator healthines	Q
8	Check tightness of loose connection	Q
9	Check CT & PT terminals for tightness	Q

5.6.2.17. Maintenance of IGBT

SN	Checklist	Schedule
1	Cubical Temp. is within Limit (<40)	Q
2	Check the ventilation (Room & Enclosure)	Q
3	Check no dust present in filter & Panel	Q
4	Stack temperature within limit (<90)	Q
5	Check Tightness of electrical connection	Q
6	All the cooling DC fan running freely	Q
7	Check Address of ASTRA unit (IP Address)	Q
8	Check CAN bus wiring (Depot)	Q
9	Earthing is OK & Check the tightness.	Q
10	Check the Emergency Switch Operation	Q
11	Check door alignment.	Q

SN	Checklist	Schedule
12	Cross check HMI parameters	Q
13	Check insulation of Live part	Q
14	Check the CT TB tightness.	Q

5.6.2.18. Maintenance of RTCC

SN	Checklist	Schedule
1	General cleanliness	Q
2	Chk name plate/ wiring as per drawings	Q
3	Chk tightness of cntrl wiring connection	Q
4	Check tightness of CTs mounted	Q
5	Check Earthing connections & resistance	Q
6	Check the cable entry point	Q
7	Measure the Earth Resistance (< 1 ohm)	Q
8	Trip test must be carried out	Q

5.6.2.19. Maintenance of Viaduct Light and Socket

SN	Checklist	Schedule
1	Clean Lights and Sockets from outside	Q
2	Check for Broken /Damaged Cable	Q
3	Clean the Viaduct DB and MCB	Q
4	Check for Dirt Damages in DB and MCB of Light and Socket	Q
5	Check working of MCB	Q
6	Check working of Lights and Sockets	Q
7	Clean DB from inside out	Q
8	Tight all the cable connections	Q

5.6.2.20. Transportation charge including driver & all Fuel charges 24x7 per month services up to 2000 K.M. for one year (Camper Yoddha), including all maintenance charges. The contractor shall provide a dedicated vehicle for shifting of material, tools, spare etc. and having sitting arrangement for at least four staff. The vehicle shall be available at site 24x7 round the clock. with the driver having a valid driving license. and fuel, maintenance charges of vehicle and other items related to vehicle to be arranged by the contractor.

Part-B Schedule 1: Breakdown/Corrective Maintenance for OHE & PSI

Schedule 1 part (ii) Breakdown/Corrective Maintenance for Over Head Equipment (FOCS OHE).

Items no. 3.1: Breakdown attention by a gang for restoration of 25 KV OHE/PSI during

accidents/unusual occurrence for checking OHE parameters. Breakdown attention gang shall be a part of CM/PM maintenance team.

The contractor shall provide manpower, for restoration of OHE breakdown main line & depot area. The material provided by Maha-metro & contractor to be collected from Maha-metro store.

Items no. 3.2: Panto entanglement due to OHE components like Turn out, Overlap, non-OHE zone, Jumper, Dropper, Cantilever steady arm & other components of Cantilever, Section insulator Foreign Material etc.

The contractor shall provide manpower, for rectification of Panto entanglement main line & depot. The material provided by Maha-metro & contractor to be collected from Maha-metro store.

Items no.3.3 : Erection of Catenary wire splicing or Contact wire splicing or splicing of OPC

The contractor shall provide manpower, for erection of catenary wire splicing or contact wire/opc splicing . The material provided by Maha-metro & contractor to be collected from Maha metro store.

Items no. 3.4: Replacement / Re-erection of various types of insulators

The contractor shall provide manpower for replacement of insulators from main line & depots. The insulator provided by Maha-metro & contractor to be collect from Maha-metro store and faulty insulators to be kept at Maha-metro store.

Items no. 3.6: Replacement/ Re-erection of Section Insulator I(double rod type), Neutral Section assembly.

The contractor shall provide manpower for Replacement/ Re-erection of Section Insulator I(double rod type), Neutral Section assembly

The insulator provided by Maha-metro & contractor to be collected from Maha-metro store and faulty material to be kept at Maha-metro store.

Items no. 3.7: Replacement / Re-erection BWT types of ATD, Interrupter/BM, VT, Isolator 'including loading & unloading'

The contractor shall provide loading & unloading of of ATD, Interrupter/BM, VT, Isolator and manpower & machinery, for replacement of of ATD, Interrupter/BM, VT, Isolator from main line &

depot. The of ATD, Interrupter/BM, VT, Isolator is provided by Maha-metro & contractor to be collected from Maha-metro store and faulty of ATD, Interrupter/BM, VT, Isolator to be kept at Maha-metro store.

Items no. 3.8: Replacement/ Re-erection of Single/Double/Tripple bracket assembly Cantilever

The contractor shall provide manpower, for replacement & erection of cantilever main line & depot area. The material provides by Maha-metro & contractor to be collected from Maha-metro store and remaining material to be kept at Maha-metro store.

Items no. 3.9: CAD Weld from ITL (Integral Transverse Link) to Rail.

The contractor shall provide CAD weld material & manpower for rectification of Cad weld at depot & Viaduct area and earthing cable shall be provided by Maha-metro & contractor to be collected from Maha-metro store.

Items no. 3.10: Stenciling on OHE Structure with Material.

The stenciling as a requirement basis on OHE Structure, the contractor shall provide all material & manpower for stencilling works.

Items no. 3.11: Repair of Discharge rod without material.

Repair of discharge rod at station and depot, the tools & material shall be provided by Maha metro and contractor staff to be collected from store & tools same to return at store.

Items no. 3.12: Supply & erection of all type boards

The price shall cover supply & erection with fasteners as per requirement at site (Specification No. ETI/OHE/33(2/73).

Items no.3.13:

The contractor shall provide with all material & manpower which is required for rectification of leaning Mast at Depot Area. The power block arranged by Mah-metro staff.

Items no. 3.14: Replacement of OHE light sensor aviator light/bulb indicator Red/Green

The contractor shall provide with all material & manpower for Replacement of OHE light sensor aviator light/bulb indicator Red/Green.

Part B : Schedule 2: Miscellaneous & consumable items including small tools etc. for OHE

For any miscellaneous or consumable items, including small tools required for OHE works that are not mentioned in the scope of work or BOQ, the contractor shall obtain prior approval from Maha Metro. The contractor shall submit **three quotations** for the required items/work before proceeding. The work shall be carried out only after receiving approval from the competent authority.

Schedule 3, Part B - Breakdown/Corrective Maintenance for PSI (RSS,ASS).

Items no. 4.1

33kV and 25kV cable end termination jointing work (Jointing kit will be provided by Maha Metro & Contractor has to provide certified jointer by OEM)

As & when required if any 33kV and 25kV cable end termination failure/puncture occurs cable end termination to be replaced by certified jointer by OEM with essential tests before charging at contractor's end. The cable end termination kit will be provided by Maha-Metro. contractor to be collected from Maha-metro store.

Items no. 4.2

33kV and 25kV cable straight through jointing work (Jointing kit will be provided by Maha Metro & Contractor has to provide certified jointer by OEM)

As & when required if any 33kV and 25kV cable straight through joint failure/puncture occurs to be replaced by certified jointer by OEM with essential tests before charging at contractor's end. The cable straight through joint kit will be provided by Maha-Metro. contractor to be collected from Maha-metro store.

Items no. 4.3

Breakdown maintenance for 220 KV GIS By OEM

In case of any breakdown or fault in the 220 kV GIS system, the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis**.

Items no. 4.4

Breakdown maintenance for 33 KV GIS by OEM

In case of any breakdown or fault in the 33 kV GIS system, the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis**

Items no. 4.5

Breakdown maintenance for 25 KV GIS by OEM

In case of any breakdown or fault in the 25 kV GIS system, the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their

urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis**

Items no. 4.6

Breakdown maintenance for 33 KV RMU by OEM

In case of any breakdown or fault in the 33 kV RMU system, the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis.**

Items no. 4.7

Breakdown Maintenance for 25MVA Auxiliarry trafo by OEM

In case of any breakdown or fault in the 25MVA Transformer , the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis**

Items no. 4.8

Breakdown Maintenance for 25MVA/10MVA Auxiliarry trafo NIFPS.

In case of any breakdown or fault in the 25MVA/10MVA Transformer NIFPS , the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis**

Items no. 4.9

Breakdown Maintenance for 10MVA Traction Transformer by OEM.

In case of any breakdown or fault in the 10MVA Traction Transformer, the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis**

Items no. 4.11

Breakdown Maintenance of 220/33/25 KV CRP/SAS by OEM

In case of any breakdown or fault in the 220/33/25 KV CRP/SAS .the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis.**

Items no. 4.12

Breakdown Maintenance of OCC SCADA/RTU by OEM

In case of any breakdown or fault in the OCC SCADA/RTU.the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis.**

Items no. 4.13

Breakdown Maintenance of IGBT by OEM

In case of any breakdown or fault in the IGBT.the contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis.**

Items no. 4.14

Replacement & Laying of 33&25kV Cable on Viaduct

As & when required if any 25kV/ 33kV cable section failed/ damaged/ need replacement due to length shortage on viaduct shall be replaced with all essential tests before charging at contractor's end. Cable will be provided by Maha metro.

Items no. 4.15

Replacement & Laying of 33&25kV Cable in ground

As & when required if any 25kV/ 33kV cable section failed/ damaged/ need replacement due to length shortage buried in ground to be replaced with all essential tests before charging at contractor's end. Cable will be provided by Maha metro.

Items no. 4.16

Laying of Control & LT Cable up to 70 Sq.mm.

As & when required if any Control cable section failed/ damaged/ need replacement/ laying in RSS, ASS & viaduct (up to 70sq mm dimension) all essential tests before charging at contractor's end. Cable will be provided by Maha Metro.

Item no. 4.17

Hire charge of diesel Truck-9Tonne for shifting of material form store to site(As & when required)

As when required, the contractor shall provide crane & coordinate for material shifting or any other related work as per the capacity.

Item no. 4.18

SF6 Gas multi analyser

In case any SF_6 gas leakage is observed in the GIS system, the contractor shall arrange an SF_6 gas multi-analyzer kit to carry out the required gas quality analysis. The contractor shall ensure testing of SF_6 gas parameters such as purity, moisture content, and decomposition products, and submit the test results for necessary evaluation and corrective action.

Item no. 4.19

Breakdown maintenance of 33KV DTT (ABB)

In case of any breakdown or fault in 33KV DTT.The contractor shall immediately contact the Original Equipment Manufacturer (OEM)/ OEM authorized channel Partner and arrange for their urgent visit to diagnose and rectify the fault. The OEM shall attend the site on priority and carry out the necessary repair and restoration work to ensure early normalization of the system. This service shall be provided on an **as-and-when-required basis**

Item no. 4.20

Semi-skilled worker (as when required)

The contractor shall provide skilled manpower in case of any emergency, if required. However, no manpower shall be deployed without prior approval from Maha Metro. The contractor must obtain necessary authorization from Maha Metro before arranging or mobilizing any personnel for the work.

Item no. 4.21

Supply of 245kV CGL make condenser bushing

In the event of failure of a 245 kV condenser bushing, the contractor shall arrange and supply a **245 kV CGL make condenser bushing**. The bushing shall be procured only from the **Original Equipment Manufacturer (OEM) or their authorized partner/dealer** to ensure authenticity, compatibility, and quality. The contractor shall ensure timely supply of the required bushing to facilitate prompt replacement and restoration of the system. After installation of the transformer, the

contractor shall arrange for all required pre-commissioning tests to be carried out before charging the transformer.

Item no. 4.22

Supply of 36kV porcelain bushing with metal part assembly

In the event of failure of a36KV porcelain bushing with metal part, the contractor shall arrange and supply a **245 kV CGL make condenser bushing**. The bushing shall be procured only from the **Original Equipment Manufacturer (OEM) or their authorized partner/dealer** to ensure authenticity, compatibility, and quality. The contractor shall ensure timely supply of the required bushing to facilitate prompt replacement and restoration of the system. After installation of the transformer, the contractor shall arrange for all required pre-commissioning tests to be carried out before charging the transformer.

Item no. 4.33

Supply of 52kV CGL make condenser bushing

In the event of failure of a 52kV CGL, the contractor shall arrange and supply a **245 kV CGL make condenser bushing**. The bushing shall be procured only from the **Original Equipment Manufacturer (OEM) or their authorized partner/dealer** to ensure authenticity, compatibility, and quality. The contractor shall ensure timely supply of the required bushing to facilitate prompt replacement and restoration of the system. After installation of the transformer, the contractor shall arrange for all required pre-commissioning tests to be carried out before charging the transformer.

Part B: Schedule 4: Miscellaneous & consumable items including small tools etc. for PSI

For any miscellaneous or consumable items, including small tools required for PSI works that are not mentioned in the scope of work or BOQ, the contractor shall obtain prior approval from Maha Metro. The contractor shall submit **three quotations** for the required items/work before proceeding. The work shall be carried out only after receiving approval from the competent authority.

5.7. Penalties –

SN	EVENT	PROPOSED PENALTY	UNIT
a	Penalties for not attending Scheduled/ Preventive Maintenance & Breakdown/ Corrective Maintenance shall be imposed as below: 1) CM (Corrective/Breakdown Maintenance): Penalty of INR 10,000/- per case, shall be levied for not attending Corrective Maintenance/emergency breakdown, within particular shift after getting information. 2) PM (Scheduled/ Preventive Maintenance): Penalty of INR 5,000/- per item in Financial Bid/BOQ, shall be levied for not attending Preventive Maintenance within 07 (Seven) days from the due date of Preventive Maintenance activity.		
b	Retention of Maintenance Staff on overtime duty without prior approval of the Maha-Metro	Rs. 250.00	Per Activity
c	Short supply of manpower during maintenance	2 times of minimum wages	Per Activity
d	Maintenance person entering the paid area of the station without a valid ticket or card.	Rs. 250.00	Per instance
e	Public complaint is received attributable to misconduct/ misbehavior of the contractor's personnel, & is assessed as true by Maha-Metro's administration	Rs. 500.00	Per instance
f	Breach of Conditions stipulated in the contract detected by Maha-Metro officials	Rs. 2500.00	Per instance
g	Contractor's staff is not in proper uniform.	Rs.250.00	Per day per person
h	Contractor's staff is without ID card	Rs.100.00	Per day per person
i	Repetitive lapses are found in the performance of the duty by the Contractor or on any	Rs.2500.00	Per instance

SN	EVENT	PROPOSED PENALTY	UNIT
	particular incident negatively affecting the working of Maha-Metro		
j	Contractor fails to perform its duties/functions satisfactory as prescribed by Maha-Metro	Rs.10,000.00	For first instance later on Maha-Metro's Decision
k	Failure in making payment to maintenance Personnel deployed at Maha-Metro	Rs.50.00	Per staff per day
l	Poor quality of work i.e. irregularities found during maintenance/ incompetent	Up to Rs 250 Inspection by JE/ASE/SE/SSE Level	Per instance
		Up to Rs 1,000 Inspection by AM/Mgr.	
		Up to Rs 2,500 Inspection by Dy. HoDs	
		Up to Rs 5,000 Inspection by HoDs	
m	Damage to any of the equipment installed at Station, Depot & Main Line due to any reason found during maintenance	suitable cost will be recovered on actual basis in the immediate Running account based on the assessment of MAHA-Metro Engineer in charge.	Per instance
n	Damage, theft, loss, missing of amenity items	Up to Rs.5000 per case in addition to cost of items.	For first instance later Maha-Metro's Decision
o	Involvement of staff in any anti-social activity, Bandh, Strike.	Up to Rs.25,000/-	Per instance

SN	EVENT	PROPOSED PENALTY	UNIT
p	Fails to perform any of the Pest Control activities as per the schedule maintenance.	Rs.250	Per day per Instance
q	Staff late arrival on duty & early leaving from duty. Repeated cases of late arrival on duty & early leaving will invite penalty as per penalty	Rs.150	Per staff per shift
r	Non-compliances of any other provisions of labour Laws, statutory payments etc. pointed out.	Up to Rs.10,000.00	Per instance
s	In case disposal of cleaning waste is not done by the contractor at the prescribed in respective Municipal Corporation site.	Rs. 1,000.00	Per day
t	Spitting, Smoking, alcoholic drinks by Maintenance staff inside the Metro premises.	Rs. 100.00	Per staff per instance
u	Misuse of mobile phone on duty/Listening music on Mobile/other Devices leading to negligence in duty.	Rs.50	Per instance
v	Failed to submit medical examination details and police verification reports of deployed staff within 1 month	Rs.500	Per Staff per Day
w	Fails to deploy the manpower as per mentioned in activity within 1 month	Rs. 500	Per day Per maintenance activity
y	Non availability of consumable as per minimum quantity decided by Maha Metro Official or this shall also include the instances or usage of wrong detergents / chemicals, Anti rust spray, WT 40 etc. for maintenance.	Rs. 500	Per instance
aa	Staff found in state of intoxication by the use of alcohol, seductive, narcotic or simulant drugs	Rs. 1000 + Suspension for 7 days	Per instance
bb	Sleeping on duty	Rs. 1000	Per instance
cc	Contractor fails to perform its duties/functions satisfactory as prescribed by Maha-Metro. For first instance later on Maha-Metro's Decision.	Rs.10,000.00	Per instance

SN	EVENT	PROPOSED PENALTY	UNIT
dd	Contractor fails to carry out any Preventive/Corrective/Breakdown Maintenance as per their scope of Work	Actual Cost of the work + Supervision Charges of Maha-Metro (5 % of Actual cost of the work paid by Maha-Metro)	Per Instance

5.8. DEFINITIONS:

Administrative Delays: Time period during which an action of active corrective maintenance on a faulty item is not performed due to administrative reasons.

Availability: The probability of the item to perform a required function under given conditions at a given instant of time, assuming that the required external resources are provided.

Component: Within a product, system, subsystem, or equipment, a component is a constituent module, or part.

Corrective Maintenance: The maintenance carried out after a fault recognition which is intended to put an item into a state in which it can perform a required function.

Degraded Mode: A system condition with a known level of functionality in which the system continues to operate, following failure detection and reaction, or when manually selected.

Employer: MAHA Metro

Equipment: A functional physical item

Error:A deviation from the intended design, which could result in unintended system behaviour or failure.

Failure: A deviation from the specified function or performance of an item. A failure is the consequence of a fault or error on an item.

Failure Cause: Circumstances during design, manufacture, or use which have led to a failure.

Failure Mode: Predicted or observed results of a failure cause on a stated item in relation to the operating conditions at the time of the failure.

Failure Mode and Effects Analysis (FMEA): A method of analyzing system design and

performance to determine the effects of each potential failure mode on the system.

Failure Mode, Effects and Criticality Analysis (**FMECA)**: An extension of FMEA in which the criticality of the effects is also assessed.

Failure Rate: The number of failures expected in a given interval of time. Failure rates are expressed in failures per million operating hours. For constant failure rate items, i.e., exponentially distributed failures, the failure rate is the numerical reciprocal of the Mean Time Between Failures (MTBF).

Fault: A state of an item that renders it unable to fulfil its operational requirements but does not necessarily require a repair of that item to return it to its fully operational state.

Item: Any part, component, device, subsystem, functional unit, equipment or system that can be individually considered.

Line Replaceable Unit (LRU): The equipment that can be replaced as a single complete unit and can be handled by a single person.

Logistic Delays: Time period during which an action of active corrective maintenance on a faulty item is not performed due to logistics reasons.

Maintainability: The probability that a given active maintenance action, for an item under given conditions of use can be carried out within a stated time interval when the maintenance is performed under stated conditions and using stated procedures and resources.

Maintenance: The combination of all technical and administrative actions, including supervision actions, intended to maintain an item in, or restore it to, a state in which it can perform a required function.

Mean Time Between Failures (MTBF): The average time an item is expected to work before a failure occurs. MTBF is calculated as the total operating hours during a specific interval of time divided by the total number of failure events during that same interval of time. Alternatively, MTBF is also known as the reciprocal of the Failure Rate.

Mean Time to Restore (MTTR): At a given level of maintenance is defined as the value obtained by dividing the total active corrective maintenance time expended to restore service during a specific interval of time by the total number of failure events requiring restoration during that same interval of time. Mean Time to restore can also be stated as the average active repair time expended to restore service, after a failure caused service down- time, over the life of the equipment.

Reliability: The probability that an item can perform a required function under given conditions for a given time interval.

Work Assessment Report:

Maintenance schedule followed by Corrective Action, as laid down by Maha Metro Navi Mumbai Metro Line 1. The work assessment report will be prepared based on the observations made during inspection and during condition monitoring of assets. Based on work assessment report, work orders will be issued from time to time.

Spares:

A spare part is an interchangeable part that is kept in an inventory and used for the repair or refurbishment of defective equipment/units.

Consumables:

Consumables (also known as consumable goods, non-durable goods, or soft goods) are goods that are intended to be consumed. Consumables are in contrast to durable goods. Disposable products are a particular, extreme case of consumables, because their end- of-life is reached after a single use.

Tools:

A tool is a handheld device/Machine, used to carry out a particular function to accomplishing any task.

Note: Maha-Metro deserves the right to define any item as a tool/ Consumable

List of Tools & Plants

SN	Item
1	Pull Lift, 0.75 Ton
2	Pull Lift, 1.5 Ton
3	Pull Lift, 3.0 Ton
4	Pull Lift, 6.0 Ton
5	Tirfor 6-Ton cap with rope and handle
6	Tirfor 3-Ton cap with rope and handle
7	Tirfor 1.5-Ton cap with rope and handle
8	Tirfor 0.75-Ton cap with rope and handle
9	Single Sleeve Pulley 4"
10	Single Sleeve Pulley 6"
11	Double Sleeve Pulley 6"
12	Double Sleeve Pulley 4"
13	D-Shackle Diameter 25mm
14	D-Shackle Diameter 19mm
15	D-Shackle Diameter 16mm
16	D-Shackle Diameter 12mm
17	Φ16 x 1.5m flexible wire rope (Sling)
18	Φ19 x 1.0m flexible wire rope (Sling)
19	Φ19 x 2.0m flexible wire rope (Sling)
20	Φ19 x 1.5m flexible wire rope (Sling)
21	Comealong clamp, OPC
22	Comealong clamp, Contact Wire
23	Comealong clamp, Catenary
24	Kink Remover
25	Contact wire positioning device (Al / wooden)
26	Mallet (Fiber)
27	Twister
28	25kV/33kV hand gloves
29	Hydraulic operated crimping tool with die
30	Hand operated crimping tool with die
31	Contact & Messenger wire cutter
32	Dropper wire cutter
33	Crow bar
34	Tommy Bar
35	Manila rope 1/2", 3/4", 1" diameter
36	Operating rod
37	Discharge rod
38	Aluminium extendable ladder 11m
39	Aluminium ladder 6m
40	Bull dog clamp (1/2")
41	Torque wrench
42	Screw gauge (Digital) 25mm
43	Vernier Callipers (Digital) 200mm

List of Tools & Plants

SN	Item
44	Plumb Bob
45	Laser type Thermometer with pointer
46	Laser type Distance meter with pointer
47	Extension board with extension cable
48	Thermal imaging camera for Hotspot checking
49	GPS based OLIVER-G current collection system
50	Micrometers
51	Digital clamp meter
52	Digital Multimeters
53	Ratchet clamp with bit
54	Digital Insulation tester (5kV)
55	Micro ohm meter/ Contact Resistance Mesurment kit
56	Digital earth tester/Earth Analyzer (Clamp Type)
57	Earth Leakage current tester
58	Hi-pot test - 72kV
59	Hand drilling machine
60	Grinder
61	Contact wire splicing jig
62	Power Hacksaw (Portable type)
63	Chop saw (round cutter)
64	Scaffolding Trolley
65	Dynamometer 10T
66	Single phase portable Welding set with accessories
67	Tree Pruner
68	Vacuum cleaner
69	Hand Blowers
70	Binoculars
71	25 kV Live line detector
72	SF6 gas filling kit
73	SF6 gas leakage detector
74	Cable Fault Locator
75	Conductor mounting trolley
76	Cutting Jig
77	Drill Jig
78	Drilling tool for midpoint anchor
79	Pneumatic greasing pump
80	Greasing device
81	Crimping Tools
82	C-Clamp

83	Portable Emergency Lighting system
84	Tool Box
85	Set of “D” spanners10-11 to 34-3

86	Set of “Ring” spanners10-11 to 34-35
87	First Aid Box
88	Stretcher
89	Safety belts harness
90	Metric tape 30 m, 15 m, 5m each
91	Laser based distance measurer
92	Spirit Level
93	33kV Hand Gloves
94	Rechargeable heavy Duty LED Torch
95	Thermometer
96	Power driven tree cutting machine

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year

TENDER NO. NM1/E&M-05/2026

Section 6: Conditions of Contract

Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

SECTION 6: CONDITIONS OF CONTRACT

6.1 General Condition of Contract

6.1.1 DEFINITIONS

6.1.1.1 "Employer" means Maharashtra Metro Rail Limited (Maha Metro) or any other officer so nominated by the Competent Authority and shall include their legal successors and permitted assignees.

6.1.1.2 "Engineer" means such persons, or firm, as may be appointed from time to time by the Employer, and notified in writing to the Contractor to act as Engineer for the purposes of the Contract, or any nominated officer of Maha Metro.

6.1.1.3 "Contractor" means the individual, firm, company, corporation, Joint Venture, or consortium whether incorporated or not, who enters into the Contract with the Employer, and shall include his heirs, his executors, administrators, successors, legal representatives, as the case may be.

6.1.1.4 "Sub-Contractor" means the individual, Firm Company, Corporation, Joint Venture or Consortium, having direct contract with the Contractor and to whom any part of the Work has been sublet by the Contractor, with prior permission of the Engineer or Employer and shall include his heirs, his executors, administrators, successors, legal representatives, as the case may be.

6.1.1.5 "Other Contractor" or "Others" means the individual, firm, Company, Corporation, Joint Venture or Consortium, employed by or having a contract directly or indirectly with the Employer otherwise than through the Contractor.

6.1.1.6 "Scheduled Bank" means a bank included in the second schedule to the Reserve Bank of India Act,1934, or modifications thereto.

6.1.1.7 Employer's Requirements, the Tender, the Notice Inviting Tender, Instructions to Tenderers, the Contractor's Proposal, all Schedules / Sections, and such further documents which are listed in the Letter of Acceptance or Contract Agreement (if completed).

6.1.1.8 "Tender or Bid" means the offer made by individual, Firm, Company, Corporation, Joint Venture or Consortium for the execution of the works.

6.1.1.9 "Specification" means the specification referred to in the Bid Document and any modification thereof or addition thereto, as may from time to time be furnished or approved in writing by the Engineer.

6.1.1.10 "Drawings" means maps, drawings, plans, tracings or prints thereof, calculations and technical information of a like nature provided by the Engineer to the Contractor or annexed to the Contract, and any modifications of such drawings and further drawings that may be issued by the Engineer from time to time or approved by the Engineer in writing. It includes such other drawings as are made from time to time and furnished by the Contractor and

approved by the Engineer.

6.1.1.11 "Bill of Quantities / Financial Bid" means the priced and completed Bill of Quantities forming part of the Tender.

6.1.1.12 "Contract Price" or "Contract Value" means the sum stated in the Letter of Acceptance, subject to such additions thereto or deductions therefrom as may be made under the provisions of the Contract.

6.1.1.13 "Site" means the land and / or other places on, under, in or through which the Works are to be carried out, and any other lands or places provided by the Employer for the purpose of the Contract.

6.1.1.14 "Materials" means all equipment, components, fittings and other materials including raw materials required to execute and complete the work.

6.1.1.15 "Test" means such tests as are prescribed in the specifications or by the Engineer or Engineer's Representative, whether performed by the Contractor or by the Engineer or his Representative or any agency acting under the direction of the Engineer.

6.1.1.16 "Approval or Approved" means approval in writing including subsequent written confirmation of previous verbal approval.

6.1.1.17 "Letter of Acceptance" means the letter from the Employer or the Engineer, or a person nominated by them on their behalf for this purpose, to the Contractor, conveying acceptance of the Tender, subject to any modifications agreed to between the parties and includes advance acceptance of the tender.

6.1.1.18 "Contract Agreement" means an agreement which shall include all subsequent modifications/ amendments to the Contract as a result of the communications or negotiation proceedings between the parties.

6.1.2 General

6.1.2.1 Duration of Contract

The contract shall continue for a period of **Three (03) Years commencing from 17.11.2026**. The period of the contract may be further extended for up to one year after completion of contract period, as per discretion of Maha-Metro. **A period of One (1) month shall be provided for handing over and taking over formalities prior to the commencement of the Work.**

6.1.2.2 Payment Terms & Schedule: -

(a) Contractor has to submit Monthly bills/ Tax Invoices showing proper tax break up with each bill, in relation to work done / service provided to Maha Metro. The standard terms of payment shall be within 30 days from the date of submission of bills in triplicate along with work completion certificate issued by the competent authority in Maha-Metro. The payment shall be made in Indian Rupees only (INR) through RTGS/NEFT/ECS after due deductions of all statutory payments, taxes, penalties and other deductions applicable. Tax deduction at source from each on-

account progress bill shall be made by Maha-Metro as per the provisions of the statutes/acts of statutory bodies/local authorities etc. except when the contractor prior to release of payment submits valid and complete documents for tax exemption.

(b) No advance payment/ mobilization advance shall be paid to the Contractor.

(c) Before supply of any tools, spares or consumables, Contract has to take written permission from Maha-Metro in charge. For payment against utilized consumables, spares, special tools and equipment.

(d) contractor will submit the monthly report, which will be verified by Maha-Metro staff after going through all individual issue notes and payment will be done accordingly. Contractor shall obtain approval for the specification of the materials and its rate from the Maha-Metro in-charge prior to the procurement.

(e) It is mandatory to maintain all statutory documents at any point of time and the documents and records should be made available for inspection by Maha-Metro officials or by any other official nominated by Maha-Metro at any point of time. While submission of Bills the contractor shall also submit all the required reports and registers during the billing period.

6.1.2.3 Deployment, Attendance and Training:

a) Upon receipt of LOA, Contractor shall coordinate with all concerned departments of Maha Metro regarding deployment of Manpower for consolidation of data.

b) Bio-metric attendance system shall be maintained by contractor at his own cost including required machinery. If required by Maha Metro, Contractor shall integrate this attendance system to existing Maha Metro's attendance system. All employees' attendance details shall be submitted to Maha-Metro on monthly basis along with the bill submission.

c) The contractor shall maintain a database for all their employees in electronic form. The relevant equipment required for maintenance of data is under the scope of contractor.

d) Contractor needs to inform Maha-Metro immediately in case of any employee leaving its job / absent/ missing / absconding.

e) Contractor shall impart competency development training as detailed in scope of work Section-5.

6.1.2.4 Payment of salary by Contractor

a) The Contractor shall ensure that the salary to the persons so employed is made by **7th day** of the succeeding month at least @ Minimum wages notified by the Chief Labour Commissioner (Maharashtra state) from time to time.

b) The contractor shall abide by and comply with all the relevant laws and Statutory requirements covered under Labour Act, Minimum Wages and Contract Labour,

Regulation & Abolition Act of Maharashtra state, EPF etc. with regard to personnel engaged by him for works. It will be the responsibility of the contractor to provide details of personnel deployed by him, in Maha Metro.

c) As far as EPF is concerned, it shall be the duty of the Contractor to get PF code UAN number allotted for the staff deployed in Maha-Metro system and shall comply with all legal requirement in this regard.

d) At least one-day rest in a week shall be essentially given to the Staff in terms of Contract Labour (R&A) Act.

e) In case of any dispute/claims between the personnel deployed by contractor, Maharashtra Metro Rail Corporation Limited shall not be party. Contractor shall be solely responsible for any statutory violation or lapses

f) If any Statutory allowance(s) (which is not mentioned in financial bid) paid by the contractor to its employees deployed for Maha-Metro will be reimbursed (subject prior approval from the Maha Metro and submission of sufficient proof of payment by the Contractor) at the minimum rate of specified range of those statutory allowances as per prevailing Government norms.

6.1.2.5 COMPLIANCE WITH REGULATIONS AND BYLAWS

The Contractor shall comply with the provisions of any statute relating to the works, regulations and by-laws of any local authority and undertaking, including those controlling the utilities such as water supply, sewerage, telephones, power supply, etc., in whose area / jurisdiction the work is to be executed. The Contractor shall be bound to give all notices required by statute, regulations or by-laws, as aforesaid and to pay all fees and invoices payable to any authority or undertaking in respect thereof. It will be the responsibility of the Contractor to arrange for necessary clearances and approvals from such authorities and undertakings before the work is taken up.

6.1.2.6 Income Tax

The Income Tax/TDS and other statutory deductions, as applicable will be deducted from the payment. Tax deduction certificate will be issued to the Contractor by Maha Metro.

6.1.2.7 Insurance

The contractor shall obtain the following insurance for staff deployed at Maha-Metro work site, at its own cost, & shall submit a copy of the same within 28 days from the issuance of LOA:

(a) Professional Indemnity Insurance shall be obtained by the Contractor in the joint name of Contractor and Maha-Metro. Insurance limit shall be equal to 6% of the contract value per incident with number of incidences as 4 per year.

(b) Workman Compensation Insurance (WCI) upto INR 10 lakhs for each staff/employee with an extension of Accidental Medical Insurance upto INR 3 lakhs for each staff.

(c) Medical Insurance upto INR 5 lacs for each staff those who are not covered under ESIC.

(d) Insurance Policy for the amount equivalent to the awarded cost of this work shall be obtained by the Contractor at its own cost under the joint name of Contractor & MahaMetro.

This policy shall cover the following:

(i) Third Party Liability Insurance upto Rs. 20 Lakhs limit of each incident (number of incidences limited upto 08 per year) and

(ii) any damages occurred to the Maha Metro assets due to the negligence and workmanship of Contractor's employee upto maximum Rs. 2 Crores limit of each incident (number of incidences unlimited).

(e) All medical expenses / compensation towards the sickness / disability of personal & staff of Contractor shall be arranged by Contractor at his own expenses.

6.1.2.8 GST (Goods & Services Tax)

(i) The price quoted by bidder is inclusive of all taxes (including GST) as per prevailing rate on Base Date and the bill produced by bidder shall clearly exhibit the breakup of price of services & taxes. Goods & Services Tax (as applicable) shall be mentioned in each bill of Contractor as per GST billing format.

(ii) Any change in rate of GST shall be adjusted both ways (reimbursement or recovery).

6.1.2.9 Penalty: Please refer to respective parts of Scope of Work.

6.1.2.10 Damage to Maha-Metro Assets, Property and Life

The Contractor shall be solely responsible for all risks to the works, including trespass, during the execution of the work and until the works are taken over by Maha-Metro, and shall, at his own cost, make good any loss or damage to the works, any assets or property of Maha-Metro, private property, and the lives or persons of third parties arising from any cause whatsoever in connection with the execution of the works. In case of any damage to the assets or property of Maha-Metro, as assessed by the Engineer-in-Charge, the cost of such damage shall be recovered on an actual basis from the contractor's forthcoming bills or from any other amount due to the contractor, and if the recoverable amount exceeds the dues payable to the contractor, the balance amount shall be recovered from the Performance Security. Further, if Maha-Metro is required to incur any cost, loss, damage, or pay compensation (including compensation payable under the provisions of the Workmen's Compensation Act or any statutory amendments thereof) to any person or persons due to any act, omission, or negligence on the part of the Contractor, the same, including all legal costs and expenses incurred by Maha-Metro, shall be recoverable from the Contractor. Maha-Metro shall have full authority to defend, settle, compromise, or pay any claim or threatened legal proceedings arising

out of the Contractor's acts or defaults, and any amount paid and expenses incurred by Maha-Metro in this regard shall be final and binding on the Contractor and shall not be called into question by the Contractor.

6.1.2.11 Price & Quantity Variation

a. The price quoted by the contractor shall include the administrative charges including profits proportionally distributed into each cost center.

b. The contract value can be varied by +/-25% and Contractor has to execute this varied quantity of work as per the Accepted Rate.

c. If the variation exceeds more than 25%, the PBG should be increased/decreased according to the revised contract value as per the clause 6.1.2.16.

d. Maha-Metro will inform the contractor in advance of 15 days + Training period for new deployment of Manpower.

6.1.2.12 Termination of the Contract

A. Termination by Maha-Metro

The contract may be terminated before the contract period owing to following reasons:

(a) Force Majeure beyond control of either party (as defined by Public Procurement Dept of Ministry of Finance)

(b) Maha-Metro can terminate the contract or reduce the scope of work by **giving notice in three months in advance** to the contractor in the event of cessation of requirement of maintenance services, stoppage/shutdown of metro services or due to any statutory directive by local Govt/Govt of Maharashtra/ Govt of India.

(c) Deficiency in services by Contractor

(d) Unethical / Illegal/ indiscipline/ Unprofessional behavior of personnel & if contractor refuse a suitable replacement within 15 days.

(e) If Total deductions (towards penalty & KPI) in any one year of the contract exceeds 25% of annualized value of contract. The Contract is liable to be terminated & contractor is liable to be blacklisted and debarred from participation in any kind of tenders/bids of Maha-Metro.

(f) Contract may be provisionally terminated if the contractor enters in to a legal dispute with Maha-Metro in any court of India. Maha-Metro shall reserve the right to avail such services by another agency as per its discretion till the verdict of court is delivered.

(g) If either party to the Agreement is subject to liquidation or insolvency under the applicable law, then the other party may forthwith terminate this

Agreement by issuing three months" Notice for termination upon such confirmed events having taken place.

(h) The parties agree that “Material Breach” for the Contractor shall also mean (other than those instances set forth in this Agreement), the failure to maintain the Performance Levels" and/or any misrepresentation or violation of the commitments set forth in this entire Agreement or in response to the Bid or the breach or noncompliance by Contractor of its fundamental obligations under this Agreement, such that the breach or non-achievement defeats the object and purpose of this Agreement.

(i) Maha-Metro shall also have, without prejudice to other rights and remedies, the right, in the event of “Material Breach” by the Contractor of any of the terms and conditions of the contract, or due to the Contractor’s inability to perform as agreed for any reason whatsoever, to terminate the contract forthwith and get the work done for the un-expired period of the Contract at the „risk and cost" of the Contractor or in the manner Maha-Metro deems fit to recover losses, damages, expenses or costs that may be suffered or incurred by the Maha-Metro. The decision of the MahaMetro about the breach/failure on the part of the Contractor shall be final and binding on the Contractor and shall not be called into question.

(j) In the event that the Agreement is terminated, the effective date of termination shall be decided by Maha-Metro. However, the effective date of termination shall not be more than three months from the date of notice.

(k) In the event the Agreement is terminated after Commencement Date, then the Contractor acknowledges and undertakes to continue performance of the services under the Agreement until the effective date of termination as confirmed by MahaMetro, irrespective of whichever party has terminated the Agreement. Further, during the intervening period, the Contractor agrees to provide services on the same terms as it were being provided during the tenure of the Agreement.

(l) In the event of termination of contract for whatsoever reasons, compensation/ prospective loss of profits/ loss of business, shall not be paid to the contractor for the remaining period of contract except the due amount for already executed work certified by Employer.

(m) Performance Security/Guarantee shall be forfeited by Maha-Metro if termination is done by Maha-Metro due to above reasons except SN (a) & (b).

B. Termination by Contractor

Contractor shall have the right to Terminate the Contract by giving 3 Notices within a period of 90 days, to Maha-metro, in the event of following conditions:

i. If employer fails to provide worksite within reasonable or mutually agreed time.

ii. If employer fails to pay the Contractor, amount of bill certified by employer's engineer, within 90 days.

iii. If employer fails to fulfill his contractual obligations stipulated anywhere in the Bid document.

iv. Force Majeure beyond control of either party (as defined by Public Procurement Dept of Ministry of Finance).

v. If either party to the Agreement is subject to liquidation or insolvency under the applicable law, then the other party may forthwith terminate this Agreement by issuing three months" Notice for termination upon such confirmed events having taken place.

6.1.2.13 Other Statutory Obligations: -

(a) The Contractor is required to obtain/renewed a valid license from the competent licensing authority under the provisions of Contract Labor (Regulation and Abolition) Act and Contract Labor (Regulation and Abolition), within 60 days or deployment of 20 or more employees whichever is earlier. If the Contractor refuses to apply for license for any reason whatsoever or fails to deposit the license within the stipulated period of 30 days, the contract shall automatically stand terminated unless condoned by Maha Metro and Maha Metro shall be at liberty to recover losses, if any, from the Contractor.

(b) The Contractor shall be obliged and solely responsible to comply with all statutory requirements in respect of the personnel engaged by him and Maha Metro shall not be a party to any dispute arising out of such deployment by the contractor**.**

(c) The antecedents of personnel deployed should have been verified by the contractor from local police authority and an undertaking with verification report shall be submitted to Maha Metro before their deployment in Maha-Metro system.

(d) The staff/personnel of Contractor shall not be treated as staff on the payroll of MahaMetro. Any staff/personnel of Contractor shall not impersonate them as a Maha-Metro employee or represent themselves as an employee of Maha-Metro. Payment of all wages, salary, dues shall be the responsibility of the Contractor & none of the staff shall claim directly to Maha-Metro or any statutory authority.

6.1.2.14 Fraud and Corrupt Practices

i. The bidder applicant and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process. Not with standing anything to the contrary contained herein, Maha Metro may reject at ender without being liable in any manner whatsoever to the bidder if it determines that the bidder has, directly or indirectly or through an agent, engaged in corrupt

practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process.

ii. Without prejudice to the rights of Maha Metro under Clause-(i) herein above, if a bidder is found by Maha Metro to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, such bidder shall not be eligible to participate in any tender floated by Maha Metro.

iii. For the purposes of this Clause-(i), the following terms shall have the meaning hereinafter respectively assigned to them:

a) "Corrupt practice" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process or (ii) save and except as permitted, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Agreement, who at any time has been or is a legal, financial or technical advisor of the Authority in relation to any matter concerning the Project;

b) "Fraudulent practice" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

c) "Coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence to any person's participation or action in the Bidding Process;

d) "Undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and

e) "Restrictive practice" means forming a cartel or arriving at any understanding or arrangement among Applicants with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

f) The Contractor shall ensure that the Personnel deployed by him in Maha Metro shall observe good conduct. The Personnel so engaged shall not take part in any kind of demonstration/agitation. The outsourced Personnel shall not make any statement against Maha-Metro on any Social/Political Forum.

6.1.2.15 LEGAL

(a) The Contractor shall be responsible for compliance of all statutory provisions relating to Minimum wages, Provident Fund, and Employees State Insurance etc. in respect of the persons deployed by it in Maha Metro. The Contractor shall

furnish a certificate in each month that all statutory requirements have been fulfilled along with the bills for payment.

(b) The Contractor shall also be liable for depositing all taxes, levies, cess etc. on account of service rendered by it to Maha Metro to concerned tax collection authorities from time to time as per extant rules and regulations on the matter.

(c) The Contractor shall maintain all statutory Registration under the applicable laws. The Contractor shall produce the same, on demand, to the concerned authority of **MAHA METRO RAIL CORPORATION LTD**. or any other authority under law.

(d) The Tax Deduction at Source (T.D.S.) shall be deducted as per the provisions of Income Tax law, as amended from time to time and a certificate to this effect shall be provided to the Contractor by Maha Metro.

(e) In case, the tendering Contractor fails to comply with any statutory/ taxation liability under appropriate law and as a result thereof Maha Metro is put to any loss, obligation, monetary or otherwise, Maha Metro will be entitled to get itself reimbursed out of the outstanding bills or the Performance Deposit of the Contractor, to the extent of the loss or obligation in monetary terms.

(f) Persons deployed by the contractor shall not be less than 18 years of age, which is prohibited & punishable under relevant child labor act. **An affidavit** (Form B-8) stating the above is to be enclosed with the bid.

(g) The bidder shall also ensure that no case of sexual harassment/abuses take place at his premises / Office with the female employee out sourced to Maha Metro under the above bid and comply the provision of “The sexual Harassment of women at work place (Prevention. Prohibition & redressed act 2013)

(h) The personal to be hired shall be paid at least at the rate of minimum wages per month as per Chief Labour Commissioner (Maharashtra state)’s Minimum Wages Act plus obligatory payments towards EPF/ESI, as applicable. These all expenses are deemed to be inclusive in accepted cost of services. Contractor shall pay /deposit these statutory payments to concerning authority. Maha Metro shall not reimburse it separately

(i) The staff &personnel of Contractor shall not be treated as employee of Maha-Metro Rail Corporation Limited and cannot claim an employment with Maha-Metro Rail Corporation Limited irrespective of length of deployment as personnel.

(j) The contractor shall ensure minimum wages of personnel in accordance with the Minimum Wages Act, 1948. The rates quoted by the bidder shall be inclusive of all statutory requirement i.e. Insurances, medical expenses, PF, ESI & Bonus etc. / all taxation liabilities as Applicable. The contractor shall abide by and comply with all the relevant laws and statutory requirements covered under Labour Act, Minimum Wages and (Contract Labour, Regulation & Abolition Act), EPF etc. with regard to personnel engaged by him for works.

(k) The skill level of various manpower required for the Staff (as mentioned in Scope of Work, Section-5) should be ensured& they must be paid by the contractor as per relevant & prevailing Minimum Wages Act of Chief Labour Commissioner (Maharashtra state).

(l) At no time employee of contractor shall claim to be employee of Maha-Metro. Contractor shall indemnify Maha Metro against all claims of his employees.

6.1.2.16 Performance Security

a) The Performance Deposit shall be in the form of Performance Security and retention Money. The Contractor shall submit (at his cost) a Performance Security of 5% of total contract Value including variation, if any, in the name of work for "Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year" and Retention Money shall be applicable amounting equivalent to 5% (Five Percent) of total contract Value including variation, if any.

The Performance Security should remain valid for a period of 180 days beyond the date of completion of all the contractual obligations of the Contractor.

b) Retention Money shall be deducted from amounts due to the Contractor under Interim Payment Certificates at the rate of Six percent (6%). Total retention shall not exceed five percent (5%) of the Contract Price, after which the deduction shall cease.

c) The Performance Security in the form of a Bank Guarantee as prescribed in the format given in the Bid document shall be submitted within twenty-Eight (28) days from the date of receipt of the Letter of Acceptance.

d) The Bank Guarantee shall be issued by a Schedule Commercial Bank having business office in India (excluding Co-operative Bank) acceptable to Maha-Metro., and shall be in the form annexed as performance Bank Guarantee, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.

e) Retention money deducted as performance security from amounts due to the Contractor under Interim Payment Certificates at the rate of Six percent (6%) shall be released after completion of all the contractual obligations of the Contractor.

f) In case of breach of any terms and conditions stipulated in the contract, the Performance Security of the Contractor will be liable to be forfeited by Maha Metro besides annulment of the contract.

6.1.2.17 Extension of Contract period

The contract shall continue for a period as provided in Bid Data Sheet (Annexure2A). However, the period of the contract may be further extended for upto one year and further one year, after completion of contract period, as per discretion of Maha Metro.

The contractor has to provide his services at the accepted contractual terms & conditions; however the financial terms & condition may be negotiated & agreed upon.

6.1.2.18 Dispute Resolution

6.1.2.18.1 Amicable Resolution

i. No Legal action till Dispute Settlement Procedure is exhausted.

Any and all Disputes shall be settled in accordance with the provisions of Article 16. No action at law concerning or arising out of any Dispute shall be commenced unless and until all applicable Dispute Resolution Procedures set out in Article 16 shall have been finally exhausted in relation to that Dispute or any Dispute out of which that Dispute shall have arisen with which it may be or may have been connected.

ii. Notice of Dispute

For the purpose of this Sub-Clause, a Dispute shall be deemed to arise when one party serves on the other party a notice in writing (hereinafter called a "Notice of Dispute") stating the nature of the Dispute provided that no such notice shall be served later than 30 days beyond the date of contractual completion and extension thereof if any. .

iii. Two Stages for Dispute Resolution

Disputes shall be settled through two stages:

a) Conciliation procedures as established by "The Arbitration and Conciliation Act- 1996" & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof and in accordance with this clause. In the event this procedure fails to resolve the Dispute then;

b) Arbitration procedures undertaken as provided by "The Arbitration and Conciliation Act-1996" & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof and in accordance with this clause.

iv. Conciliation

Within 60 days of receipt of Notice of Dispute, either party shall refer the matter in dispute to conciliation.

Conciliation proceedings shall be initiated within 30 days of one party inviting the other in writing to Conciliation. Conciliation shall commence when the other party accepts in writing this invitation. If the invitation is not accepted, then Conciliation shall not take place. If the party initiating conciliation does not receive a reply within 30 days from the date on which he sends the invitation, he may elect to treat this as a rejection of the invitation to conciliate and inform the other party accordingly.

The Conciliation shall be undertaken by one Conciliator selected from a panel of Conciliators maintained by the Employer. The Conciliator shall assist the parties

to reach an amicable settlement in an independent and impartial manner.

v. Conciliation procedure

The Employer shall maintain a panel of Conciliators, who shall be from serving or retired Engineers of Government Departments, or of Public Sector Undertakings. Out of this panel, a list of three Conciliators shall be sent to the Contractor who shall choose one of them to act as Conciliator and conduct conciliation proceedings in accordance with "The Arbitration and Conciliation Act, 1996" of India & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof. There will be no objection if conciliator so nominated is a serving employee of Maha- Metro who would be Deputy HOD level officer and above. The Employer and the Contractor shall in good faith co-operate with the Conciliator and, in particular, shall endeavor to comply with requests by the Conciliator to submit written materials, provide evidence and attend meetings. Each party may, on his own initiative or at the invitation of the Conciliator, submit to the Conciliator suggestions for the settlement of the dispute. When it appears to the Conciliator that there exist elements of a settlement which may be acceptable to the parties, he shall formulate the terms of possible settlement and submit them to the parties for their observations. After receiving the observations of the parties, the Conciliator may reformulate the terms of a possible settlement in the light of such observations.

If the parties reach agreement on a settlement of the dispute, then may draw up and sign a written settlement agreement. If requested by the parties, the Conciliator may draw up, or assist the parties in drawing up, the settlement agreement. When the parties sign the settlement agreement, it shall be final and binding on the parties and persons claiming under them respectively. The Conciliator shall authenticate the settlement agreement and furnish a copy thereof to each of the parties. As far as possible, the conciliation proceedings should be completed within 60 days of the receipts of notice by the Conciliator.

The parties shall not initiate, during the conciliator proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.

vi. Termination of Conciliation proceedings

The conciliation proceedings shall be terminated:

a) By the signing of the settlement agreement by the parties on the date of agreement; or

b) By written declaration of the conciliator, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of such declaration; or

c) By a written declaration of the parties to the conciliator to the effect that the conciliation proceedings are terminated, on the date of declaration; or

d) By a written declaration of a party to the other party and the conciliator, if appointed, to the effect that the conciliation proceedings are terminated, on the date of declaration.

Upon termination of the conciliation proceedings, the conciliator shall fix the costs of the conciliation and give written notice thereof to the parties. The costs shall be borne equally by the parties unless settlement agreement provides for a different apportionment. All other expenses incurred by a party shall be borne by that party.

vii. Arbitration

If the efforts to resolve all or any of the disputes through conciliation fails, then such disputes or differences, whatsoever arising between the parties, arising out of touching or relating to construction/ manufacture, measuring operation or effect of the Contract Agreement or the breach thereof shall be referred to Arbitration in accordance with the following provisions:

a) Only such dispute(s) or difference(s) in respect of which notice has been made but could not be settled through Conciliation, together with counter claims or set off, given by the employer, shall be referred to arbitration. Other matters shall not be included in the reference.

b) The Arbitration proceedings shall be assumed to have commenced from the day, a written and valid demand for arbitration is received by Managing Director, Maharashtra Metro Rail Corporation Limited, Nagpur (MD/Maha Metro).

c) The disputes so referred to arbitration shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996 & amended by the Arbitration & Conciliation (Amendment) Act, 2015 and any statutory modification or re-enactment thereof.

Further, it is agreed between the parties as under:

viii. Number of Arbitrations: The Arbitral Tribunal shall consist of:

i Sole Arbitrator in cases where the total value of all claims in question added together does not exceed Rs. 2.00 crores;

ii 3 (Three) Arbitrators in all other cases.

ix. Procedure for Appointment of Arbitrators: The Arbitrators shall be appointed as per following procedure:

i In case of Sole Arbitrator: Within 60 days from the day when a written and valid demand for arbitration in received by MD/ Maha Metro, the Employer

will forward a panel of 03 names to the Contractor. The Contractor shall have to choose one Arbitrator from the panel of three, to be appointed as Sole Arbitrator within 30 days of dispatch of the request by the Employer. In case the Contractor fails to choose one Arbitrator within 30 days of dispatch of panel of arbitrators by Maha Metro then MD/Maha Metro shall appoint anyone Arbitrator from the panel of 03 Arbitrator as Sole Arbitrator.

ii In case of 03 Arbitrators:

a) Within 60 days from the day when a written and valid demand for Arbitration is received by MD/Maha Metro, the Employer will forward a panel of 5 names to the Contractor. The Contractor will then give his consent for any name out of the panel to be appointed as one of the Arbitrators within 30 days of dispatch of the request by the Employer.

b) Employer will decide the second Arbitrator. MD/ Maha Metro shall appoint the two

Arbitrators, including the name of one Arbitrator for whom consent was given by the

Contractor, within 30 days from the receipt of the consent for one name of the Arbitrator from the Contractor. In case the Contractor fails to give his consent within 30 days of dispatch of the request of the Employer then MD/Maha Metro shall nominate both the Arbitrators from the panel.

c) The third Arbitrator shall be chosen by the two Arbitrators so appointed by the parties out of the panel of 05 Arbitrators provided to Contractor of from the larger panel of Arbitrators to be provided to them by Employer at the request of two appointed Arbitrators (if so desired by them) and who shall act as Presiding Arbitrator. In case of failure of the two appointed Arbitrators to reach upon consensus within a period of 30 days from their appointment, then upon the request of either or both parties, the Presiding Arbitrator shall be appointed by the Managing Director/ Maha Metro, Nagpur.

d) If one or more of the Arbitrators appointed as above refuses to act as Arbitrator, withdraws from his office as Arbitrator, or vacates his / their office/ offices or is / are unable or unwilling to perform his functions as Arbitrator for any reason whatsoever or dies or in the opinion of the MD/Maha Metro fails to act without undue delay, the

MD/Maha Metro shall appoint new Arbitrator/ Arbitrators to act in his/ their place except in case of new Presiding Arbitrator who shall be chosen following the same procedure as mentioned in para (ii) (c) above. Such re-constituted Tribunal may, at its discretion, proceed with

the reference from the stage at which it was left by the previous Arbitrator(s).

e) The Employer at the time of offering the panel of Arbitrator (s) to be appointed as Arbitrator shall also supply the information with regard to the qualifications of the said Arbitrators nominated in the panel along with their professional experience, phone nos. and addresses to the Contractor. Qualification and Experience of Arbitrators (to be appointed as per sub- clause above): The Arbitrators to be appointed shall have minimum qualification and experience as under:

Arbitrator shall be; a Working/ Retired Officer (not below E-8 grade in a PSU with which Maha -Metro has no business relationship) of any discipline of Engineering or

Accounts/ Finance Department, having experience in Contract Management;

Or

A Retired Officer (retired not below the SAG level in Railways) of any Engineering Services of Indian Railways or Indian Railway Accounts Service, having experience in Contract Management; or a Retired Office who should have retired more than 3 years previously from the date of appointment as Arbitrator (retired not below E-8 grade in Maha Metro or a PSU with which Maha Metro has a business relationship) of any Engineering discipline or Accounts/ Finance Department, having experience in Contract Management or Retired Judge of any High Court or Supreme Court of India or reputed Chartered Accountant & should be member of ICAI, New Delhi No person other than the persons appointed as per above procedure and having above qualification and experience shall act as Arbitrator.

No new claim shall be added during proceedings by either party. However, a party may amend or supplement the original claim or defense thereof during the course of arbitration proceedings subject to acceptance by Tribunal having due regard to the delay in making it.

Neither party shall be limited in the proceedings before such arbitrator(s) to the evidence or arguments put before the Conciliator for the purpose of obtaining his decision. No decision given by the Conciliator in accordance with the foregoing provisions shall disqualify him from being called as a witness and giving evidence before the arbitrator(s) on any matter, whatsoever, relevant to dispute or difference referred to arbitrator/s. Neither party shall be limited in the proceedings before such arbitrators to the evidence.

It is agreed by both the Parties that in the cases where Arbitral Tribunal is consisting of sole Arbitrator, their disputes shall be resolved by fast track procedure specified in sub-section (3) of 29Bof the Arbitration and Conciliation (Amendment) Act, 2015 or as amended up to date.

If the Contractor (s) does/do not prefer his/their specific and final claims in writing, within a period of 90 days of receiving the intimation from the Employer/ Conciliator that the final demand is ready, he / they will be deemed to have waived his/their claim(s) and the Employer shall be discharged and released of all liabilities under the Contract Agreement in respect of these claims.

Arbitration proceedings shall be held at Nagpur, India and the language of the arbitration proceedings and that of all documents and communications between the parties shall be in English.

The Arbitral Tribunal should record day to day proceedings. The proceedings shall normally be conducted on the basis of documents and written statements. All Arbitration awards shall be in writing and shall state item wise, the sum and detailed reasons upon which it is based. A model time scheduled for conduct of Arbitration proceedings in a period of 180 days/365 days will be made available to Arbitral Tribunal for their guidance. Both the parties should endeavor to adhere to time scheduled for early finalization of Award.

The Award of the sole Arbitrator or the award by majority of three Arbitrators as the case may be shall be binding on all parties. Any ruling on award shall be made by a majority of members of Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.

A party may apply for correction of any computational errors, any typographical or clerical errors or any other error of similar nature occurring in the award of a tribunal and interpretation of specific point of award to tribunal within 60 days of the receipt of award party may apply to tribunal within 60 days of receipt of award to make an additional award as to claims presented in the arbitral proceedings but omitted from the arbitral award.

x. Interest on Arbitration Award

Where the arbitral award is for the payment of money, interest @ 15% per annum shall be payable on whole or any part of the money for the period it is accrued, till the date on which the award is made.

xi. Cost of Conciliation/ Arbitration

The fees and other charges of the Conciliator/ Arbitrators shall be as per the

scales fixed by the Employer from time to time irrespective of the fact whether the Arbitrator(s) is / are appointed by the Employer or by the Court of law unless specifically directed by Hon'ble Court otherwise on the matter, and shall be shared equally by the Employer and the Contractor. However, the expenses incurred by each party in connection with the preparation, presentation will be borne by itself. The latest scale of fee & other charges fixed by Maha -Metro.

6.1.3 Jurisdiction of Court

In case of any dispute which is remains unresolved by mutual negotiation or ADR method, the decision of court in the jurisdiction of Nagpur Bench of High Court of Bombay shall be binding and final.

6.1.4 Proprietary Rights of OEM:

The contractor will be shared with operation manuals, instructions / guidelines, SOPs, Safety manuals issued by OEM or any statutory authority for compliance of maintenance services. These documents are proprietary items of OEMs & MahaMetro and should not be reproduced, tampered or shared with any persons withot permission of Maha-Metro.

6.1.5 Gender Neutrality:

The contractor is free to induct male or female or transgender as maintenance staff as per the requirement based on the scope of work. However, the nature of work also involves working at odd hours as per the operational and maintenance requirement of Maha-Metro.

6.1.6 <u>Defect Liability Period (DLP)/Warranty Period/Guarantee Period:</u>

The Defect Liability Period towards workmanship shall be 6 months for services and for spares & components as per the OEM policy from the date of successful completion & commissioning of maintenance task of respective part of work detailed in Scope of Work.

The contractor shall be responsible for any Defect or failure attributable to Defective material supplied and/or workmanship and/or improper/ incomplete maintenance during the DLP.

The corrective action/rectification of such defect/failure shall be the Service Provider/Contractor's responsibility and the DLP will start afresh from the date of rectification of defect/failure. The complete cost for this shall be borne by the Service Provider/Contractor.

6.1.7 Work Management Facilities:

a) **Office space:** The Contractor shall be provided office space at Navi Mumbai Metro Line-1 depot by Maha-Metro. The office space shall be unfurnished.

The office space & sitting arrangement for the on-duty staff in metro premises will be provided by Maha-Metro in the Station/Depot or wherever available.

b) **Furniture:** Furniture for the Contractor's administrative office shall be procured by the contractor at his own cost.

c) **General tools, tackles & other minor consumables:** Contractor have to arrange General tools, tackles & other minor consumables as well as his office consumables, computers etc. at his own cost.

d) **Special Tools, Spares & major consumables:** All Special Tools and tackles, Spares & major consumables (as per provisions in Scope of Work) required for Maintenance activity will be provided by Maha Metro.

6.1.8 Compensation levied on Contractor under judicial proceedings:

a) The Contractor shall be liable to pay compensation awarded by any court or tribunal for loss or damage sustained to any passenger/staff of contractor/employee of Contractor due to any act / omission of the contractor or his personnel.

b) Any statutory liabilities or directives notified by Govt of India or Govt of Maharashtra shall be applicable to Contractor & his staff and it is required to be complied by Contractor without any additional liabilities to Maha-Metro.

6.1.9 Malpractices:

a) The Contractor or any staff/personnel of contractor shall not take bribes/inducement/gift/commission or any kind of favor for recruiting any staff/personnel towards this work. If complaint of this nature is received, Maha Metro reserves the right to terminate the contract.

b) The Contractor & staff/personnel shall take care & preserve the assets of Maha-Metro & stock of spares & consumables issued to them. If found guilty of theft, misuse & damage, the actual cost of loss shall be recovered from the Bill of Contractor as well as appropriate penal action/persecution shall be done as per of Law.

c) The Contractor & staff/personnel shall not take any unauthorized person (who is not on duty) for a free ride in Metro under the pretense of working staff. If found guilty, a spot fine of INR 1000/- per incident shall be levied upon the contractor.

d) The Contractor & staff/personnel shall not engage in any illegal & unlawful activities within Maha-Metro premises. If found guilty, appropriate penal action under the frame of Law shall be taken as well as contract may be terminated in the event of frequent offense committed by the Contractor or his staff/personnel.

e) Use of alcohol, Smoking, use of tobacco or use of any intoxicants is completely prohibited in Maha-Metro premises as well as on duty by Contractor's staff. If found guilty, a spot fine of INR 1000/- per incident shall be levied upon the contractor.

f) Contractor is not permitted to use name & logo of Maha-Metro in its advertisement, recruitment, notices or any other places, unless approved by Maha-Metro.

6.1.10 Other Requirements:

a) The staff/personnel of Contractor should be fluent in speaking Marathi & Hindi.

b) The staff/personnel of Contractor shall always maintain high ethics & etiquettes as per the standards of Maha Metro services. Their level of integrity shall be beyond suspicion.

c) The contractor will provide uniform and Personal Protective Equipment (like Safety Shoe etc.) for all his staff/personnel after due approval from Maha Metro.

d) I-card as approved by Maha Metro shall be provided to all the staff/personnel while on duty.

6.1.11 General operational & professional guidelines (DOs) for Contractor staff:

a) In case of fire/anything unusual on OHE equipment or wires, inform the Employer's nominated staff/executives/control at nearby location.

b) Extinguish fire by available fire extinguishers.

c) Ensure no water jet is directed at the fire under any circumstances.

d) Before taking up the work 2 meters near to OHE, the OHE should be switched off and earthed on both sides.

e) Keep clear of the track.

f) Special care should be taken while carrying long pipes, poles or ladders through tracks so that it should not come within 2 meters of OHE.

g) Cases of electric shock arising out of contact traction should be reported to the Employer's staff/executives/control.

h) The staff should wear proper PPE when and as required.

i) Staff shall adopt the necessary safety procedures made by the Employer to avoid any type of accidents/incident to staff and material.

j) Cleaning work other than that of surface (i.e. of beam, pillars etc.) should be done during block period availing shadow block only.

k) Whenever washing or cleaning using water jets is done, take appropriate power block.

l) Staff shall adopt the necessary safety procedures made by MAHA METRO to avoid any type of accidents/incident to staff and material.

m) The service provider/ Contractor shall display necessary signage approved by MAHA METRO.

n) The staff should not allow any person to enter unauthorized area without proper authorization from the Employer.

o) Report any unusual occurrence in their vicinity to the MAHA METRO staff.

p) To stop/start escalator/lifts in emergency & to help/evacuate commuters stuck up in escalators/lifts & during need.

q) Special precaution to be taken while working in UPS Room.

6.1.12 General operational & professional guidelines (DONTs) for Contractor staff:

a) Do not approach within 2 meters of any OHE or live equipment.

b) Do not work on or near OHE or any live equipment unless they are made dead, earthed and shut down notices/ permit to work obtained.

c) Do not enter switching station or remote-control center unless specially permitted.

d) Do not touch a person in contact with live OHE Remove/touch only after power supply is switched off and earthed.

e) Do not touch any OHE fallen on the ground and do not allow anyone else to touch it.

f) Do not forget to give artificial respiration to the victim as per the prescribed procedure laid down in shock treatment charts.

g) Do not cross in front of energized train.

h) Cleaning work with conducting materials like Aluminum/ Steel rods should be avoided at all times when power block is not availed.

i) Do not lift or raise your tools towards OHE.

j) Do not damage the plinth continuity, connection to BEC, OPC and handrail continuity.

k) Do not use steel tape or metallic tape or tape with woven metal reinforcement in electrified area.

6.1.13 Safety Measures Safety Instructions:

The Employer's premises have High Voltage OHE, High Voltage equipment, movement of Trains in the depot and stations, and other industrial equipment, which can cause major injury, electrocution, and even death to the personnel. Hence, requirements for observing safety are very high. The Contractor's Team Leader/Supervisors/Maintainers will be provided familiarization on the safety aspects and shall be required to train all the personnel deployed. The Contractor shall ensure that the following rules and guidelines are made known to its entire staff and must be followed to ensure safety. An assurance in this regard will be taken in writing by the contractor from the staff deployed.

6.1.14 Preservation of Peace and orderly conduct:

The Contractor shall be fully responsible to ensure the discipline, and orderly conduct among the staff deployed for work. Smoking & Consumption of Tobacco in any form is not allowed. The carrying and consumption of intoxicating liquor, drugs or other substances that may affect the proper performance is strictly prohibited in the depots/Stations.

6.1.15 Resources Report:

The Contractor shall submit to the in charge each month a detailed list by trade classification, of manpower employed during the report period as also a list of all serviceable major items of cleaning machineries / equipment on site.

6.1.16 Accidents:

a. It shall be the sole responsibility of the Contractor to adopt all the safety measures & deploy Maintenance personnel who are adequately trained in safety.
b. If any accident occurs within the station area due to maintenance lapse or due to negligence on the part of the Contractor's personnel it shall be the full responsibility of the Contractor.
c. If any damage occurs to the structures/ material & equipment due to maintenance activities, the cost of damage will be recovered from the Contractor's bill.

6.1.17 Medical Examination:

Contractor shall submit the medical fitness certificate of the proposed staff from recognized medical doctor as per MAHA-Metro Standards. Refer http://www.metrorailnagpur.com/pdf/NMRC_Indicative_Medical_Standards.pdf.

6.1.18 Standard operating Procedures (SOP):

Contractor shall ensure that the SOPs of Operation & Maintenance are safely followed and should plan and educate their staff accordingly.

6.1.19 Rights of Manuals/ training Materials:

The maintenance contractor will be handling maintenance data, maintenance manuals, training material and maintenance records of MAHA-Metro systems.

These are proprietary to MAHA-Metro and should not be shared with any one.

6.1.20 Deleted

6.1.21 Safety, Quality Environment:

a) All systems of MAHA-Metro are sophisticated with adequate safety provisions inbuilt for maintenance. Various safety measures need to be observed while performing Daily, Preventive & Corrective maintenance. Hence, usage of relevant Personal Protective Equipment (PPE) is mandatory during maintenance. Safety belt for working at height, Helmet, Safety Shoe, cotton gloves, nose mask, face mask and ear plug form a set of PPE. Provisioning and renewal of PPE to maintainers shall be the responsibility of the contractor, at his own cost.

b) Keeping the healthiness of all systems in fettle for a long period is solely dependent upon the quality of maintenance. It is expected from the contractor to establish a good quality culture and adopt best practices. The contractor shall strive for continual improvement in quality of maintenance services.

c) The working environment needs to be maintained with utmost cleanliness. Better maintenance practices need to be followed to avoid spillage of oil, grease and other consumables. Removed packaging materials of spares to be disposed in bins provided in the maintenance shed. All removed spares shall be handed back to stores.

6.1.22 The Contract Price:

a) The contract price, subject to any adjustment thereto in accordance with contract conditions shall be inclusive of all taxes like GST, duties, levies, royalties etc. or any other taxes prevailing at the time of Bid submission.

b) The contract price shall be adjusted to take into account any statutory change in taxes, duties, levies or introduction of any new taxes, duty or levy during execution till the completion date or upto further extended contract period.

Contractor will submit the breakup of taxes in the invoices in monthly RA bills. The Contractor shall maintain all records related to payment of taxes at his end for verification any time during the contract. The Contractor shall ensure full compliance with tax laws of India with regard to this contract and shall be solely responsible for the same.

6.2 Particular Conditions of Contract

6.2.1 Duration of Contract:

The contract period shall for a period of Three (3) Year from the date of commencement (i.e. 17.11.2026) as per issuance of LOA & may be extended for a further period of one (1) year. The cost for an extended period of 1 year shall be the cost of 3rd year + escalation @5% p.a.

The Annual Maintenance Contract (AMC) for the OHE, PSI & SCADA systems shall commence on 17.11.2026 and the AMC for the Electrical & Mechanical (E&M) systems shall commence on 01.04.2027.

6.2.2 A period of One (1) month shall be provided for handing over and taking over formalities prior to the commencement of the Work.

6.2.3 The Contractor shall provide services at Metro Depot or Stations, RSS of NMMl1 or at any other place as required by MAHA Metro, in the manner and as per the instructions of the Maha-Metro.

6.2.4 Contractor, prior to deploying any staff, shall submit their CVs to Maha-Metro for approval. Staff whose CVs have been approved, shall be deployed & permitted to enter the site.

6.2.5 Contractor shall promptly remove & replace the personnel who is/are incompetent /under skilled/under qualified in the opinion of Maha-Metro, and instruction received by Contractor in writing by Maha-Metro.

6.2.6 If the Contractor removes any personnel for any reason whatsoever, he shall provide an equally suitable, competent, & skilled personnel, promptly so that services remain unaffected. The CV of such replacement shall also be submitted to Maha-Metro for approval.

6.2.7 While working at any work site of Maha-Metro, the contractor shall have to coordinate with other interfacing Contractors/employees of Maha-Metro. In such circumstances The Contractor shall communicate & may suitably plan to execute his work with these interfacing Contractors/employees of Maha-Metro.

6.2.8 The contractor shall carry out the maintenance activities as per maintenance check list issued to contractor by Maha-Metro from time to time with prior approval of Maha-Metro. Maha-Metro reserve the right to withdraw any maintenance activity as per schedule of BOQ.

6.2.9 One copy of service check sheets (specifications) of Electrical & Mechanical, OHE & PSI equipments shall be supplied to the Contractor. The Contractor shall promptly inform Maha-Metro of any error, omission, fault and other deficiencies in the Specifications, which are discovered when reviewing the Contract Documents or in the process of execution of

the maintenance services. Maha-Metro has the rights to revise the check sheets/specifications. The contractor shall carry out the activities accordingly.

6.2.10 The contractor's maintenance personnel & staff shall be sufficiently competent & skilled to carry out the maintenance work of E&M, OHE & PSI System at their own i.e. without any assistance from Maha-Metro staff.

6.2.11 The Job cards for maintenance work shall be issued to only competent Team leader/Manager of Contractor and closing of job cards by contractor's maintenance personnel shall be done after satisfactory completion of maintenance activities.

6.2.12 Physical verification of the supplied consumables shall be done by Maha-Metro Engineer & and payment shall be processed thereafter upon submission of bill & copy of prior approval of Maha-Metro.

6.2.13 Price Variation:

No price variation shall be applicable during the original contract period, i.e., up to Three (03) year from the date of commencement. In case the contract is extended for a further period of one year based on the satisfactory performance of the Contractor, an escalation @ 5% per annum shall be applicable on the BOQ prices.

6.2.14 PAYMENT TERMS

6.2.14.1 Payment will be released only after completion of work & submission of the checklist for verification to Maha-Metro. Based only on 100% successful completion of CM/PM, payment will be made. No payment will be made for partial or un-successful attempts at work completion.

6.2.14.2 Contractor has to submit Monthly bills/ Tax Invoices in triplicate along with work completion certificate issued by the competent authority of Maha-Metro., showing proper tax break up with each bill, in relation to work done / service provided to Maha Metro.

6.2.14.3 The standard terms of payment are within 30 days from the date of submission of bills. The payment shall be made through Cheque (s)/RTGS/NEFT/ECS. Tax deduction at source from each on- account progress bill shall be made by Maha-Metro as per the provisions of the statutes/acts of statutory bodies/local authorities etc. except when the contractor prior to release of payment submits valid and complete documents for tax exemption.

6.2.14.4 No advances shall be paid to the Contractor.

6.2.14.5 For any requirement of spares for replacement, Contractor has to intimate to Maha-Metro seeking handover of the spare to use at site.

6.2.14.6 It is mandatory to maintain all statutory documents at any point of time and the documents and records should be made available for inspection by Maha-Metro officials or by any other official nominated by Maha-Metro at any point of time. While submission of Bills the

contractor shall also submit all the required reports and registers during the billing period. Contractor needs to inform MAHA Metro immediately in case of any employee leaving its job / absent/ missing / absconding.

6.2.15 Payment of salary by Contractor

6.2.15.1 The Contractor shall ensure that the salary to the persons so employed is made by 7th day of the succeeding month at least @ Minimum wages notified by the Chief Labour Commissioner (Maharashtra state) from time to time.

6.2.15.2 The contractor shall abide by and comply with all the relevant laws and statutory requirements

Annexure 6A - Corrupt and Fraudulent Practices Policy

The Employer, the Implementing Agency and the contractors, suppliers or consultants must observe the highest standard of ethics during contract procurement and performance.

By signing the Statement of Integrity (form available as Annexure to Letter of Bid) the contractor, supplier or consultant declares that (i) "*it did not engage in any practice likely to influence the contract award process to the Employer's detriment, and that it did not and will not get involved in any anti-competitive practice*", and that (ii) "*the negotiation, the procurement and the performance of the contract did not and shall not give rise to any act of corruption or fraud*".

Moreover, the Agency requires including in the Bidding Documents and Agency- financed contracts a provision requiring that bidders and contractors, suppliers and consultants will permit the Agency to inspect their accounts and records relating to the procurement and performance of the Agency-financed contract, and to have them audited by auditors appointed by the Agency.

The Agency/Maha-Metro reserves the right to take any action it deems appropriate to check that these ethics rules are observed and reserves, in particular, the rights to:

a) reject a proposal for a contract award if it is established that during the selection process the bidder that is recommended for the award has been convicted of corruption, directly or by means of an agent, or has engaged in fraud or anti- competitive practices in view of being awarded the Contract;

b) declare mis procurement when it is established that, at any time, the Employer, the contractor, the supplier, the consultant or its representatives have engaged in acts of corruption, fraud or anti-competitive practices during the contract procurement or performance without the Employer having taken appropriate action in due time satisfactory to the Agency to remedy the situation, including by failing to inform the Agency at the time they knew of such practices.

The Agency defines, for the purposes of this provision, the terms set forth below as follows:

(a) Corruption of a public officer means:

i. the act of promising, offering or giving to a public officer, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such public officer to act or refrain from acting in his official capacity; or

ii. the act by which a public officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such public officer to act or refrain from acting in his official capacity.

(b) A "public officer" shall be construed as meaning

i. any person who holds a legislative, executive, administrative or judicial mandate

(within the State of the Employer) regardless of whether that person was nominated or elected, regardless of the permanent or temporary, paid or unpaid nature of the position and regardless of the hierarchical level the person occupies;

ii. any other person who performs a public function, including for a State institution or a State-owned company, or who provides a public service;

iii. any other person defined as a public officer by the national laws of the Employer.

(c) Corruption of a private person means:

i. the act of promising, offering or giving to any person other than a public officer, directly or indirectly, an undue advantage of any kind for himself or for another person or entity, for such person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations; or

ii. the act by which any person other than a public officer solicits or accepts, directly or indirectly, an undue advantage of any kind for himself or for another person orentity, for such person to perform or refrain from performing any act in breach of its legal, contractual or professional obligations.

(d) Fraud means any dishonest conduct (act or omission), whether or not it constitutes a criminal offence, deliberately intended to deceive others, to intentionally conceal items, to violate or vitiate consent, to circumvent legal or regulatory requirements and/or to violate internal rules in order to obtain illegitimate profit.

(e) Anti-competitive practices means:

i. any concerted or implied practices which have as their object or effect the prevention, restriction or distortion of competition within a marketplace, especially where they (i) limit access to the marketplace or free exercise of competition by other undertakings, (ii) prevent free, competition-driven price determination by artificially causing price increases or decreases, (iii) restrict or control production, markets, investments or technical progress; or (iv) divide up market shares or sources of supply.

ii. any abuse by one undertaking or a group of undertakings which hold a dominant position on an internal market or on a substantial part of it.

iii. any practice whereby prices are quoted or set unreasonably law, the object of which is to eliminate an undertaking or any of its products from a market or to prevent it from entering the market.

In all the above circumstances *the EMD & Performance Security of the Bidder / Successful bidder shall be forfeited & either excluded from the bidding process or termination*

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year.

TENDER NO. NM1/E&M-05/2026

Section 7: Bidding & Contract Forms

Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

SECTION 7 - BIDDING & CONTRACT FORM

Letter of Proposal/Bid

(On Applicant's letter head) (Date and Reference)

To,

(Name & address of Employer)
Name of Work:

Dear Sir,

With reference to your Bid documents/Tender Notification dated _____, I/we, having examined all relevant document and understood their contents, hereby submit our Proposal for "*(Name of Work)*". The proposal is unconditional and unqualified.

1. All information provided in the Proposal and in the Appendices, is true and correct and all documents accompanying such Proposal are true copies of their respective originals.
2. This statement is made for the express purpose of appointment as Agency/ for the aforesaid work.
3. I/We shall make available to the Employer any additional information it may deem necessary or required for supplementing or authenticating the Proposal.
4. I/We acknowledge the right of the Employer to reject our application without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
5. I/We declare that:
    a. I/We have examined and have no reservations to the Bid Document, including any Addendum issued by the Employer;
    b. I/We do not have any conflict of interest in accordance with ITB 4.2;
    c. I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, in respect of any tender or request for proposal issued by or any agreement entered into with the Employer or any other Public-Sector enterprise or any government, Central or State; and
    d. I/We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
    e. I/We have not been blacklisted/ debarred, which is in force on the last date of Submission of the Bid,
        i. for the reasons like supply of sub-standard material, non-supply of material, abandonment of works, sub-standard quality of works, failure to

abide "Bid Securing Declaration" etc. by:

(a) any Department / PSU / Subordinate Offices under Ministry of Housing and Urban Affairs (MOHUA) or

(b) any department of Government of Maharashtra

or

ii. By Department of Expenditure (DOE), Ministry of Finance, Government of India from participating in any government bidding procedure.

6. I/We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Proposal that you may receive nor to select the Bidder, without incurring any liability to the Bidders as per Sub-Clause 9.1 of ITB.
7. I/We certify that in regard to matters other than security and integrity of the country, we or any of our Associates have not been convicted by a Court of Law or indicated or adverse orders passed by a regulatory authority which would cast a doubt on our ability to undertake the Supply or which relates to a grave offence that outrages the moral sense of the community.
8. I/We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us or by any of our Associates.
9. I/We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our Directors/ Managers/ Employees.
10. I/We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Employer and/ or the Government of Maharashtra in connection with the selection of Bidder or in connection with the Evaluation/ Selection Process itself in respect of the above-mentioned work.
11. I/We agree and understand that the proposal is subject to the provisions of the Bid Document. In no case, shall I/we have any claim or right of whatsoever nature if the Work is not awarded to me/us or our proposal is not opened or rejected.
12. I/We agree to keep this offer valid for 180 days (One Hundred and Eighty) from the last date of submission of the bid.
13. Power of Attorney in favor of the authorized signatory to sign and submit this proposal and document is attached herewith as Form B-5.
14. In the event of my/our firm/ being selected as the Bidder, I/we agree to enter into an Agreement in accordance with the form at C-2 of the Bid documents. We agree not to seek any changes in the aforesaid form and agree to abide by the same.
15. I/We have studied Bid Document and all other document carefully and also surveyed the

Project site. We understand that except to the extent as expressly set forth in the Agreement, we shall have no claim, right or title arising out of any document or information provided to us by the Employer or in respect of any matter arising out of or concerning or relating to the Evaluation Process including the award of the work.

16. I/We, agree and undertake to abide by all the terms and conditions of the Bid Document. In witness thereof, I/we submit this proposal under and in accordance with the terms of the Bid Document.

Yours faithfully
(Signature with name, designation and
stamp of the authorized signatory)

(Form-B-1 to Form-B-22 is to be submitted by bidder along with the Letter of Proposal)

FORM-B-1

(Bidder's Information)

1.	**a. Bidder Type** **b. Bidder's Name (Company Name)** **c. Legal Status**	(Single Entity/JV/ Consortium) Bidder Name: (*Proprietorship/Ltd. Co./ Pvt. Ltd. Co. etc)*
2.	**Registered address and Nationality**	
3.	**Address of Correspondence**	
4.	Name of Proprietor/Director of Company	
5.	**Certificate of incorporation/ Statutory Registration/Shop Act License No. and Validity Period/Date. Certificate No & Date supported by copy of certificate.** **(If applicable)**	(Attach)
6.	**Nature of Business & Establishment Year (as mentioned in Incorporation certificate)**	(Attach)
7.	**Telephone Nos.**	
8.	**Fax Nos.**	
9.	**Mobile No.**	
10.	**E-mail ID**	
11.	**Contact Person** Name Designation Mobile E-mail	
12.	**Organizational Capability (Staff strength)**	(Attach latest ECR of PF/ESIC)

13.	**PF/ESI Details:** Reg. No. PF Reg. No. ESI Reg. No. Service Tax	(Attach PF/ESIC Certificate)	
14.	PAN Details: PAN No.	(Attach PAN card copy)	
15.	A brief enlistment of Clients with whom your organization has worked (Enclosed the list supported by LOA/WO/Experience Certificate		
16.	List any arbitration cases/ legal disputes on Current/ previous projects - Mention name of project, reason for dispute, party filing the suit and current status)	If applicable, Bidder may submit the relevant information in separate Sheet	
17.	Already established office at Navi Mumbai	YES	NO
18.	If Yes, Complete address with contact no of Navi Mumbai		
19.	Name & Signature of the person furnishing the above statements		
20.	Whether have been listed in Exclusion List of World Bank. *Marking "Yes" as "✓" will disqualify the bidder*	YES	NO

Notes: -

1 Every statement made in the pre-qualification format should be supported by Documentary proof for consideration. Otherwise, the tender is liable to be rejected.

2 Bidder must enclose the supporting documents wherever necessary in this form.

Form-B-1A

Bidder's JV/Consortium Information Form

(to be completed for each member of Bidder's JV/Consortium and any

Specialized subcontractor if applicable)

Bidder's Name:- _____ JV/Consortium member's Name_____
Tender No.: _____

Name of Work: _____

Description	Information
Bidder's JV/Consortium name:	
JV/ Consortium member's name alongwith % participation and role (Lead / Other member):	
JV/ Consortium member's country of registration:	
JV/ Consortium member's year of constitution:	
JV/ Consortium member's legal address in country of constitution:	
JV/ Consortium member's authorized representative information Name:_____ Address:_____ Telephone/Fax numbers: _____ E-mail address: _____	
1. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/ or registration documents of the legal entity named above. ☐ In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.3. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.	

Form-B-1B

Pro-Forma Letter of Participation from Each Partner of Joint Venture (JV/Consortium)

(On each Firm's Letter Head)

Dt.....

To,
THE MANAGING DIRECTOR,
Maharashtra Metro Rail Corporation Limited
Metro Bhawan, East High Court Road (VIP Road),
Near Dikshabhoomi, Ramdaspeth,
Nagpur-440010, Maharashtra, INDIA

Sir,

Regarding:

Tender No.: _____

Name of Work: _____

We wish to confirm that our company / firm (delete as appropriate) has formed a Joint Venture with and for the purposes associated with NIT referred to above.

*(Member(s) who are not the lead partner of the JV/CONSORTIUM should add the following paragraph)**

'This JV/CONSORTIUM is led by *(Name of lead member)* ..... whom we hereby authorize to act on our behalf for the purpose of submission of Bid for… ..... and authorize to incur liabilities and receive instructions for and on behalf of any and all the partners or constituents of the Joint Venture.'

OR

*(Member being the lead member of the group should add the following paragraph)**

'In this group we act as leader and, for the purposes of applying for qualification, represent the JointVenture.'

In the event of our group being awarded the contract, we agree to be jointly with…… (Names of other members of our JV/CONSORTIUM) ..... and severally liable to the Maharashtra Metro Rail Corporation Limited, its successors and assigns for all obligations, duties and responsibilities arising from or imposed by the contract subsequently entered into between Maharashtra Metro Rail Corporation Limited and our JV/CONSORTIUM.

*I/We, further agree that entire execution of the contract shall be carried out exclusively through the lead partner.

Yours faithfully,

(Signature)

(Name of Signatory)…… (Capacity of Signatory)…… Seal

* Delete as applicable

FORM-B-2

DECLARATION

(If bidder is sole & Proprietorship firm)

(To be typed on INR: 100 Stamp Paper & notarized by Notary Public) Bidder's Name:- _____

Tender No.: _____

Name of Work:_____

I, _____Son / Daughter /Wife of

Shri. Proprietor/Director, authorized signatory of the bidder, mentioned above, is competent to sign this declaration and execute this tender document;

1 I have carefully read and understood all the terms and conditions of the tender and undertake to abide by them;

2 The information / documents furnished along with the above application are true and authentic to the best of my knowledge and belief. I / we, am/ are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of my tender & forfeiture my Bid Security /EMD besides liabilities towards prosecution under appropriate law.

Signature of authorized person

Full Name:

Seal:

Date:

Place

Signature & Seal of Notary Public

Note:

1. The above declaration shall be notarized by notary public

FORM-B-3

Average Annual Turnover of the Bidding Agency

Tender No. and title: _____

Bidder's Name: _____

Annual turnover data (Ref.Section-3) for 5 years		
S. No.	**Year**	**Amount Rs.**
1	*[indicate year]*	*[insert amount]*
2		
3		
4		
5		
	Average Annual Turnover	

Note: -

1 Attach certified copy of summary of balance sheet certified by Statutory Auditor for each year mentioned above with UDIN.

2 All the eligibility criteria as specified in *Section-3 -Eligibility Criteria*, should be provided duly certified by Statutory Auditor with UDIN.

Form-B-4

Summary of Experience

(Each Bidder or member of a JV/Consortium must fill this form)

(Submission of Experience certificates in compliance to Section 3, Eligibility Criteria)

Bidder's Name: _____

JV/CONSORTIUM Member's Name

Tender No. and title: _____

Starting Year	Ending Year	Contract Identification
		Name of Work: _____ Name, Address and *E-Mail ID* of Employer:
		Contract value (as well as Revised Contract value if any): Status of work: On-Going/ Completed Date of Commencement: Date of Completion (Actual/Estimated): Value of Work Executed (As per Experience Certificate):
		Name of Work: _____ Name, Address and *E-Mail ID* of Employer:
		Contract value (as well as Revised Contract value if any): Status of work: On-Going/ Completed Date of Commencement: Date of Completion (Actual/Estimated): Value of Work Executed (As per Experience Certificate):
		Name of Work: _____ Name, Address and *E-Mail ID* of Employer:
		Contract value (as well as Revised Contract value if any): Status of work: On-Going/ Completed Date of Commencement: Date of Completion (Actual/Estimated): Value of Work Executed (As per Experience Certificate):

Bidder shall attach Experience certificates for the works mentioned to this form.

The certificate shall be duly signed & stamped by Client/Employer with address & contact no's /email ID, briefly describing the nature of the work done and amount certified towards this work done.

Form-B-4a

Similar Work Experience

Tenderer's legal name: ……..... **Date:** ……

Member's legal name: …… **Page …. of …. pages** for

works as stipulated under clause 1.2.1 of Section – 3, Eligibility Criteria

Similar Work Experience		
Contract Number _____ out of _____required	Information	
Contract Identification		
Description of the similarity in accordance with similar work		
Award date: Completion date:		
Employer's Name		
Employer's Address: Telephone / Fax number: E Mail:		
Role in Contract (Individual/ Consortium member)	Single Entity	JV/Consortium Member
Completion Cost/ Value of successfully executed work in case of ongoing work	Currency Exchange Rate	In equivalent INR at *[Date]* * price level
If JV / Consortium member specifies percentage participation in contract & amount (Please refer Note-1)	% Participation	In equivalent INR at *[Date]* * price level

Signature of authorized signatory on behalf of Tenderer

Note:-
In support of the above, bidders are required to enclosed work completion certificate issued by previous employer

Form-B-5

POWER OF ATTORNEY

(If signed by other than proprietor/owner/Managing Director/Chairman)

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.)

Know all men by these presents, We ……..(name and address of the registered office of the bidder firm, as applicable) do hereby constitute, appoint and authorize Mr./Ms……S/o---------- (name and residential address) who is presently employed with us and holding the position of _____,(name of the post of person in the bidding firm) as our Attorney to sign and execute the Contract Agreement and any other requisite document in our name and our behalf for '……..'[name of the work] for Navi Mumbai Metro Line - 1 in response to the Bidding Document dated ___(Tender No) issued by Maharashtra Metro Rail Corporation Limited (Maha-Metro) (the Employer) and to do all or any of the acts, deeds or things necessary or incidental to the above.

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 Bidding Documents.

Signed by the within named

. .....[Insert the name of the executant company]

through the hand of Mr. …….

duly authorized by the head of the bidding firm 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) Common seal of bidding firm has been affixed

……

Signature and stamp of Notary of the place of execution

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 executant 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 B-5A

UNDERTAKING

(*In case the bidding firm is proprietorship firm and proprietor is the signatory of bid and this undertaking enclosed in the bid in lieu of POA on letter head of bidding firm.)*

I, _____(name), S/O_____ (father's name) _____(address) is the proprietor of the bidding firm named as _____ (firm's name) and authorize signatory as the owner of the bidding firm.

I undertake and owe the full responsibility of statement and information furnished with this bid and abide by all conditions of this bid.

_____(SIGN)

_____(NAME)

Form-B-5B

(Form-B: 5B are applicable only if JV/ Consortium are allowed to participate in Bidding)

(a) Form of Joint Bidding Agreement

(JV/ Consortium Agreement)

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution, duly signed on each page and duly notarised by Notary Public. Foreign entities submitting the Bid are required to follow the applicable law in their country, if JV is formed out of India)

JV/Consortium Agreement Between

M/S....., M/S....., and M/S.....

For (Name of Work).....vide

Tender No_____hereinafter referred as “Work”

THIS Consortium Agreement (hereinafter referred to as “Agreement”) executed on the..... day of ..... between M/s… ..... a

company incorporated under the laws of .....and having its Registered Office

at ..... (hereinafter called the "Party 1”, which expression shall include its successors, executors and permitted assigns),

and

M/s.....a company incorporated under the laws of

..... and having its Registered Office at..... (hereinafter

called the "Party 2”, which expression shall include its successors, executors and permitted assigns)

and

M/s.....a Company incorporated under the laws of .....and having its Registered Office at .....(hereinafter called the "Party 3", which expression shall include its successors, executors and permitted assigns)

(The Bidding JV/Consortium should list the name, address of its registered office and other details of all the Consortium Members)

for the purpose of submitting the Bid in response to the Bidding Documents and in the event of selection as Successful Bidder to execute the Contract Agreement and /or other requisite documents, and to carry out the (“Name of Works”)…….. for Maharashtra Metro Rail Corporation Limited (Name of Project……) to be awarded by Maharashtra Metro Rail Corporation Limited (hereinafter referred as “Maha- Metro ”).

Party 1, Party 2, and Party 3 are hereinafter collectively referred to as the “Parties” or “Members” and individually as a “Party”. Or “Member”

WHEREAS Maharashtra Metro Rail Corporation Limited desired to engage a Contractor for (Name of the Works)…… for Maharashtra Metro Rail Corporation Limited, (Name of project) Project.

AND WHEREAS the JV/Consortium of [.....] (insert the names of all the Members) intends to participate for the Bid, against the Bidding Documents issued to

……. [Insert the name of purchaser of Bidding Document]. Or downloaded from e- Tender Portal of "Maha-Metro"

AND WHEREAS Para ITB 4 of the Instructions to Bidder stipulates that the Bidders bidding on the strength of a JV/Consortium shall submit a legally enforceable JV/Consortium Agreement in a format specified in the Bidding Documents.

NOW THEREFORE, THIS INDENTURE WITNESSTH AS UNDER:

In consideration of the above premises and agreement, all the parties in this JV/Consortium do hereby mutually agree as follows:

1. In consideration of the selection of the JV/Consortium as the Successful Bidder by the Maha-Metro, we the Members of the JV/Consortium and Parties to the JV/Consortium Agreement do hereby unequivocally agree that M/s..... (Insert name of the Lead Member), shall act as the "Lead Member" as defined in the Bidding Documents for self and agent for and on behalf of (the names

   of all the other Members of the Consortium to be filled in here) to do on behalf of the JV/Consortium, all or any of the acts, deeds or things necessary or incidental to the JV/Consortium's Bid for the Contract including submission of the Bid, participating in meetings, responding to queries, submission of information/ documents and generally to represent the JV/Consortium in all its dealings with Maharashtra Metro Rail Corporation Limited or any other Government Agency or any person, in connection with the "Works" until culmination of the process of bidding till the Contract is entered into with Maharashtra Metro Rail Corporation Limited and thereafter till the expiry / Completion of the Contract.

2. The "Lead Member" is hereby authorized by the Members of JV/Consortium and Parties to the JV/Consortium Agreement to bind the JV/Consortium, incur liabilities and receive instructions for and on behalf of all Members. It is agreed by all the Members that entire execution of the Contract including payment shall be carried out exclusively through the "Lead Member".

3. The "Lead Member" shall be liable and responsible for ensuring the individual and collective commitment of each of the Members of the JV/Consortium in discharging all their respective obligations under the Contract with Maharashtra Metro Rail Corporation Limited. Each JV/Consortium Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in this Agreement.

4. In case of any breach of any of the obligations as specified under clause 3 above by any of

the JV/Consortium Members, the "Lead Member" shall be liable to fulfil such obligation.

5. It is agreed that sharing of responsibilities hereto among the Consortium members shall not in any way be a limitation of responsibility of the "Lead Member" under these presents.

6. This Consortium Agreement shall be construed and interpreted in accordance with the Laws of _INDIA_.

7. It is hereby agreed that the Lead Member shall furnish the Bid Security, as stipulated in the Bidding Documents, on behalf of the JV/Consortium.

8. It is hereby agreed that in case of selection of bidding JV/Consortium as the Successful Bidder, the Parties to this JV/Consortium Agreement do hereby agree that the "Lead Member" shall furnish the Performance Security on behalf of the JV/Consortium, as stipulated in the Bidding Documents.

9. It is further expressly agreed that the JV/Consortium Agreement shall be irrevocable and, for the Successful Bidder, shall remain valid over the term of the Contract, unless expressly agreed to the contrary by Maha-Metro.

10. The "Lead Member" is authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the JV/Consortium Members respectively from time to time in response to the Bidding Documents for the purposes of the Bidding.

11. It is expressly understood and agreed between the parties that the responsibilities and obligations of each of the Members of JV/Consortium shall be as follows:

    (a) Party-1..... % Share in proposed JV/ Consortium

    Brief description of responsibility …… …… …… …… …… …… ……

    (b) Party-2..... % Share in proposed JV/ Consortium

    Brief description of responsibility …… …… …… …… …… …… ……

    (c) Party-3..... % Share in proposed JV/ Consortium

    Brief description of responsibility …… …… …… …… …… …… ……

12. It is agreed by the Members that the above sharing of responsibilities and obligations shall not in any way be a limitation of joint and several responsibilities and liabilities of the Members, with regards to all matters relating to the execution of the Works as envisaged in the Bidding Documents and the Contract. The Parties shall be jointly and severally liable for execution of the Works in accordance with the terms of the Contract and the Bidding Documents.

13. It is clearly agreed that the Lead Member shall ensure performance under the Contract and if one or more Consortium Members fail to perform its /their respective obligations under the agreement(s), the same shall be deemed to be a default by all the JV

    /Consortium Members.

14. It is hereby agreed that in case of selection of the JV/Consortium as the Successful Bidder,

[the Lead Member shall furnish the Performance Security on behalf of the Consortium as stipulated in the Bidding Documents] /

Or

[the Performance Security as stipulated in the Bidding Documents shall be furnished by the Members on behalf of the Consortium in such proportion as may be agreed to between us]

15. It is agreed by all the Members that there shall be separate JV/Consortium Bank Account (distinct from the bank accounts of the individual Members) to which the individual Members shall contribute their share capital and / or working capital and the financial obligations of the JV/Consortium shall be discharged through the said JV/Consortium Bank Account only and also all the payments received by the JV/Consortium from the Employer shall be through that account alone.

    Further, in case of consortium, same above shall be processed either through bank accounts of individual members or the lead member.

16. It is hereby expressly agreed between the Parties to this JV/Consortium Agreement that neither Party shall assign or delegate its rights, duties or obligations under this Agreement except with prior written consent of Maha-Metro.

17. We hereby agree to ratify all acts, deeds and things lawfully done by the aforesaid Lead Member pursuant to this Agreement and that all acts, deeds and things done by the aforesaid Lead Member shall and shall always be deemed to have been done by JV/Consortium members collectively.

18. It is agreed by all members of JV/Consortium that the POA (Power Of Attorney) of “Lead Member” shall sign & submit the bid, correspond / negotiate with Employer and act as authorised representative of JV/Consortium to discharged all duties / responsibilities detailed above for the “Lead Member”.

This JV/Consortium Agreement

a. has been duly executed and delivered on behalf of each Party hereto and constitutes the legal, valid, binding and enforceable obligation of each Party,

b. sets forth the entire understanding of the Parties hereto with respect to the subject matter hereof including the JV/Consortium/Bidder’s legal persona and there is or are no other agreements relating to the JV/Consortium/Bidder’s incorporation, constitution, powers or organisation which may affect in any way its ability to carry out the Works;

c. may not be amended or modified except in writing signed by each of the Parties and with prior written consent of Maha-Metro.

IN WITNESS WHEREOF, the Parties to the Consortium Agreement have, through their authorized representatives, executed these presents and affixed common seals of their respective companies on the Day, Month and Year first mentioned above.

Common Seal of.....For and on behalf of

JV/Consortium Member (Party 1)- Lead Member

M/s…….

has been affixed in my/our presence pursuant to the Board of Director's resolution Dt. _____ (copy enclosed)

……..

(Signature of authorized representative)

Name: …….

Designation:……

Place: …….

Date: ……

JV/Consortium Member (Party 2) - 2nd Member

M/s…….

has been affixed in my/our presence pursuant to the Board of Director's resolution Dt._____ (copy enclosed)

……..

(Signature of authorized representative)

Name: …….

Designation ……..

Place: …….

Date: ……

JV/Consortium Member (Party 3) – 3rd Member

M/s…….

has been affixed in my/our presence pursuant to the Board of Director's resolution Dt…….. (copy enclosed)

……..

(Signature of authorized representative)

Name: …….

Designation:……..

Place: …….

Date: ……

Witnesses:

1. …….

(Signature)

Name …….

Address.....……..

Contact No……..

2. …….

(Signature)

Name …….

Address.....……..

Contact No……..

3. …….

(Signature)

Name …….

Address.....……..

Contact No……..

Form B-5B

(b) Form of Board Resolution & Power of Attorney for JV/Consortium

(To be forwarded on the letterhead of the Bidder or Lead Member of JV/Consortium, as the case may be)

(A) <u>Format for the Board resolution to be passed by "Lead Member" of</u> <u>JV/Consortium</u> <u>(applicable in case the Bidder is a JV/Consortium)</u>

The Board, after discussion, at the duly convened Meeting on …….(Insert date), with the

consent of all the Directors present and in compliance of the provisions of the Companies Act, 1956, passed the following Resolution:

RESOLVED THAT pursuant to the applicable provisions of the Companies Act, 1956 and as permitted under the Memorandum and Articles of Association of the Company, approval of the Board be and is hereby accorded to submit a Bid in response to the Bidding Documents dated

……. issued by Maharashtra Metro Rail Corporation Limited i.e Maha-Metro for [Name of the work]..... for Maharashtra Metro Rail Corporation Limited in Consortium

with _____(insert the name and address of the other Consortium members).

FURTHER RESOLVED THAT pursuant to the applicable provisions of the Companies Act, 1956 and as permitted under the Memorandum and Articles of Association of the Company, approval of the Board be and is hereby accorded to execute a JV/Consortium Agreement as per the format annexed to the aforesaid Bidding Documents with _____(insert the name and address of the other JV/Consortium members).

FURTHER RESOLVED THAT approval of the Board be and is hereby accorded to the Company to accept and act as the Lead Member of the aforesaid JV/Consortium and also as true and lawful attorney to do in the name and on behalf of the JV/Consortium, all such acts, deeds and things necessary in connection with or incidental to submission of JV's/Consortium's Bid in response to the Bidding Documents / Tender No… dated _____issued by Maharashtra Metro Rail Corporation Limited for ' _____ ' [name of the work] including signing and submission of the Bid and all documents related to the Bid as specified in the Bidding Documents, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document, which Maharashtra Metro Rail Corporation Limited may require us to submit and carrying out the Contract and doing all necessary deeds and things as may be required in respect of the above and also for making representations to Maharashtra Metro Rail Corporation Limited and providing information / responses to Maharashtra Metro Rail Corporation Limited, representing the Consortium in all matters before Maharashtra Metro Rail Corporation Limited, and generally dealing with Maharashtra Metro Rail Corporation Limited and/or any other authority in all matters in connection with Consortium's Bid, till completion of the bidding process in accordance with the Bidding Documents and further till the Contract is entered into with Maharashtra Metro Rail Corporation Limited and thereafter till the expiry of the Contract.

FURTHER RESOLVED THAT Mr./Ms……., (insert the name and designation of the concerned official of the Company) be and is hereby authorized to take all the steps required to be taken by the Company for submission of the JV/Consortium's Bid, including in particular, signing the Bid, making changes thereto and submitting amended Bid, signing and executing all the documents related to the Bid, certified copy of this Board resolution or letter or undertakings, etc., required to be submitted to Maharashtra Metro Rail Corporation Limited as part of the Bid or such other documents as may be necessary in this regard and to do in the name and on behalf the JV/Consortium all or any of the acts, deeds or things necessary or incidental to submission of said Bid including signing and executing the Contract Documents, making representations to Maharashtra Metro Rail Corporation Limited or any other authority, and providing information / responses to Maharashtra Metro Rail Corporation Limited, representing the JV/Consortium in all matters before Maharashtra Metro Rail Corporation Limited, and generally dealing with Maharashtra Metro Rail Corporation Limited in all matters in connection with our Bid till the completion of the bidding process as per the terms of the above said Bidding Documents and further till the Contract is entered into with the Company and thereafter till the expiry of the Contract.

FURTHER RESOLVED THAT a power of attorney as per the draft attached to the Bidding Documents be issued in favour of the above named person, Mr/Ms._____, to be executed by Mr._____..... or Mr. _____, Directors of the Company under the Common seal of the Company, affixation thereof to be witnessed by one or both of the above named Directors and by Mr. _____, (insert the name and designation of the concerned official of the Company) or as per the Memorandum and Articles of Association of the Company.

Signature and stamp of Chairman / Managing Director/Directors of Bidding entity Notes:

1. This certified true copy should be submitted on the letterhead of the Company, signed by the Company Secretary / Managing Director/Directors of the Bidding Entity.
2. The contents of the format may be suitably re-worded indicating the identity of the entity passing the resolution.
3. In the event the Board resolution is from a company incorporated outside India, the same needs to be notarized by a notary in the home country of company passing the resolution and legalized by the Indian Embassy there. However, in case such company is from a country which has signed The Hague Legislation Convention 1961, then the Board Resolution is not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.
4. This format may be modified only to the limited extent required to comply with the local regulations and laws applicable to a foreign entity submitting this resolution. For example, reference to Companies Act 1956 may be suitably modified to refer to the law applicable to the entity submitting the resolution. However, in such case, the foreign entity shall submit an unqualified opinion issued by the legal counsel of such foreign entity, stating that the Board resolutions are in compliance with the applicable laws of the respective jurisdictions of the issuing company and the authorizations granted therein are true and valid.
5. The DIN numbers of signing Director of company to be mentioned on Board Resolution.

(B) Format for the Board resolution to be passed by other Member other than the Lead Member of JV/Consortium (applicable in case the Bidder is a JV/Consortium)

The Board, after discussion, at the duly convened Meeting on …….. (Insert date), with the consent of all the Directors present and in compliance of the provisions of the Companies Act, 1956, passed the following Resolution:

RESOLVED THAT pursuant to the applicable provisions of the Companies Act, 1956 and as permitted under the Memorandum and Articles of Association of the Company, approval of the Board be and is hereby accorded to submit a Bid in response to the Bidding Documents / Tender No… dated _____ issued by Maharashtra Metro Rail Corporation Limited i.e. Maha-Mero for [name of the work]for Maharashtra Metro Rail Corporation Limited in JV/Consortium with _____(insert the name and address of the other JV/Consortium members).

FURTHER RESOLVED THAT pursuant to the applicable provisions of the Companies Act, 1956 and as permitted under the Memorandum and Articles of Association of the Company, approval of the Board be and is hereby accorded to execute a JV/Consortium Agreement as per the format annexed to the aforesaid Bidding Documents with _____(insert the name and address of the other JV/Consortium members).

FURTHER RESOLVED THAT approval of the Board be and is hereby accorded to constitute, appoint and authorize M/s_____(name and registered office address of the Lead Member), which is one of the Members of the JV/Consortium, to act as the Lead Member of the aforesaid JV/Consortium and also as true and lawful attorney, to do in the name and on behalf of the JV/Consortium, all such acts, deeds and things necessary in connection with or incidental to submission of JV's/Consortium's Bid in response to the Bidding Documents /Tender No… dated _____ issued by Maharashtra Metro Rail Corporation Limited for [name of the work] including signing and submission of the Bid and all documents related to the Bid as specified in the Bidding Documents, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document, which Maharashtra Metro Rail Corporation Limited may require us to submit and carrying out the Contract and doing all necessary deeds and things as may be required in respect of the above and also for making representations to Maharashtra Metro Rail Corporation Limited and providing information / responses to Maharashtra Metro Rail Corporation Limited, representing the JV/Consortium in all matters before Maharashtra Metro Rail Corporation Limited, and generally dealing with Maharashtra Metro Rail Corporation Limited and/or any other authority in all matters in connection with our Bid, till completion of the bidding process in accordance with the Bidding Documents and further till the Contract is entered into with Maharashtra Metro Rail Corporation Limited and thereafter till the expiry of the Contract.

FURTHER RESOLVED THAT a power of attorney as per the draft attached to the Bidding Documents be issued in favour of Mr./Ms… ....., (insert the name and designation of the concerned official of the Company) to be executed by Mr._____ or Mr. _____,

Directors of the Company under the Common seal of the Company, affixation thereof to be witnessed by one or both of the above named Directors and by Mr.__, (insert the name and designation of the concerned official of the Company) or as per the Memorandum and Articles of Association of the Company.

FURTHER RESOLVED THAT Mr./Ms ..... , (insert the name and designation of the concerned official of the Company) be and is hereby authorized to take all the steps required to be taken by the Company for submission of the aforesaid Bid, including in particular, signing and executing all the documents related to the Bid, certified copy of this Board resolution or letter or undertakings, etc., required to be submitted to Maharashtra Metro Rail Corporation Limited as part of the Bid or such other documents as may be necessary in this regard and to do in our name and our behalf all or any of the acts, deeds or things necessary or incidental to give effect to this resolution.

Signature and stamp of Chairman / Managing Director/Directors of Bidding Entity Notes:

1. This certified true copy should be submitted on the letterhead of the Company, signed by the Company Secretary / Managing Director/Director of the Bidder.
2. The contents of the format may be suitably re-worded indicating the identity of the entity passing the resolution.
3. In the event the Board resolution is from a company incorporated outside India, the same needs to be notarized by a notary in the home country of company passing the resolution and legalized by the Indian Embassy there. However, in case such company is from a country which has signed The Hague Legislation Convention 1961, then the Board Resolution is not required to be legalized by the Indian Embassy if it carries a conforming Appostille certificate.
4. This format may be modified only to the limited extent required to comply with the local regulations and laws applicable to a foreign entity submitting this resolution. For example, reference to Companies Act 1956 may be suitably modified to refer to the law applicable to the entity submitting the resolution. However, in such case, the foreign entity shall submit an unqualified opinion issued by the legal counsel of such foreign entity, stating that the Board resolutions are in compliance with the applicable laws of the respective jurisdictions of the issuing company and the authorizations granted therein are true and valid.
5. The DIN numbers of signing Director of company to be mentioned on Board Resolution.

(C) Format for PoA for Lead Member of JV/Consortium

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution and notarised with Notary Public. Foreign companies submitting Bids are required to follow the applicable law in their country)

Power of Attorney to be provided by the Bidder Company/ Lead Member 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 "Lead Member" of the Bidding JV/Consortium, as applicable) do hereby constitute, appoint .....and authorize Mr./Ms…… (name and residential address) S/o…….. who is presently employed with us and holding the position of (Designation)… .....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 [name of the work] for Maharashtra Metro Rail Corporation Limited in response to the Bidding Document of Tender No… dated _____ issued by Maharashtra Metro Rail Corporation Limited i.e Maha-Metro (the Employer) including signing of JV/Consortium Agreement and signing and submission of the Bid and all other documents related to the bidding, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which the Company may require us to submit the bid and also signing and executing the Contract Documents. The aforesaid Attorney is further authorized for making representations to the Company or any other authority, and providing information / responses to the Company, representing us in all matters before the Company, and generally dealing with the Company in all matters in connection with our Bid till the completion of the bidding process as per the terms of the Bidding Documents and further till the Contract is entered into with the Company 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.

(Add in the case of a JV/Consortium)

Our firm is a Member /Lead member of the JV/Consortium of _____, _____and _____

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

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

Signature of Executant of POA

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 authorised by board)

……

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 executant 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).

(D) Format for PoA for Other Member Of JV/Consortium

POWER OF ATTORNEY

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution and notarised with Notary Public . Foreign companies submitting Bids are required to follow the applicable law in their country)

Power of Attorney to be provided by each Member other than the Lead Member in favor of its representative as evidence of authorized signatory's authority to sign JV/Consortium Agreement. (Applicable to JV/Consortium only)

Know all men by these presents, We ……..(name and address of the registered office of the Member of the JV/Consortium, (name of JV/Consortium) do hereby constitute, appoint and authorize Mr./Ms……(name and residential address) S/o…….. who is presently employed with us and holding the position of (Designation)…....., as our Attorney to sign bid document, execute the JV/Consortium Agreement and any other requisite document in our name and our behalf for [name of the work]……for Maharashtra Metro Rail Corporation Limited i.e. Maha-Metro (Employer) in response to the Bidding /Tender No dated _____ issued by Maharashtra Metro Rail Corporation Limited and to do all or any of the acts, deeds or things necessary or incidental to the above.

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.

(Add in the case of a Consortium)

Our firm / company is a Member of the JV/Consortium of _____, _____and

_____for the above mentioned work

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

Signed by the within named

….....[Insert the name of the executant company]

through the hand of

Mr. …….

Signature of executant

duly authorized by the Board to issue such Power of Attorney (As per board resolution) 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 executant 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).

(E) Joint Statement of JV/Consortium

(To be typed on non-judicial stamp paper and notarized appropriately.)

We (Name of JV/Consortium) hereby, authorize Mr/Ms ..... (Name of POA of Lead Partner), S/Do of Mr..... , working in the capacity of ..... (Name of Post) with M/s …….. (Name of Lead Partner Company) to sign, submit & represent to Maha-Metro on behalf of JV/Consortium intended to bid for the work named ……..... (Name of Work), Tender no …….....

Any correspondence, commitment, signing of bid & legal documents by the above-mentioned authorized representative shall be legally binding and enforceable to this JV/Consortium member, jointly and severally.

Signed by,

1. JV/Consortium Member 1 POA or Director (with DIN number)

2. JV/Consortium Member 2 POA or Director (with DIN number)

Accepted by,

Lead member POA of JV/Consortium.

Form-B-6

DECLARATION ABOUT FRAUD AND CORRUPT PRACTICES

We certify that in the last three years, we have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award, nor been expelled from any project or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.

We declare that:

a) We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Section B of Fraud and Corrupt Practices of the Terms and Conditions of the document, in respect of any tender or request for proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any Government, Central or State; and

b) We have taken steps to ensure that in conformity with the provisions of Section B of Fraud and Corrupt Practices of the Terms and Conditions of the document, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

c) We certify that in regard to matters other than security and integrity of the country, we or any of our Associates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority, which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.

d) We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.

e) We further certify that no investigation by a regulatory authority is pending either against us or against our CEO or any of our directors / managers / employees.

Signature;

Name & Designation with office Seal

Form-B-7

Affidavit

(To be typed on Non-Judicial Stamped of appropriate value & notarized by Notary Public)

This affidavit is executed at (Place) _____on_____(Date) by _____(Name of the authorized person) behalf of _____(name of the bidding firm), who is bidding for the work_____ (Name of the work), vide tender No_invited by Maharashtra Metro Rail Corporation Limited

I/We hereby declare that: -

The bidders_____ (Name of the bidding firm) have not been banned or blacklisted or debarred, which is in force on the last date of Submission of the Bid,

A. for the reasons like supply of sub-standard material, non-supply of material, abandonment of works, sub-standard quality of works, failure to abide "Bid Securing Declaration" etc. by:

   a. any Department / PSU / Subordinate Offices under Ministry of Housing and Urban Affairs (MOHUA) **or**

   b. any department of Government of Maharashtra

or

B. By Department of Expenditure (DOE), Ministry of Finance, Government of India from participating in any government bidding procedure.

by any central/state government department, any statutory body or public sector undertaking / enterprise of Govt. of India & State Government.

I undertake that the above statement made by me is true & nothing has been concealed. I am aware that my candidature for the above bid shall be terminated by Maharashtra Metro Rail Corporation Limited at any stage of bidding or even after award of the work ordering the execution stage of the above work (In case of successful bidder), if the above statement is found false or fabricated.

……

(Signature of the executant)

(Name, designation and address of the executant)

Common seal of bidding firm .....has been affixed

……

Signature and stamp of Notary of the place of execution

Form-B-8

Affidavit

(To be typed on Non Judicial Stamped of appropriate value & notarized by Notary Public)

This affidavit is executed at (Place)_____on_____(Date) by _____(Name of the authorized person) behalf of _____(name of the bidding firm), who is bidding for the work_____ (Name of the work), vide tender No_invited by Maharashtra Metro Rail Corporation Limited

I/We hereby declare that: -

1. I / We shall not have deployed any person under the 18 years of age, which is prohibited & punishable under Child Labour (Prohibition & Regulation) Act-1986 & its further amendments.
2. I/ We ensure that no case of sexual harassment/abuses take place at my premises / Office with the female employee out sourced to Maha-Metro as per the provision of above bid, if awarded to me/us. I am aware of the provision of "The sexual Harassment of women at work place (Prevention. Prohibition & redressed act 2013)

I undertake that the above statement made by me is true & nothing has been concealed. I am aware that my candidature for the above bid shall be terminated by **Maharashtra Metro Rail Corporation Limited** at any stage of bidding or even after award of the work ordering the execution stage of the above work. (In case of successful bidder), if the above statement is found false or fabricated or violate the relevant act of Govt. of India and Govt. of Maharashtra, I / We shall be liable for punishment as per relevant act & law of Govt. of India and Govt. of Maharashtra

……

(Signature of the executant)

(Name, designation and address of the executant)

Common seal of bidding firm .....has been affixed

……

Signature and stamp of Notary of the place of execution

Form B-9

Form of Bid Security (EMD)

(Demand Guarantee)

Beneficiary: _____

Invitation for Bids No: _____

Date: _____

Bid Guarantee no.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its bid (hereinafter called "the Bid") for the execution of _____ under Invitation for Bids No. _____ ("the IFB"). Furthermore, we understand that, according to the Beneficiary's conditions, bids must be supported by a bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's first demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

(a) has withdrawn its Bid during the period of bid validity set forth in the Applicant's Letter of Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or

(b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the performance security, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the bidding process; or (ii)twenty-eight days after the end of the Bid Validity Period.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees(URDG) 2010 Revision, ICC Publication No. 758.

_____

[signature(s)]

Form-B-10

Bid-Securing Declaration [Applicable if EMD/Bid Security exemption is availed by Bidder as per BDS/ITB]

Bidder's Name:_____

Tender No.: _____

Name Of Work: _____

To,

Maharashtra Metro Rail Corporation Ltd (Maha-Metro), hereinafter called "the Employer" acting through Executive Director (Procurement), Maharashtra Metro Rail Corporation Ltd, "Metro Bhawan", VIP Road, Near Dikshabhoomi, NAGPUR, MAHARASHTRA-440010 (INDIA) We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration. We accept that we will automatically be suspended from being eligible for bidding in any contract with the Borrower for the period of time of.....[*insert number of years*

as indicated in ITB 19.2 of the BDS] starting on the date that we receive a notification from the Employer, if we are in breach of our obligation(s) under the bid conditions, because we

a. have withdrawn our Bid during the period of bid validity specified in the Letter of Bid; or

b. do not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or

c. having been notified of the acceptance of our Bid by the Employer during the period of bid validity, (i) fail or refuse to execute the Contract, if required; or (ii) fail or refuse to furnish the Performance Security, in accordance with the ITB; or (iii) fail or refuse to furnish a domestic preference security, if required.

We understand that this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) 28 days after the expiration of our Bid.

Signed: . . . . . [*insert signature of person whose name and capacity are shown*] . . . .

In the capacity of [*insert legal capacity of person signing the Bid-Securing Declaration*]

Name: . . . . . [*insert complete name of person signing the Bid-Securing Declaration*] Duly

authorized to sign the bid for and on behalf of . . . . . [*insert complete name of the bidder*] . . . . Dated on _____day of _____, _____[*insert date of signing*] Corporate Seal . . . . . [*where appropriate*] . . .

Form-B-11

Historical Contract Non-Performance, Pending Litigation and Litigation History

(to be completed by the Bidder and by each member of the Bidder's JV/Consortium)

Bidder's Name: - _____

JV/Consortium member's Name_____

Tender No.: _____

Name of Work: _____

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
☐ Contract **non-performance did not occur** since 1st January *[insert current year number less 5]* ☐ Contract(s) **not performed as indicated below** since 1st January *[insert current year number less 5]*			
Year	**Non-performed portion of contract**	**Contract Identification**	**Total Contract Amount (INR)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for nonperformance: *[indicate main reason(s)]*	*[insert amount]*
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
☐ No pending litigation ☐ Pending litigation as indicated below.			

Year of dispute	**Amount in dispute (currency)**	**Contract Identification**	**Total Contract Amount (INR)**
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: ___ Status of dispute: _____	

Note: If the bidder has Pending litigation, the bidder shall submit the certificate issued by the Statutory Auditor with UDIN mentioning that **the Applicant's financial position and prospective**

long term profitability is still sound according to criteria established at "Section-III: Evaluation & Qualification Criteria, Cl. 2 Qualification, Sr. No. 3.1" even if all pending litigation are resolved against the Applicant.

Form-B-12

Financial Resources

Bidder's Name: _____JV Member's Name Tender Number _____
Name of Work _____

Specify proposed sources of financing, such as liquid assets, lines of credit, and other financial, other than any contractual advance payments, net of current commitments, available to meet the cash flow requirement of the subject contract as specified in Section _____Clause No._____
(Evaluation andQualification Criteria)

S. No.	Source of Finance	Amount (Indicate Currency)	Amount (In Equivalent INR)
1	Working Capital		
2	Bank CC & OD		
3	Line of Credit		
4	Any other Sources of Finance		
	Total Financial Resources		

(Signature of the Authorised Signatory)

(Name and designation of the Authorised Signatory):

……

… .....Seal of Bidder.

Note:

(i) Bankers Certificate for sanctioned Line of Credit to be submitted.

(ii) In addition to the above Form, the Bidder shall provide a Certificate from Statutory Auditor certifying the above information.

Form-B-13

Current Contract Commitments / Works in Progress

Bidder's Name: _____JV Member's Name_Tender Number ___

Name of Work _____

Bidders and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments

S.No.	Name of Contract	Employer Name, address, Contact details, Email	Value of Outstanding work (INR)	Value of Outstanding work (Eq. INR)	Estimated Completion date	Average monthly invoicing of last six months (INR/monthly)
1						
2						
3						
4						
5						
6						
	Total					

(Signature of the Authorised Signatory)

(Name and designation of the Authorised Signatory):

……

… .....Seal of Bidder.

Note: In addition to the above Form, the Bidder shall provide a Certificate from StatutoryAuditor certifying the above information.

Form-B-14

Financial Situation and Performance of Bidder

Bidder's Name: _____JV Member's Name_Tender Number _____

Name of Work _____

	Historic information for previous 05 Financial years				
Type of Financial Information	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Current Assets (CA)					
Current Liabilities (CL)					
Current Ratio (CA/CL)					
Liquid Assets (LA)					
Liquid Liabilities (LL)					
Liquid Ratio (LA/LL)					
Working Capital (WC=CA-CL)					
Net Worth (NW)					
Cash & Cash Equivalent (Including Bank Balance)					
Sundry Debtors					
Information from Income Statement					
Total Revenue/Turnover (TR)					
Profits Before Taxes (PBT)					
Profit After Taxes (PAT)					

* See Section_____, Evaluation and Qualification Criteria, Clause No. ____

(Signature of the Authorised Signatory):

(Name and designation of the Authorised Signatory):

……

Seal of Bidder.

Note:

1) *In addition to the above Form, the Bidder shall provide a Certificate from Statutory Auditorcertifying the above information along with valid UDIN.*
2) *Bidder are required to attach Financial Statements of preceding five Financial Year.*
3) *Net Worth (NW) means the aggregate value of the paid up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditures and misc. expenditures not written- of, as per the audited balance sheet but does not include reserves created out of revaluation of assets, write back of depreciation and amalgamation.*
4) *For all annual financial statements, periods mentioned are ending with 2022-23. In case of ending of financial is Month of December then, annual financial statements shall be ending with financial year 2022.*

Form-B-15

Letter of Undertaking Regarding Confidentiality of Bid Information

(This document is to be prepared by the Bidder and submitted on Bidder's Letterhead)

Date: …….

To:

THE MANAGING DIRECTOR,

Maharashtra Metro Rail Corporation Limited Metro Bhawan, East High Court Road (VIP Road), Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,Maharashtra, INDIA

Ref:-

Bidder's Name: _____

Tender No. : _____

Name of Work:-_____

We (Name of Bidder / Consortium) hereby undertake that the Bid drawings, both in hard copy and digitized format, and the Bidding documents purchased as a necessary part of our preparation of this Bid shall be used solely for the preparation of the Bid and that if the Bid is successful, shall be used solely for the execution of Works.

We further undertake that the aforesaid Bid drawings and documents prepared by Maharashtra Metro Rail Corporation Limited, shall not be used in whole, in part or in any altered form on any other project, scheme, design or proposal that the Bidder / Consortium / Members of Consortium or its/their parent companies or sub-contractors of the Bidder / Consortium are, or will be involved with either in India or in any other Country.

Signed: …….

For and on behalf of

(Name of Bidder / Joint Venture / Consortium)

(To be signed by each member of the Joint Venture / Consortium, as applicable)

***** In case of a JV/Consortium, to be submitted by the Authorized representative of the Lead Member.

Form-B-16

Undertaking for Downloaded Bidding Documents

Bidder's Name: _____

Tender No. : _____

Name of Work:-_____

We hereby confirm that, we have downloaded the complete set of Bid Documents along with the set of enclosures hosted in e-tendering portal https://mahametrorail.etenders.in.

We confirm that the Bidding Documents has not been edited or modified by us. In case, it is observed by Maharashtra Metro Rail Corporation Limited that the Bidding Documents have been edited or modified, we agree for the rejection of our Bid by Maharashtra Metro Rail Corporation Limited.

Company name ……....

Name ……..

Signature ……..

Address of correspondence ……..…

E-mail ID ……

Phone ……

Fax ……..

***** In case of a JV/Consortium, to be submitted by the Authorized representative of the Lead Member.

Form-B-17

Form of Certificate confirming downloading of all Bidding Documents, Corrigendum and Addendum

Bidder's Name: _____

Tender No. : _____

Name of Work:-_____

This is to certify that we, M/s____[* Name of the Bidder] have downloaded all Bidding Documents, Corrigendum, Clarifications and Addenda for Contract No._____ as listed below:

1. Addendum No. ……
2. ……..
3. ……..
4. ……

SIGNATURE OF BIDDER

***** In case of a JV/Consortium, to be submitted by the Authorized representative of the Lead Member.

Form-B-18

Form of Declaration for non-engagement of any agent, middleman or intermediary

Bidder's Name: _____

Tender No. : _____

Name of Work:-_____

[We hereby declare / We hereby jointly and severally declare that the submission of this Bid confirms that no agent, middleman or any intermediary has been, or will be engaged to provide any services, or any other item or work related to the award and performance of this Contract. We further confirm and declare that no agency commission or any payment, which may be construed as an agency commission, has been, or will be paid and that the Bid price does not include any such amount. We acknowledge the right of the Employer, if it finds to the contrary, to declare our Bid to be non-compliant and if the Contract has been awarded to declare the Contract NULL and VOID.

SIGNATURE OF THE BIDDER

***** In case of a JV/Consortium, to be submitted by the Authorized representative of the Lead Member

Form-B-19

Form of certificate confirming careful examination of all the contents of Bidding Documents and signing of all pages of Bidder's proposal

Bidder's Name: _____

Tender No. : _____

Name of Work:-_____

This is to certify that we, M/s_[*Name of the company/JV/Consortium] have carefully examined all the contents of the Bidding Documents including Addenda (if any) and all the pages of our proposal have been signed and stamped by our authorized signatory.@.

SIGNATURE OF BIDDER

**In case of a joint venture or Consortium, such pages to be signed by authorized signatory of the Lead member.

Form-B-20

Undertaking for passing on benefits of exemptions to Maharashtra Metro Rail Corporation Limited and for adjustment of amounts due from balance due

(To be submitted on Bidder's Letterhead)

Letter of Undertaking

Bidder's Name:

Dated:……..

Tender No. :

Name of Work:-

I ……. (State Name of Director/Partner/ Karta/Authorized Person) in capacity of of (State name of the undertaking organization) here by undertake to reimburse / pass on benefit of any duty draw back / export, import incentive / exemption / concession / benefit etc. obtained for the Maharashtra Metro Rail Corporation Limited project to Maharashtra Metro Rail Corporation Limited. I will maintain proper records as required by Maharashtra Metro Rail Corporation Limited and relevant statute. I will furnish such records to Maharashtra Metro Rail Corporation Limited as and when required by them.

I agree to adjustment of any benefits/ duty draw back / export, import incentive / exemptions / concessions to be made from the balance due to me without any prejudice.

I also undertake to indemnify Maharashtra Metro Rail Corporation Limited in case of any loss caused due to non-reimbursement / passing on the benefit of duty draw back / export, import incentive / exemption / concession etc.

I state that everything declared by me is true and correct to my belief.

Signed……..

For on behalf of

(Name of Bidder / Consortium)

* In case of a JV/Consortium, to be submitted by the Authorized representative of the Lead Member

Form-B21

Dated:……..

Letter of Undertaking

Bidder's Name:

Tender No. :

Name of Work:-

I_____(State Name of Director/Partner /Authorized Person) in capacity of_____ of _____(State name of the undertaking organization) here by undertake to get registered under _____(state the type of registration to be obtained) before _____(state time line) (preferably immediately after award of Contract).

I also undertake to indemnify Maharashtra Metro Rail Corporation Limited in case of any loss caused due to non-registration.

I state that everything declared by me is true and correct to my belief.

Signed……..

For on behalf of

(Name of Bidder / Consortium)

* In case of a JV/Consortium, to be submitted by the Authorized representative of the Lead Member

Form-B22

Bid Index

Bidder's Name:- _____

Tender No.: _____

Name of Work: _____

The Bidder shall include with its Bid an index which cross refers all of the Employer's bidding requirements elaborated in these documents to all the individual sections within Package 1: Technical Package and Package 2: Financial Package which the Bidder intends to be the responses to each and every one of those requirements.

The Packages submitted must be clearly presented, all pages numbered and laid out in a logical sequence with main and subheadings to facilitate evaluation.

Form-B-23

Submission of Details of Proposed Personnel for the works

Bidder's Name: _____Tender Number_____

Name of Work_____

SN	Designation	Name of Proposed Personnel	Highest Educational Qualification	Nos of Years relevant experience in Metro Domain
1	Team Leader			
2	Engineer / Supervisor			
3	Technician			
4				
5				
6				

This table is for indicative purposes only. Bidder to add more rows for all the personnel as per the Section-4, Evaluation Criteria and Section 5 Scope of Work.

We hereby undertake, that if the above personnel are to be deployed in the said work at Nagpur metro. If any of the above said personnel leaves our organization, the personnel shall be replaced with same experience.

(Signature of the Authorized Signatory):

(Name and designation of the Authorized Signatory):

……

FORMS FOR CONTRACT

(To be used at the time of award of work to successful Bidder)

Form-C-1

Notification of Award

Letter of Acceptance

[Letterhead paper of the Employer Maha-Metro]

[Date]

To: *[name and address of the Contractor]*

This is to notify you that your Bid dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Bidders, is hereby accepted by Maha-Metro.

You are requested to furnish the Performance Security @ 10% of awarded cost within 28 days in *accordance* with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section 7 – Bidding & Contract Forms, of the Bidding Documents

Authorized Signature: _____

Name and Title of Signatory: _____

Name of institution: _____

Attachment: Contract Agreement

Form-C-2

Contract Agreement

THIS AGREEMENT made the _____ day of _____, _, between _____ of _____ (hereinafter "the Employer"), of the one part, and _____ of _____ (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as _____ should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein, in the sum of *[insert Contract Price or Ceiling in words and figures, expressed in the Contract currency (ies)]* (hereinafter called "the Contract Price").

The Employer 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. This Agreement shall prevail over all other Contract documents.
   - **Section 1 : Notice Inviting Tender (NIT)**
   - **Section 2 : Instructions to Bidders (ITB)**
   - **Annexure-2A : Bid Data Sheet (BDS)**
   - **Annexure-2B : Tool Kit of e-Tender**
   - **Section 3 : Eligibility Criteria**
   - **Section 4 : Evaluation Criteria**
   - **Section 5 : Scope of Work**
   - **Section 6 : Condition of Contract**
   - **Annexure 6-A : Corrupt and Fraudulent Practices**
   - **Section 7 : Bidding & Contract Forms**
   - **Section 8 : List of Document to be attached.**
   - **Section 9 : Financial Bid**
3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Consultant hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, 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.

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

Signed by _____ (for the Employer)

Signed by _____ (for the Contractor)

Form-C-3

Performance Security

(Bank Guarantee)

Beneficiary: _____

Date: _____

PERFORMANCE GUARANTEE No.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____with the Beneficiary, for the execution of _____(hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____(_____),[1]

such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's first demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the …. Day of ……, 2…[2], and any demand for payment under it must be received by us at this office indicated above on or before that date.

---

1 The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency (cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

2 Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable up to 1 Year.

TENDER NO. NM1/E&M-05/2026

SECTION 8: LIST OF DOCUMENTS TO BE ENCLOSED



Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

SECTION 8 : LIST OF DOCUMENTS TO BE ENCLOSED

The Bidder is required to enclose attested and legible scanned copies of the following documents (in the same sequence) in the Technical Bid section, failing which their bids shall be summarily/out rightly rejected and will not be considered any further:

S.No.	Description	
1.	Certificate of Incorporation / Statutory Registration ***/***Shop Act License certificate (As the case may be)	
2.	PAN/GIR No.	
3.	GST Registration No. *(If applicable)*	
4.	E.P.F. Registration Certificate *(If applicable)*	
5.	E.S.I. Registration Certificate *(If applicable)*	
6.	Experience certificates *(to be enclosed with form B-4)*	
7.	Audited Balance Sheet, Profit & Loss Statement along with relevant notes certified by Statutory Auditor for the last 5 years *(Complete Annual Reports need not to be attached unless specifically demanded in the bid document).*	
8.	Letter of Proposal/Bid	
9.	Bidder information	Form B-1
10.	Bidder's JV/Consortium Information Form	Form B-1A
11.	Pro-Forma Letter of Participation from Each Partner of Joint Venture (JV/Consortium)	Form B-1B
12.	Declaration	Form B-2
13.	Average annual turnover	Form B-3
14.	Summary of Experience	Form B-4
15.	Summary of Experience of Execution of Similar Works	Form B-4a
16.	Copy of Power of Attorney signing the bid. *(**Form B-5A** is applicable if the bidder is a Proprietorship firm,* ***Form B-5B** is applicable if the bidder is JV/Consortium)*	Form B-5
17.	Declaration about corrupt & fraudulent practices	Form B-6
18.	Affidavit	Form B-7
19.	Affidavit	Form B-8

S.No.	Description	
20.	Bid Security / EMD	Form B-9
21.	Bid Securing Declaration	Form B-10
22.	Historical Contract Non-Performance, Pending Litigation and Litigation History	Form B-11
23.	Financial Resources	Form B-12
24.	Current Contract Commitments / Works in Progress	Form B-13
25.	Financial Situation and Performance of Bidder	Form B-14
26.	Letter of Undertaking Regarding Confidentiality of Bid Information	Form B-15
27.	Undertaking for Downloaded Bidding Documents	Form B-16
28.	Form of Certificate confirming downloading of all Bidding Documents, Corrigendum and Addendum	Form B-17
29.	Form of Declaration for non-engagement of any agent, middleman or intermediary	Form B-18
30.	Form of certificate confirming careful examination of all the contents of Bidding Documents and signing of all pages of Bidder's proposal	Form-B-19
31.	Undertaking for passing on benefits of exemptions to Maharashtra Metro Rail Corporation Limited and for adjustment of amounts due from balance due	Form-B-20
32.	Undertaking for obtaining registrations under various fiscal and labour laws	Form-B-21
33.	Bid Index	Form-B-22
34.	Submission of Details of Proposed Personnel for the works	Form-B-23
35.	Copy of Labour licenses (If applicable)	

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(NAVI MUMBAI METRO RAIL LINE-1 PROJECT)

BID DOCUMENTS

FOR

Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable upto further 1 Year.

TENDER NO. NM1/E&M-05/2026

SECTION 9: FINANCIAL BID



Maharashtra Metro Rail Corporation Limited

Metro Bhawan, East High Court Road (VIP Road),

Near Dikshabhoomi, Ramdaspeth, Nagpur-440010,

Maharashtra, INDIA

Website: www.metrorailnagpur.com

SECTION 9: FINANCIAL BID

Name of Work: Annual Maintenance Contract of E&M, Traction & PSI for 11 Stations, One Depot and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Years extendable upto further 1 Year

TENDER NO. NM1/E&M-05/2026

Preamble

1.	Bill of Quantities consist of 2 Parts & 3 schedules each. Part A consist of E&M & UPS. i. Schedule 1: Preventive and Corrective Maintenance of Electrical Systems, AMC & Rate Contracts for Critical E&M Systems & Supply of Essential Materials, Spares and Consumables as required. ii. Schedule 2: Certification of Fire NOC & Form B, Incidental spares for maintenance iii. Schedule 3: Preventive and Corrective Maintenance of UPS. iv. Schedule 4: Breakdown in any equipment which is not covered above if any (Charges for incidental & unforeseen items) PART B consist of OHE & PSI. i. Schedule 1: Preventive Maintenance for OHE & PSI ii. Schedule 2: Miscellaneous & consumable items including small tools etc. for OHE iii. Schedule 3: Preventive Maintenance for Power Supply (RSS. ASS & Switching Post) & Breakdown Maintenance activities. iv. Schedule 4: Miscellaneous & consumable items including small tools etc. for PSI.
2.	The Bill of Quantities shall be read in conjunction with the Instructions to Bidders (ITB), Work's Requirement, Scope of Work, Conditions of Contract, Notice Inviting Tender, Annexures and Addendums.
3.	Schedule "1" to "4" of both parts A & B consist of BOQ items to be executed. The Bidder has to quote in summery sheet of financial bid against the estimated amount of respective schedules & arrive at the final amount of respective of respective schedules. The total of four schedules as mentioned above i.e. "1" to "4" of Part A & B filled up by the bidder in summery sheet of financial bid shall be treated as total price quoted by the bidder for the evaluation purpose. The lowest sum of all schedule of eligible financial bid may be considered as lowest for evaluation.

4.	If the bidder fails to quote rates against any schedule, quote for that schedule/Annexure will be treated as “Quoted at-Par”.
5.	The Contractor may raise their ‘On Account’ bills on monthly basis as per status of work on the last day of respective calendar month.
6.	The quantity mentioned in BOQ may vary (Increase or decrease) according to requirement. Due to such variation in quantity, the total estimate value is liable to change. The payment for such variation will be adjusted time to time and contract value may be revised. (Increase or decrease)
7.	Decrease in quantity of individual items up to any extend due to requirement of work shall not form ground for extra claim on this account.
8.	The quantities of item shown in each schedule are approximate and liable to vary during the actual execution of the work. The contractor shall be bound to carry out and complete the stipulated work, irrespective of the variation in individual items, specified in the schedule.
9.	After award of Contract, the Contractor may enter into AMC with OEMs subject to approval from Maha-Metro. However, payment will be done in accordance with items detailed in the Financial Bid.
10.	Contractor shall arrange the required Tools, Consumables, Hardware Items, and PPEs & Uniform at his own cost for maintenance works. Tools required shall be procured by the contractor as per the site requirement from standard supplier (pre-approved vendor) from the list given by Maha-Metro from time to time for CM & PM. At the time of submission of Financial Bid, Bidder shall quote for above said items against Overhead Charges.
11.	The bidder has to quote in BOQ & Summary sheet of financial bid section on e-Tender Portal. The Bidder shall quote against every box in the above Schedules.
12.	The quantities given in the" Bill of Quantities" are estimated and provisional and are given to provide a common basis for Bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer in charge and valued at the rates in the accepted priced "Bill of Quantities", wherever applicable.
13.	The bidder should quote his rate only in the Summary sheet of Finance Bid provided in the Commercial/ Price Envelope section of the E-Tender Portal of Maha-Metro and nowhere else in the submission.
14.	The whole cost of complying with the provisions of the Contract/ scope of work shall be deemed to have been included in the quoted rates. The rates quotes shall also include all administrative expenses and costs including the cost towards Project leader, profits, overheads and expenditure towards other provisions like insurance etc.

15.	Errors will be corrected by the Employer for any arithmetical errors in computation or summation
16.	The Bidder's offer shall be inclusive of all taxes, duties and charges payable by them. Income Tax and any other statutory taxes to be deducted at source, if any, will be deducted by the Employer in accordance with the Income Tax Act and any other acts in force and in accordance with instructions issued by the Authorities in this regard from time to time.
17.	Rate quoted by bidder shall be inclusive of GST as per prevailing rate at the base date (i.e. 28 days prior to the final date of submission of bid). Any changes in rate of GST or any other taxes during the execution of the work shall be adjusted both ways.
18.	Employer reserves the right to omit /off load/ partially execute any items in any of the Schedules/Annexures during Contract Period without any liability to either party.
19.	TDS towards GST etc. leviable under the application of law shall be deducted by Maha-Metro at the time of payment towards this work. Details of taxes deducted/Tax deduction certificate at the source shall be issues to contractor as per standard practices.
20.	The Bidder shall ensure the prices quoted by them are sufficient for payment of statutory compliance and minimum wages to their staff, while maintaining a positive cash flow. If it is found any bidder, that the quoted price makes the performance of contract unviable financially, Maha-Metro shall have right to declare the said bidder as unresponsive and their Bid offer will not be considered for further evaluation.
21.	In the Financial Section of Maha-Tenders portal, Bidder shall upload a scanned copy of the Financial Bid filled manually and also upload the filled Financial Bid excel sheet. In case of discrepancy in values between these two, the values in scanned copy of the Financial Bid filled manually, will prevail.
22.	The contract period shall for a period of Three (3) Year from the date of commencement (i.e. 17.11.2026) as per issuance of LOA & may be extended for a further period of one (1) year. The cost for an extended period of 1 year shall be the cost of 3rd year + escalation @5% p.a. The Annual Maintenance Contract (AMC) for the OHE, PSI & SCADA systems shall commence on 17.11.2026 and AMC for the Electrical & Mechanical (E&M) systems shall commence on 01.04.2027.

ABSTRACT OF SCHEDULES (BID TOTAL)

Summary Sheet of Financial Bid				
Annual Maintenance Contract of E&M, OHE, PSI for "11 Stations, One Depots and 2 RSS" of Navi Mumbai Metro Line-1 for 3 Year extendable upto further 1 Year.				
S.No.	**Description of Works**	**Estimated Amount (₹) incl. GST**	**Quoted Percentage % (Above (+) / Below (-) / At Par)**	**Quoted Amount in INR (incl. all taxes)**
Part A: E&M				
Schedule 1	Schedule I: Preventive & Corrective Maintenance of Various E&M System	83,47,226.56		
Schedule 2	Certification of Fire NOC & Form B, LUMPSUM Items	25,53,824.58		
Schedule 3	UPS Maintenance	18,16,322.08		
Schedule 4	Breakdown in any equipment which is not covered above if any (Charges for incidental & unforeseen items)	17,70,000.00		
	Sub Total E&M	**1,44,87,373.22**		
Part B: OHE & PSI				
Schedule 1	Preventive Maintenance for OHE (FOCS)	39,48,296.09		
Schedule 2	Miscellaneous & consumable items including small tools etc. for OHE	2,36,000.00		
Schedule 3	Preventive Maintenance for Power Supply (RSS. ASS & Switching Post) & Breakdown Maintenance activities	1,96,56,377.66		
Schedule 4	Miscellaneous & consumable items including small tools etc. for PSI	17,70,000.00		
	Sub Total OHE & PSI	**2,56,10,673.75**		
	Total including GST (Part A & B) for 1st Year	**4,00,98,046.97**		
	Total including GST (Part A & B) for 2nd Year with Escalation @ 5 % Per annum	**4,21,02,949.32**		
	Total including GST (Part A & B) for 3rd Year with Escalation @ 5 % Per annum	**4,42,08,096.78**		
	Total including GST (Part A & B) for 3 Year	**12,64,09,093.07**		

Part A: Schedule I: PREVENTIVE & CORRECTIVE MAINTENANCE OF VARIOUS E&M SYSTEM

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A.1	**PREVENTIVE AND CORRECTIVE MAINTENECE OF DIESEL GENERATOR**				
A.1.1	Total 3 **Preventive Maintenance Service Visits in a Year covering 1 Wet service (Including Consumables) and 3 Dry Service (Covering Check-ups and Adjustments)** PM will cover **Engine** Checks, Alternator**:** Visual inspection and AVR settings check for abnormalities, **Control Panel:** Visual inspection for any irregularities, **Battery:** Visual inspection & check for abnormalities, battery charging if required. This includes Unlimited breakdown discovery visits for any breakdown complaints Following Units are covered. etc				
	380 kVA Kirloskar Make (11 nos Station)	Nos	11	59,000.00	6,49,000.00
A.1.2	Total **4 Preventive Maintenance Service Visits in a Year covering 1 Wet service (Including Consumables) and 3 Dry Service (Covering Check-ups and Adjustments)** PM will cover **Engine** Checks, Alternator**:** Visual inspection and AVR settings check for abnormalities, **Control Panel:** Visual inspection for any irregularities, **Battery:** Visual inspection & check for abnormalities, battery charging if required. This includes Unlimited breakdown discovery visits for any breakdown complaints Following Units are covered. etc				
	650 kVA Cummins Make (Depot)	Nos	3	2,10,331.46	6,30,994.38
TOTAL COST FOR MAINTENECE AND MATERIAL SUPPLY FOR DIESEL GENERATOR (EXCLUSIVE OF GST)					**12,79,994.38**
A2	**Schedule 1.1 PREVENTIVE MAINTENECE**				

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A2.1	**MONTHLY** maintenance of set of Fire Pumps & accessories As per Maha-Metro maintenance checklist i.e Automation check as per pressure settings, Tightness of pump couplings, Foundation bolts, Check pump currents/voltage etc. [11 Stations - 11 Set & One Depots (2 Set), TOTAL- 13 Set]	Per Schedule	130	983.37	1,27,838.10
A2.2	**HALF YEARLY** maintenance of Fire Pump, Butterfly Valves and other valves set of Fire Pumps & accessories. As per Maha-Metro maintenance checklist i.e Alignment of pump coupling, Cleaning of Y-stainer, check motor terminals, Check motor cooling fan blades, [11 Stations - 11 Set & One Depots (2 Set), TOTAL- 13 Set]	Per Schedule	26	3,496.45	90,907.70
A2.3	**QUARTERLY** maintenance of set of FHCs and Yard hydrants. As per Maha-Metro maintenance checklist i.e. Greasing of hose reel drum, check operation of YH & arrest leakage if any, Operation of Valves, Check availability of all accessories etc [11 Stations - 11 Set & One Depots (2 Set), TOTAL- 13 Set]	Per Schedule	52	2,840.86	1,47,724.72
A2.4	**QUARTERLY** maintenance of set of Fire Extinguishers As per Maha-Metro maintenance checklist i.e. Measure weight, check pressure, Inspect hose pipes etc [5 Stations - 11 Set & One Depots (5 Set), TOTAL- 16 Set]	Per Schedule	64	1,893.91	1,21,210.24
A.2.5	Maintenance of Addressable type Fire detection & alarm system (FACP, Repeater Panel, Smoke/heat/ multi criterion detectors, MCP. Hooter cum flasher, RI, 12V- 26 AH battery of FACP complete circuit wiring for sensor and other associated	Per Schedule	8	8850.00	70,800.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	components complete etc as required.) installed at 2 nos **e**levated Metro stations. This Includes **QUARTERLY** 4 Nos of Preventive Maintenance and UNLIMITED Breakdown Calls. For system of 4 Loop Panel, Repeater Driver Board, Communication Board, Batteries & Battery Charger., Amplifier card, Provision for interfacing with other systems such as SCADA / BMS with all required Hardware & Software Make- Morley by Honeywell -2 Nos (Central Park & Pethpada) Preventive Maintenance Includes Preventive maintenance of the Fire Alarm Control Panel (FACP), loop cards, power supply modules. Testing and calibration of all connected devices: Smoke detectors, Heat detector, MCPs (Manual Call Points),Hooter/sounders, Interface modules (Monitor/Control modules/Isolator Module),Battery health check and voltage reading, Software diagnostic using Notifier programming tools, Loop integrity check, Logging all events and faults during maintenance. Reprogramming if required due to minor configuration changes.Submission of detailed service reports.				
A.2.6	Maintenance of Addressable type Fire detection & alarm system (FACP, Repeater Panel, Smoke/heat/ multi criterion detectors, MCP. Hooter cum flasher, RI, 12V- 26 AH battery of FACP complete circuit wiring for sensor and other associated components complete etc as required.) installed at one **e**levated Metro stations. This Includes **QUARTERLY** 4 Nos of Preventive Maintenance and UNLIMITED Breakdown Calls. For System with 4 Loop Panel, Repeater Driver Board, Communication Board, Batteries & Battery Charger., Amplifier card, Provision for interfacing with other systems such as SCADA / BMS with all required Hardware & SoftwareMake- Simplex- 1 (Pethali-Taloja)Preventive Maintenance Includes Preventive maintenance of the Fire Alarm Control Panel (FACP), loop cards, power supply modules.Testing and calibration of all connected devices: Smoke detectors,	Per Schedule	4	8850.00	35,400.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	Heat detector ,MCPs (Manual Call Points),Hooter/sounders, Interface modules (Monitor/Control modules/Isolator Module),Battery health check and voltage reading, Software diagnostic using Notifier programming tools, Loop integrity check, Logging all events and faults during maintenance. Reprogramming if required due to minor configuration changes.Submission of detailed service reports.				
A.2.7	Annual Maintenance contract of intelligent addressable fire detection & alarm system (**Notifier Make**) installed at Depot, comprising microprocessor based intelligent analog addressable automatic fire alarm control panel, loop cards, multi criterion detectors, smoke detectors, addressable heat detectors, manual call points, electronic sounders, monitor modules, relay modules, control modules, fault isolator modules, response indicators , network repeater panels, graphic software, DNR, power supply ,monitor, CPU, UPS, complete circuit wiring for sensor and other associated components complete etc as required. This Includes **QUARTERLY** 4 Nos of Preventive Maintenance and UNLIMITED Breakdown Calls For system 8 Loop Panel, Repeater Driver Board, Communication Board, Software & Graphics, , Batteries & Battery Charger., Amplifier card, With interfacing with other systems such as SCADA / BMS with all required Hardware & Software Make - Notifier, Total - 4 Nos Depots Preventive Maintenance Includes Preventive maintenance of the Fire Alarm Control Panel (FACP), loop cards, power supply modules. Testing and calibration of all connected devices: Smoke detectors, Heat detector ,MCPs (Manual Call Points),Hooter/sounders, Interface modules (Monitor/Control modules),Battery health check and voltage reading, Software diagnostic using Notifier programming tools, Loop integrity check, Logging all events and faults during maintenance. Reprogramming if required due to minor configuration changes. Submission of detailed service reports.	Per Schedule	16	8850.00	1,41,600.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A.2.8	Annual Maintenance contract of intelligent addressable fire detection & alarm system (**Notifier Make**) installed at Amandoot & Pendhar Station , comprising microprocessor based intelligent analog addressable automatic fire alarm control panel, loop cards, multi criterion detectors, smoke detectors, addressable heat detectors, manual call points, electronic sounders, monitor modules, relay modules, control modules, fault isolator modules, response indicators , network repeater panels, graphic software, DNR, power supply ,monitor, CPU, UPS, complete circuit wiring for sensor and other associated components complete etc as required. This Includes **QUARTERLY** 4 Nos of Preventive Maintenance and UNLIMITED Breakdown Calls For system 8 Loop Panel, Repeater Driver Board, Communication Board, Software & Graphics, , Batteries & Battery Charger., Amplifier card, With interfacing with other systems such as SCADA / BMS with all required Hardware & Software Make - Notifier, Total - 8 Nos (Belapur, RBI Colony, Belpada, Utsav Chowk, Kendriya Vihar, Kharghar Village ,Amandodot & Pendhar Station) Preventive Maintenance Includes Preventive maintenance of the Fire Alarm Control Panel (FACP), loop cards, power supply modules. Testing and calibration of all connected devices: Smoke detectors, Heat detector , MCPs (Manual Call Points),Hooter/sounders, Interface modules (Monitor/Control modules),Battery health check and voltage reading, Software diagnostic using Notifier programming tools, Loop integrity check, Logging all events and faults during maintenance. Reprogramming if required due to minor configuration changes. Submission of detailed service reports.	Per Schedule	32	8850.00	2,83,200.00
A2.9	Maintenance of Addressable type Fire detection & alarm system (FACP, Repeater Panel, Smoke/heat/ multi criterion detectors, MCP. Hooter cum flasher, RI, 12V- 26 AH battery of FACP complete circuit wiring for sensor and other associated components complete etc as required.) installed at 2 nos **e**levated Metro stations.	Per Schedule	8	8850.00	70,800.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	This Includes **QUARTERLY** 4 Nos of Preventive Maintenance and UNLIMITED Breakdown Calls. For system of 4 Loop Panel, Repeater Driver Board, Communication Board, Batteries & Battery Charger., Amplifier card, Provision for interfacing with other systems such as SCADA / BMS with all required Hardware & Software Make- Morley by Honeywell -2 Nos Receiving Sub Station (Panchanand & Kharghar) Preventive Maintenance Includes Preventive maintenance of the Fire Alarm Control Panel (FACP), loop cards, power supply modules. Testing and calibration of all connected devices: Smoke detectors, Heat detector, MCPs (Manual Call Points),Hooter/sounders, Interface modules (Monitor/Control modules/Isolator Module),Battery health check and voltage reading, Software diagnostic using Notifier programming tools, Loop integrity check, Logging all events and faults during maintenance. Reprogramming if required due to minor configuration changes.Submission of detailed service reports.				
A2.10	Rectification of Air trapping or Free rotation problems in fire pumps	Nos	12	710.22	8,522.64
A2.11	Replacement of coupling between motor and pump	Nos	6	2,840.87	17,045.22
A2.12	Resolve fire pump tripping/automation issue	Nos	24	710.22	17,045.28
A2.13	Painting of Fire pipes & risers	Mtrs	200	69.93	13,986.00
A2.14	Repair/Replacement of Yard hydrant valve, NRV, four-way fire brigade inlet valve, Butterfly valve	Nos	20	568.17	11,363.40
A2.15	Rectification of door/internal alignment of Yard hydrant cabinet box and Fire Hose cabinet .	Nos	40	568.17	22,726.80

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A2.16	Re-painting of Yard hydrant cabinet box and other associated accessories.	Nos	40	349.65	13,986.00
A2.17	Re-painting of fire buckets and other associated accessories.	Nos	40	174.84	6,993.60
A2.18	Rectification/Replacement of expansion bellows, Pressure Guage, Connector terminals, Air release valve, Ball valve, Y-stainer fil ter net, Pressure Switch	Nos	30	568.16	17,044.80
A2.19	Leakage rectification of hydrant line including welding	Nos	30	568.17	17,045.10
A2.20	Re-fixing of hanging clamp of fire extinguishers	Nos	40	142.05	5,682.00
A2.21	Re-painting of Fire Extinguishers and other associated accessories.	Nos	1	227.25	227.25
A2.22	Repairing or replacing extinguishers accessories	Nos	1	284.09	284.09
A2.23	Removal & Reinstallation of Pumps for Fire hydrant and sprinkler	Nos	1	8,304.08	8,304.08
A2.24	Removal & Reinstallation of Jockey pump for Hydrant System and Sprinkler	Nos	1	4,152.04	4,152.04
A2.25	Replace fire survival cable in case of any damage	Mtr	40	148.60	5,944.00
A2.26	Supply, Charging of Nitrogen gas for one Cylinder trace tube laid in panel as per site conditions and relevant code practice (incl Transportation of Nitrogen Cylinder) including gas supply. Gas must withhold at least for 1 month after successful charging.	Nos	60	768.89	46,133.40
A2.27	Refilling & HTP testing of 2.5 LBS Cylinder Clean Agent FK 5112 system (With test certificate) as per site conditions	Nos	4	4,739.50	18,958.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A2.28	Refilling & HTP testing of 5 LBS Cylinder Clean Agent FK 5112 system (With test certificate) as per site conditions	Nos	4	8,211.08	32,844.32
A2.29	Refilling & HTP testing of 10 LBS Cylinder Clean Agent FK 5112 system (With test certificate) as per site conditions	Nos	2	14,599.28	29,198.56
A2.30	Supply, Installation of pressure gauge (Make-Rotarex,Firetec or similar) as per site conditions and relevant code practice	Nos	6	760.52	4,563.12
A2.31	Supply, Installation of pressure switch as per site conditions and relevant code practice	Nos	6	2,647.63	15,885.78
A2.32	Supply, Installation of Cylinder Valve as per site conditions and relevant code practice	Nos	6	2,280.69	13,684.14
A2.33	Supply, Installation of Straight Connector as per site conditions and relevant code practice. Work of Tube Replacement would be carried out in Non-Revenue Hours 01.00 to 04.00 Hrs	Nos	10	138.28	1,382.80
A2.34	Supply, Installation of T Type Connector as per site conditions and relevant code practice. Work of Tube Replacement would be carried out in Non-Revenue Hours 01.00 to 04.00 Hrs	Nos	10	448.52	4,485.20
A2.35	Supply, Installation of End Plug as per site conditions and relevant code practice Work of Tube Replacement would be carried out in Non-Revenue Hours 01.00 to 04.00 Hrs	Nos	10	352.41	3,524.10

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A2.36	Supply, Installation, Testing Commissioning of End Line Adapter as per site conditions and relevant code practice	Nos	6	1,611.24	9,667.44
A2.37	Supply & Installation of Fire Trace Tube (Make: Fire Trace,Rotarex, SEVO etc.) as per site condition and UL & FM certified relevant code of practice.	Mtr	50	594.86	29,743.00
A2.38	Supply, Installation, Testing, Commissioning of Master Control Unit with inbuilt hooter, as per site condition and UL & FM certified relevant code of practice.	Nos	4	5,170.02	20,680.08
B.2	**MATERIAL SUPPLY FOR FIRE FIGHETING & FIRE DETECTION SYSTEM**				
B. 2.1	**Fire Extinguisher CO2 Gas type of 4.5 Kg capacity conforming to IS:2878/15683**				
B. 2.1.1	Handle with PVC grip	Nos	20	87.89	1,757.80
B. 2.1.2	Horn	Nos	20	113.00	2,260.00
B. 2.1.3	Safety Clip with holder assembly (metal)	Nos	20	37.67	753.40
B. 2.1.4	Painting of cylinder	Nos	20	94.16	1,883.20
B. 2.1.5	Control valve of Extinguishers	Nos	20	767.25	15,345.00
B. 2.1.6	Discharge Pipe	Nos	20	209.25	4,185.00
B. 2.2	**Fire Extinguisher ABC/DCP 5/6 Kg capacity conforming to IS:2171**				
B. 2.2.1	squeeze grip Assembly Valve	Nos	20	244.13	4,882.60

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B. 2.2.2	Pressure Gouge	Nos	20	125.55	2,511.00
B. 2.2.3	Hose with nozzle	Nos	20	153.45	3,069.00
B. 2.2.4	Painting of cylinder	Nos	20	94.16	1,883.20
B. 2.3	Supplying and erecting 75/80 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	4	4,140.93	16,563.72
B. 2.4	Supplying and erecting 100 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	4	5,361.21	21,444.84
B. 2.5	Supplying and erecting 150 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	4	8,231.11	32,924.44
B. 2.6	Supplying and erecting 200 mm dia. cast iron double flange butterfly valve of size complete with PN16 pressure rating, as per specification no. FF-VL/BFV	Each	2	12,764.92	25,529.84
B. 2.7	Supplying and erecting 75/80 mm dia cast iron double flange NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	4	7,990.44	31,961.76
B. 2.8	Supplying and erecting 150 mm dia cast iron double flange NRV complete with PN16 pressure rating, as per specification no. FF-VL/NRV	Each	2	17,551.12	35,102.24
B. 2.9	Supplying and erecting stainless steel single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	Each	2	7,544.21	15,088.42

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B. 2.10	Supplying and installing wall mounting swinging hose reel drum fitted with 19 mm dia. 30m long high pressure polypropylene (Polyhose) along with necessary accessories complete as per specification no. FF-FFA/HV	Each	2	9,003.87	18,007.74
B. 2.11	Supplying and erecting 63mm dia, controlled percolation (C.P.) hose pipe, 15m in length, fitted with necessary accessories complete as per specification no. FF-FFA/CPH	Each	2	5,143.96	10,287.92
B. 2.12	Supplying and erecting 150 mm dia fire brigade header suitable for supplying water in fire tank complete as per specification no. FF-FA/FBC	Each	2	12,331.71	24,663.42
B. 2.13	Supplying and erecting 100 mm dia. pressure gauge, 0-300 PSI or 0-14 kg per cm square fitted with 12/15 mm dia. pad cock valve, erected with provided G.I. pipe, elbow etc. complete as per specification no. FF-FFA/PG	Each	6	939.29	5,635.74
B. 2.14	Supplying and erecting 12/15 mm Dia pressure switch with provided isolation valve, G.I. nipple, elbow, etc complete as per specification no. FF-FFA/PS	Each	2	2,293.58	4,587.16
B. 2.15	Supplying, installing, testing and commissioning of intelligent addressable thermal/ heat detector with rate of rise cum fixed temperature thermistor complete with base as required, suitable for temperature variations from - 20°C to 38 °C for fixed-heat and rate-of-rise type detectors whereas 0°C to 90°C for high heat type detectors, in built isolation mode, suitable for industrial/ kitchen/ boiler room etc. with 3 years equipment replacement warranty, IS : 2175-1988 reaffirmed 2000, IS 15908:2021 standards FF-AFAS/SD	Each	50	3,663.48	1,83,174.00
B. 2.16	Supplying, installing, testing and commissioning of addressable manual call points (break glass type/pull station type), made of addressable break glass plastic square	Each	6	4,650.90	27,905.40

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	in shape surface/flush mounted with "Break Glass" massage embedded on the glass, complete erected with mounting base and required accessories conforming to EN 54 or UL listed with 3 years equipment replacement warranty FF-AFAS/MCP				
B. 2.17	Supplying, installing, testing and commissioning of addressable fire control/relay module complete as required, with 3 years equipment replacement warranty conforming to IS 5051Part 2 (Sec 1 to 3) : 1982 reed relays, EN 54 or UL Listed FF-AFAS/CRM	Each	8	4,911.09	39,288.72
B. 2.18	Supplying, installing, testing and commissioning of addressable fire monitor module complete as required. EN 54 or UL Listed with 3 years equipment replacement warranty conforming to IS 5051Part 2 (Sec 1 to 3) : 1982 Reed relays FF-AFAS/MM	Each	8	4,839.53	38,716.24
B. 2.19	Supplying, installing, testing and commissioning of addressable fire isolator module complete as required. EN 54 /FM or UL Listed with 3 years equipment replacement warranty conforming to IS 5051Part 2 (Sec 1 to 3) : 1982 Reed relays FF-AFAS/ISM	Each	8	3,969.20	31,753.60
B. 2.20	Supplying, installation, testing & commissioning of response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required	Each	24	359.06	8,617.44
B. 2.21	Supplying, installing, testing and commissioning of addressable horn cum strobe sound/ hooter, output frequency 500 to 1000 Hz with dB as per Chart given in IS 15908:2021, with flashing at 1 Hz over the strobe's entire operating voltage range EN 54, conforming to IS 2189: 2008, IS 15908:2021 standards with 3 years equipment replacement warranty FF-AFAS/SSH	Each	6	10,183.84	61,103.04

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B. 2.22	Supplying and erecting acrylic sheet 2 mm thick for covering wall entries including cutting, drilling and fixing with nut bolts / screws etc. complete.	m2	50	1,528.62	76,431.00
B. 2.23	Supply, Installation, Testing & Commissioning of Signal Initiating (Intelligent Analogue Addressable) devices complete with Detector Base etc. as per Specifications.				
B. 2.23.1	Intelligent Addressable Multi Sensor Smoke Detector.	Nos	20	4,891.10	97,822.00
	A.2 & B2 TOTAL COST FOR MAINTENECE AND MATERIAL SUPPLY FOR FIRE DETECTION AND FIRE FIGHTING (EXCLUSIVE OF GST)				**23,35,721.88**
A.3	**PREVENTIVE AND CORRECTIVE MAINTENECE OF HVAC system**				
A.3.1	Routine **QUARTERLY** maintenance of HVAC Split IDU & ODU As per Maha-Metro maintenance checklist i.e. Wet cleaning of evaporator & condenser coils, Cleaning of drain tray, Current/Voltage readings, check thermostat working etc	Per Schedule	1	1,890.66	1,890.66
A.3.2	Routine **QUARTERLY** maintenance of VRV IDUs, ODUS & Split AC's As per Maha-Metro maintenance checklist i.e. Wet cleaning of IDU & ODU coils, Current/Voltage readings, check thermostat working etc.	Per Schedule	1	2,763.27	2,763.27
A.3.3	Routine **HALF YEARLY** maintenance of VRV IDUs & ODU & Split Acs. As per Maha-Metro maintenance checklist i.e. Check availability of refrigerant, clean drain tray and pipe of each IDU, Inspect compressors for any abnormality etc.	Per Schedule	1	5,235.66	5,235.66
A.3.4	VRV system cooling issue rectification, VRV system communication issue rectification	Each	1	799.53	799.53

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A.3.5	VRV's IDU /Split AC's IDU filter replacement	Each	1	378.50	378.50
A.3.6	Attend VRV/Split AC Drain line choke up issue rectification/Spilt AC indoor unit water leakage rectification, VRV IDU drain t ray repairing/replacement	Each	1	708.99	708.99
A.3.7	Split AC capacitor, Contactor replacement	Each	1	567.20	567.20
A.3.8	Leakage identification, Pipe brazing & Gas refilling if required	Each	1	1,963.38	1,963.38
A.3.9	Replacement of Fan bearing	Each	1	1,600.15	1,600.15
A.3.10	Replacement of PCB cards for ODU's & IDU's	Each	1	3,490.44	3,490.44
A.3.11	Replacement Compressor and other capital equipments.	Each	1	6,980.88	6,980.88
A.3.12	Replacement of sensor in IDU's & ODU's	Each	1	785.35	785.35
A.3.13	Replacement of IDU accessories Blower motor/Drain pumps/Blower/Coils Etc for IDU	Each	1	1,308.92	1,308.92
A.3.14	Comprehensive Annual Maintenance Contract - Split AC Unit (Inverter) - Non-Toshiba/Carrier at Stations, Depot & 2 nos RSS	Tr	50	4,071.00	2,03,550.00
	TOTAL COST FOR MAINTENECE AND MATERIAL SUPPLY FOR HVAC System (EXCLUSIVE OF GST)				**2,32,022.93**
A. 4	**PREVENTIVE AND CORRECTIVE MAINTENECE OF Domestic, Seepage, Sewage Pumps**				

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A. 4.1	Routine Monthly maintenance of Domestic, Sump & Sewage Pumps As per Maha-Metro maintenance checklist i.e., Coupling tightness, Leakage arrest, Stainer Cleaning, Pump automation testing, Earthing Tightness, Float inspection11 Nos of Elevated Stations (1 Set/Station), One Depots (2 Set/Depot), 2 nos RSS (1 set/RSS)-TOTAL- 15 Set	Per Schedule	180	1,893.91	3,40,903.80
A. 4.2	Rewinding of electric motor up to 1 H.P. single phase up to 1400 RPM of all types, makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. testing for the original speed and no load consumption with guarantee for one year i.e. Single Phase Tullu pumps	Nos	2	1,539.03	3,078.06
A. 4.3	Rewinding of electric motor up to 1 H.P. three phase up to 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no load consumption with guarantee for one year i.e. Domestic Pump	Nos	2	1,969.64	3,939.28
A. 4.4	Rewinding of electric motor above 1 HP up to 2 H.P. three phase up to 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no-load consumption with guarantee for one year i.e. Domestic Pumps	Nos	2	2,287.08	4,574.16
A. 4.5	Rewinding of electric motor above 2 H.P. up to 3 H.P. three phase up to 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no-load consumption with guarantee for one year i.e. Domestic pump Motors	Nos	2	2,669.55	5,339.10

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A. 4.6	Rewinding of electric motor above 3 H. P. up to 5 H.P. three phase up to 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no-load consumption with guarantee for one year i.e. Seepage Pumps	Nos	4	4,332.17	17,328.68
A. 4.7	Rewinding of electric motor above 5 H.P. up to 7.5 H.P. three phase up to 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no-load consumption with guarantee for one year i.e. Sump pump & Sewage Pumps	Nos	2	5,186.89	10,373.78
A. 4.8	Rewinding of electric motor above 7.5 H.P. upto 10 H.P. three phase up to 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. testing for the original speed and no-load consumption with guarantee for one year i.e. Jockey Pump Motors	Nos	2	6,144.39	12,288.78
A. 4.9	Rewinding of electric motor above 10 H.P. up to 12.5 H.P. three phase up to 1400 RPM of all types and makes with copper wire, overhauling with minor repairs, lubricating of ball bearings & bush bearing, and replacing screws etc. Testing for the original speed and no load consumption with guarantee for one year i.e. Seepage Pumps in UG stations	Nos	2	6,280.99	12,561.98
A. 4.12	Rewinding the motor of table / pedestal / wall bracket / cabin fans of all type and makes including minor repairs lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. Testing for original speed and consumption with guarantee for 1 year including transportation from site and back	Job	2	659.58	1,319.16

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A. 4.13	Rewinding the motor of the ceiling fan 1200 mm / 1400 mm of all types , makes and over hauling including minor repairs lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year	Job	2	718.12	1,436.24
A. 4.14	Rewinding the motor of the Exhaust fan 900 / 1400 RPM 300 mm of all types, makes and over hauling including minor repairs, lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year	Job	2	718.12	1,436.24
A. 4.15	Rewinding the motor of the Exhaust fan 900/1400 RPM 450 mm of all types, makes and over hauling including minor repairs, lubricating of ball bearings & bush bearing, and replacing condenser, screws etc. & testing for original speed and consumption with guarantee for one year	Job	3	1,222.89	3,668.67
A. 4.16	Comprehensive Annual Maintenance of fountain type drinking water cooler				
A. 4.16.1	Annual Compressive Maintenance -UV Commercial Filter 120 LPH	Nos	11	5,985.30	65,838.30
A. 4.16.2	Annual Comprehensive -OASIS Fountain type Water Cooler	Nos	11	43,640.31	4,80,043.41
	TOTAL COST FOR MAINTENECE AND MATERIAL SUPPLY FOR Domestic, Seepage, Sewage Pumps System (EXCLUSIVE OF GST)				**9,64,129.64**
A 5	**PREVENTIVE AND CORRECTIVE MAINTENECE OF LT Panel & DBs**				
A. 5.1	Routine Yearly maintenance of LT panels As per Maha-Metro maintenance checklist i.e interlock for incomers, Operation of breakers, Manual Spring charge, cleaning	Per Schedule	13	1,748.23	22,726.99

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	breaker contact, Tightness of busbar etc of all LT panels of stations 11 Nos of Elevated Stations (1 Set/Station), One Depots (2 set), TOTAL- 13 set				
A. 5.2	Routine Yearly earth value measurements & and value marking & maintenance of Isolators & cleaning of DB's As per Maha-Metro maintenance checklist. i.e Checking earth values of MET, CETs, Corrective action if values are abnormal, Values marking, DB Tightness, Healthiness of indicators off all DBs and LT Panel at Stations 11 Nos of Elevated Stations (1 Set/Station), One Depots (2 Set/Depot), TOTAL- 13 Set	Per Schedule	13	3,059.40	39,772.20
A. 5.3	Preventive maintenance of High mast Half Yearly As per Maha-Metro maintenance checklist. i.e Greasing of chains, Greasing of Motor Gears, Replacing faulty lights, Healthiness of rope High mast TOTAL-13 Nos	Per Schedule	24	947.89	22,749.36
A. 5.4	Replacement of closing, shunt, undervoltage coils of ACB, MCCB	Nos	14	983.38	13,767.32
A. 5.5	Rectify automation issues, including control wire issue rectification, Reconnect/ Replacing neutral links (MDB, EPP, ATS etc.)	Nos	14	655.58	9,178.12
A. 5.6	Rectify fault & replace equipments inside panel (Ex MCB, Contactors, Timers, Relays, LVM, MFM, Voltmeters)	Nos	20	786.71	15,734.20
A. 5.7	Reconnecting the power cables by fixing new Lugs.	Nos	14	1,136.35	15,908.90
A. 5.8	Rectifying ACB fault & including replacement of ACB/Major Internal equipments of ACB if required	Nos	20	1,420.44	28,408.80

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
A. 5.9	Rectifying MCCB fault & Replacement of MCCB Below 125 Amps.	Nos	20	1,136.35	22,727.00
A. 5.10	Rectifying MCCB fault & Replacement of MCCB above 125 Amps.	Nos	20	1,748.23	34,964.60
A. 5.11	Replacement of CT's	Nos	8	786.71	6,293.68
A. 5.12	Replacement of Panel Lights/Heater/Sensor/Door lockers Hinges/Rotary knobs etc	Nos	10	393.35	3,933.50
A. 5.13	Replace isolator in case of any fault.	Nos	10	786.71	7,867.10
A. 5.14	Replacement of faulty equipment inside DBs or isolator (Ex. RCCB, MCB, Connectors, Contactor, Timers, spreader etc)	Nos	10	491.69	4,916.90
A. 5.15	Door lock replacement, Indicators replacement	Nos	20	116.91	2,338.20
A. 5.16	Laying of GI Strip & SS Strip with welding and termination including fixing of accessories	Mtr	16	65.56	1,048.96
A. 5.17	Refixing of LA spikes with accessories and connection with strips	Nos	50	655.58	32,779.00
A. 5.18	Repainting of earth strips, GI rods, Funnel	Nos	50	17.49	874.50
A. 5.19	Treatment of Earthing Pits for achieving standard earth resistance values per pit.	Nos	100	2,185.29	2,18,529.00
B.5	**MATERIAL SUPPLY FOR LT PANEL**				

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.1	Supplying and erecting 6 to 32 A, 10kA, SPMCB suitable to fix in 1 module of modular switch in provided box complete & duly concealed with necessary material and connected	Each	10	275.80	2,758.00
B 5.2	Supplying, erecting & marking SPMCB 0.5A to 5A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB	Each	10	325.24	3,252.40
B 5.3	Supplying, erecting & marking SPMCB 6A to 32A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB	Each	20	226.37	4,527.40
B 5.4	Supplying, erecting & marking DPMCB 6A to 32A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB	Each	16	696.01	11,136.16
B 5.5	Supplying, erecting & marking DPMCB 40A to 63A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB	Each	4	927.57	3,710.28
B 5.6	Supplying, erecting & marking FPMCB 6A to 32A, with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB	Each	4	1,377.71	5,510.84
B 5.7	Supplying, erecting & marking FPMCB 40A to 63A, with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB	Each	4	1,728.96	6,915.84

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.8	Supplying and erecting 16 to 32 A, 10kA, DPMCB suitable to fix in 2 module of modular switch in provided box complete & duly concealed with necessary material and connected	Each	4	307.02	1,228.08
B 5.9	Supplying, erecting & commissioning 2 pole RCCB 16/25A, electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB/RCCB	Each	14	2,716.38	38,029.32
B 5.10	Supplying, erecting & commissioning 2 pole RCCB 40A, electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB/RCCB	Each	4	2,871.20	11,484.80
B 5.11	Supplying, erecting & commissioning 4 pole RCCB 40A, electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB/RCCB	Each	2	3,470.93	6,941.86
B 5.12	Supplying and replacing thermal overload relay for motor starter suitable for up to 12.5 HP	Each	4	1,529.92	6,119.68
B 5.13	Supplying and replacing thermal over load relay for motor starter 10 H.P. to 17.5 H. P	Each	4	1,507.80	6,031.20
B 5.14	Supplying and replacing thermal over load relay for motor starter 60 H.P. to 90 H. P	Each	2	4,120.11	8,240.22
B 5.15	Supplying & replacing timer for STAR/DELTA motor starter up to 12.5 H. P	Each	2	805.29	1,610.58
B 5.16	Supplying & replacing electronic timer above 30 H.P motor starter	Each	2	1,723.76	3,447.52

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.17	Supplying & replacing contactor for DOL motor starter from 7.5 H.P. to 10 H. P	Each	2	1,376.41	2,752.82
B 5.18	Supplying and replacing contactor for motor starter suitable for 75 H.P. to 90 H. P	Each	2	21,175.56	42,351.12
B 5.19	Supplying and erecting selector switch suitable for voltmeter/ammeter for 3 phase AC supply 500V, 50Hz, on provided box / panel and duly connecting with necessary PVC wire leads and lugs	Each	4	434.52	1,738.08
B 5.20	Supplying and erecting LT current transformer with bar primary 50/5 to 1000/5 ratio with 15 VA burden erected in provided CRCA box duly secured with insulating materials connected to the meter with test certificates.	Each	2	1,336.08	2,672.16
B 5.21	Supplying & erecting LED type indicating pilot lamp with LED colours red / yellow / green, 230 / 250V on provided box / panel with necessary material, wiring & connections etc.	Each	50	322.64	16,132.00
B 5.22	Supplying & erecting LED type indicating pilot lamp with LED colour blue, 230 / 250 V on provided box / panel with necessary material, wiring & connections etc.	Each	10	460.54	4,605.40
B 5.23	Supplying and erecting modular switch with LED indicator available to connect in a switch board to glow LED when connected load is off, on provided double mounting plate complete duly erected	Each	10	157.41	1,574.10
B 5.24	Supply of surface mounted 40Watt, LED Batten, with a system lumen output of 4400 lumens and a minimum system efficacy of 120 lumen/watt. The luminaire shall have a CRI of greater than 80 with rated system lifetime of 50,000 hours at L70. (Area having no False Ceiling, ASS Room, Corridor, Pump Room, Maintenance Room,	Nos	200	594.72	1,18,944.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	Store Room etc). (40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BCLAB 40W LED)				
B 5.25	Supply of LED 2'x2' recessed fixture, (34 Watt to 40Watt) with a system lumen output of 3800 lumens at a system efficacy of 120 lumen/watt. (For false ceiling equipment room, Concourse). (40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BCLAB 40W LED).	Nos	100	1,444.32	1,44,432.00
B 5.26	Supply of highbay type 80-Watt LED Lighting Fixture. Fitting should have a aluminium pressure die cast housing with tempered glass for high transmittance. Luminaire should have system wattage of 80W with system efficacy of 120 lumens/W. It is designed to meet IP65 ensuring L70 for 50000 burning hours with PF of >0.95 with input voltage of 140-270V (for Street lighting). (80Watt LED Lighting Fixture similar to Bajaj Catalogue No. BGPPR 80W LED V2).	Nos	50	4,756.58	2,37,829.00
B 5.27	Supply of surface mounted LED type Lighting Fixture of 10Watt, LED Bulkhead with a system lumen output of 600 lumens and a system efficacy of 60 lumen/watt. The luminaire shall be IP65 and shall have a CRI of 70. The housing of luminaire is made of high pressure die cast aluminium with front cover made of polycarbonate diffuser. (For Lift Shaft, Service Shaft)	Nos	50	169.92	8,496.00
B 5.28	Supply of 18Watt, LED Downlighter with a system lumen output of 2000 lumens and a minimum system efficacy of 120 lm/W. The luminaire shall have a CRI greater than 80, lifetime of 50,000 hours at L70. Ingress Protection Classification of IP 20 (For Toilet). (18Watt LED Lighting Fixture similar to Bajaj Catalogue No. BZSLO 18W LED).	Nos	50	594.72	29,736.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.29	Supply of LED surface mounted luminaire with a system lumen output of 4000 lumens and a minimum system efficacy of 120 lm/W. The Luminaire shall be IP65 rated and shall have a life of 50k hours at L70. .(For Platform and staircase). (40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BI PC 40W LED XE)	Nos	300	2,124.00	6,37,200.00
B 5.30	LED 1120 X 13.8 mm mcpcb 144 L (Any ISI) compatible for 40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BI PC 40W LED XE)	Nos	100	849.60	84,960.00
B 5.31	36 W Driver 900 mA (Any ISI) compatible for 40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BI PC 40W LED XE)	Nos	100	531.00	53,100.00
B 5.32	Supplying Signage LED Driver 400W With Following Specification Input 100-240VAC - 3.2 A 47-63 Hz, Output +12V === 33.3A Rated Power 400W IP 67	Nos	10	6,085.26	60,852.60
	Supplying Signage LED Driver 300W With Following Specification Input 100-240VAC - 3.2 A 47-63 Hz, Output +12V === 33.3A Rated Power 300W IP 67	Nos	1	4,024.98	4,024.98
B 5.33	Supplying Signage LED Driver 200W with Following Specification, Input 100-240V 50/60Hz, Output +12V, Rated Power 200W IP 67	Nos	1	3,409.02	3,409.02
B 5.34	Supplying Signage LED Driver 150W with Following Specification, Input 100-240V 50/60Hz, Output +12V, Rated Power 150W IP 67	Nos	1	2,920.50	2,920.50

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.35	Supplying Signage LED Driver 102W with Following Specification, Input 100-240V 50/60Hz, Output +12V, Rated Power 102W IP 67	Nos	1	2,516.94	2,516.94
B 5.36	Supplying Signage LED Driver 80W with Following Specification, Input 100-240V 50/60Hz, Output +12V, Rated Power 80W IP 67	Nos	1	2,155.86	2,155.86
B 5.37	Supplying Signage LED Driver 36W with Following Specification, Input 100-240V 50/60Hz, Output +12V, Rated Power 36W IP 67	Nos	1	1,093.86	1,093.86
B 5.38	Supplying LED Strip For Signage	Mtr	100	180.54	18,054.00
B 5.39	Supplying and laying rigid steel conduit 16 SWG 25 mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification No: WG-MA/CC	Mtr	100	288.82	28,882.00
B 5.40	Supplying & erecting GI flexible Conduit 25 mm dia. conforming to I.S. with required number of couplings, bushes, check nuts etc. complete	Mtr	100	63.74	6,374.00
B 5.41	Supplying and erecting 25mm dia. corrugated flexible polypropylene conduit	Mtr	200	27.32	5,464.00
B 5.42	Supplying and erecting mains with 2x2.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places. as per specification No: WG-MA/BW	Mtr	360	80.66	29,037.60

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.43	Supplying and erecting mains with 2x4 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places. as per specification No: WG-MA/BW	Mtr	360	115.78	41,680.80
B 5.44	Supplying and erecting mains with 3x2.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places as per specification No: WG-MA/BW	Mtr	720	120.99	87,112.80
B 5.45	Supplying and erecting mains with 4x16 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places as per specification No: WG-MA/BW	Mtr	160	901.56	1,44,249.60
B 5.46	Supplying and erecting modular type switch 16A duly erected on provided plate and box with wiring connections complete	Each	100	137.91	13,791.00
B 5.47	Supplying and erecting modular type 3 pin 6 / 16A multi socket with safety shutter, duly erected on provided plate and box with wiring connections complete.	Each	100	208.15	20,815.00
B 5.48	Supplying and drawing of 2x1.5 sq.mm. FRLSH grade copper wires with 1.5 sq.mm earth wire in provided concealed pipes for concealed type fan point wiring and terminating on modular accessories in box as per specification No: WG-PW/CW	Point	60	692.11	41,526.60
B 5.49	Providing Secondary point wiring for additional light/ bell point in PVC trunking (casing-capping) with 1.5 sq.mm (2+1E) FRLSH grade copper wire with required accessories as per specification No: WG-PW/SW	Point	60	256.28	15,376.80

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.50	Supplying and erecting electronic type Driver for Outdoor LED Fittings 101W- 150W suitable to operate on 230V A.C. 50 Hz. Having pf>0.95 and THD<10%.	Each	1	2,989.59	2,989.59
B 5.51	Supplying Pedestal fan 400 mm. 230 Volts 50 cycles oscillating type complete with guard and regulator 3 meter. of flexible wire and hand shield type 3 pin plug top.	Each	4	3,234.17	12,936.68
B 5.52	Supplying and erecting exhaust fan heavy duty 230 V A.C. 50 cycles 450 mm. 1400 RPM complete erected in position as per specification no. FG-FN/EXF	Each	2	7,057.65	14,115.30
B 5.53	Supplying and erecting condenser 2.5 micro farad for ceiling fan	Each	10	85.87	858.70
B 5.54	Providing & erecting epoxy outdoor / indoor end termination kit for LT XLPE armoured cable 70 to 120 sq mm., with necessary material as per specification No. CB-JT/LT	Each	4	2,941.45	11,765.80
B 5.55	Supplying & erecting single compression type brass cable glands for 3½ core 120 sq mm for XLPE armoured cable as per specification No. CB-GL	Each	10	454.03	4,540.30
B 5.56	Supplying & erecting crimping type copper lugs for cable up to 16 sq mm complete as per specification No. CB-CL/CU	Each	50	29.92	1,496.00
B 5.57	Supplying & erecting crimping type aluminium lugs for cable up to 16 sq mm complete as per specification No. CB-CL/AL	Each	50	13.02	651.00
B 5.58	Dismantling the existing cables of all types & size above 10 sq mm up to 50 sq.mm	Mtr	160	29.92	4,787.20

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.59	Supplying and erecting GI strip of high purity required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint with joints required. As per specification no EA-EP	Kg	20	288.82	5,776.40
B 5.60	Supplying and erecting copper strip of high purity required size used for earthing on wall and/or any other purpose with necessary copper clamps fixed on wall painted with bituminous paint with joints required. As per specification no. EA- EP	Kg	20	1,148.74	22,974.80
B 5.61	Supplying & erecting Float sensor switch for water level controller working on 250V & rated current 8A, with 2 mtr. wire & High quality of wire & plastic body.	Each	1	588.03	588.03
B 5.62	Supplying and erecting rigidsteelconduit16SWG25mmdia.withnecessary accessories inwall/floor with chiselling appropriately asper specification No: WG-MA/CC.	Mtr	50	312.23	15,611.50
B 5.63	Supplying and erecting HMSPVCconduitFRLSgrade25mmdia.with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC.	Mtr	50	165.22	8,261.00
B 5.64	Supplying and erecting 25mm dia. corrugated flexible polypropylene conduit	Mtr	50	27.32	1,366.00
B 5.65	Supplying and erecting modular type switch 6A/10A duly erected on provided plate and box with wiring connections complete	Each	50	93.67	4,683.50
B 5.66	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 2 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background	Each	20	287.51	5,750.20

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.67	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 3 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background	Each	20	325.24	6,504.80
B 5.68	Point wiring for light/fan/bell in 20 mm FRLS grade HMS PVC conduit with 1.5 sq.mm (2+1E) FRLSH grade copper wire with flush type switch and required accessories as per specification No: WG-PW/SW	Point	6	642.68	3,856.08
B 5.69	Supplying pedestal type air circulator 600 mm. sweep oscillating type suitable to work on 230 Volts 50 cycles 1440 RPM without speed regulator, metallic blades, overhead protection unit, totally enclosed, flame proof motor with additional 3 core wire, 5-meter length and hand shield type 3 pin6A. plug top complete with moisture proof treatment and ‘E’ class insulation	Each	2	10,855.13	21,710.26
B 5.70	Installation, testing and commissioning of surface mounted 40Watt, LED Batten, with a system lumen output of 4400 lumens and a minimum system efficacy of 120 lumen/watt. The luminaire shall have a CRI of greater than 80 with rated system lifetime of 50,000 hours at L70. (Area having no False Ceiling, ASS Room, Corridor, Pump Room, Maintenance Room, Store Room etc). (40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BCLAB 40W LED), Note - LED Type to be Installed at Concourse and Platform Level	Nos	200	158.59	31,718.00
B 5.71	Installation, testing and commissioning of LED 2'x2' recessed fixture, (34 Watt to 40Watt) with a system lumen output of 3800 lumens at a system efficacy of 120 lumen/watt. (For false ceiling equipment room, Concoure). (40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BCLAB 40W LED). Note - LED Type to be Installed at Concourse and Platform Level	Nos	50	237.89	11,894.50

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.72	Installation, Testing & commissioning of highbay type 80-Watt LED Lighting Fixture. Fitting should have a aluminium pressure die cast housing with tempered glass for high transmittance. Luminaire should have system wattage of 80W with system efficacy of 120 lumens/W. It is designed to meet IP65 ensuring L70 for 50000 burning hours with PF of >0.95 with input voltage of 140-270V (for Street lighting). (80Watt LED Lighting Fixture similar to Bajaj Catalogue No. BGPPR 80W LED V2). Note - LED Type Lighting Fixture to be Installed at Road level (Carriage Way).	Nos	50	317.18	15,859.00
B 5.73	Installation, testing and commissioning of 18Watt, LED Downlighter with a system lumen output of 2000 lumens and a minimum system efficacy of 120 lm/W. The luminaire shall have a CRI greater than 80, lifetime of 50,000 hours at L70. Ingress Protection Classification of IP 20 (For Toilet). (18Watt LED Lighting Fixture similar to Bajaj Catalogue No. BZSLO 18W LED).Note - LED Type to be Installed at Concourse and Platform Level	Nos	50	158.59	7,929.50
B 5.74	Installation, testing and commissioning of LED surface mounted luminaire with a system lumen output of 4000 lumens and a minimum system efficacy of 120 lm/W. The Luminaire shall be IP65 rated and shall have a life of 50k hours at L70. .(For Platform and staircase). (40Watt LED Lighting Fixture similar to Bajaj Catalogue No. BI PC 40W LED XE) Note - LED Type to be Installed at Concourse and Platform Level	Nos	200	317.18	63,436.00
B 5.75	Repair work of Illuminated Station Name Signage Board (LED) installed at facade of Stations (Driver/LED replacement, wiring issue or any other fault to restore the signage board) excluding spares required for repair & man lifter/boom lifter.	Nos	50	779.98	38,999.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
B 5.76	Repair work of Illuminated Signage Board (LED) in side Stations (Driver/LED replacement, wiring issue or any other fault to restore the signage board) excluding spares required for repair.	Nos	100	259.60	25,960.00
	A.5 & B.5 TOTAL COST FOR MAINTENECE AND MATERIAL SUPPLY FOR LT PANEL (EXCLUSIVE OF GST)				**28,88,342.29**
A.6	**PREVENTIVE AND CORRECTIVE MAINTENECE OF Rolling Shutter**				
A.6.1	YEARLY Maintenance of Rolling shutter including Oiling and greasing of rolling shutters with H.P. equipment greasing including complete cleaning of oil and scrapping of grease including labours and materials, Motor operation, Replacement of minor items if any etc. Work during night time as per direction of Engineer in charge. For all shutters located at RSS etc.	Service	5	315.00	1,575.00
A.6.2	Repairing and Corrective Maintenance of existing rolling shutters including dismantling the shutter and refixing the same and fixing of new items as per requirement including cleaning, oiling, greasing, alignment and testing complete. The cost of new items (including electrical parts such as switches, relay, button, wires) will be paid separately except small hardware like nuts/bolts and nails which are included in this item.	Service	3	7,350.00	22,050.00
A.6 Total Cost for Maintenance and Material Supply for Rolling Sutter (Exclusive GST)					**23,625.00**
A. 7	**Providing Man Lifter/Boom Lifter as Per Requirement**				
A. 7.1	Towable Boom/Man Lifter weight carrying capacity approx. 200Kg at working height of range 3.5-14m. (1 Machine) including driver/operator. This also includes	Days	24	7,080.00	1,69,920.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	administrative Charges, Machine Fuel, Maintenance, Inclusive of all charges for Machine. As & when required				
A. 7.2	Towable Boom/Man Lifter weight carrying capacity approx. 200Kg at working height of range 15-25m. (1 Machine) including driver/operator. This also includes administrative Charges, Machine Fuel, Maintenance, Inclusive of all charges for Machine. As & when required	Days	2	33,849.42	67,698.84
A. 7.2	Hire charges of TATA 407 or equivalent for local shifting.	Days	20	1,966.18	39,323.60
	TOTAL COST FOR MAINTENECE AND MATERIAL SUPPLY FOR BOOM LIFTER (EXCLUSIVE OF GST)				**2,76,942.44**
A. 8	**Corrective Maintenance of Emergency Buzzer in Divyaganjan Toilets at Stations of Navi Mumbai Metro Line-1**				
A. 8.1	Repair/rectification of calling unit with pulling cord along with door unit and audible indication having power supply provision issue	Nos	24	4,248.00	1,01,952.00
A. 8.2	Supply of Emergecy Push Button/cord along with door unit	Nos	8	16,284.00	1,30,272.00
A. 8.3	Supply of audible unit for emergency buzzer	Nos	8	12,508.00	1,00,064.00
A. 8.4	Supply of Control Cable connectivity (2 pair x 1 sq mm Cu Cable of calling unit and door unit	Nos	100	141.60	14,160.00
	Total Corrective Maintenance of Emergency Buzzer in Divyaganjan Toilets at Stations of Navi Mumbai Metro Line-1				**3,46,448.00**
	Total Cost of Schedule 01				**83,47,226.56**

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
Schedule-2: Certification of Fire NOC & Form B, LUMPSUM Items					
	Description	**Unit**	**Quantity**		
Section 2.1	**FIRE NOC & FORM B**				
2.1.1	"Certification of Form - B **(HALF YEARLY**) from licenced agency of Maharashtra Fire Services for PMRP Metro Stations under jurisdiction ion of Pune Municipal Corporation and Pimpri Chinchwad Municipal Corporations per the prescribed schedule regarding Fires Systems installed at PMRP stations, depots and Office. This also includes the contractor for Licence work such as filling necessary application submission of forms for approval to the local authorities, depositing fees and other amounts. For 11 Nos of Elevated Stations, One Depot, 2 Nos of RSS, TOTAL-14 Nos	Per Schedule	28	6,544.29	1,83,240.12
2.1.2	Service Charges towards Lisoning fees for Obtaining Fire NOC from Fire Department (To be paid on actual Challan in Municipalities)	Nos	1	6,544.29	6,544.29
Section 2.2	**INCIDENTAL/EMERGENCY WORKS/SPARES FOR E&M SYSTEMS MAINTENANCE**				
SN	**Emergency/Incidental Works**	**Unit**	**Quantity**		**Amount (INR)**
2.2.1	**Supply od Spares for LT Panels**				
2.2.1.1	ACB 1000A FP 50KA MDO TYPE-DMX3 ACB	Nos	1	2,05,653.18	2,05,653.18

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.2	ACB CABLE INTERLOCK TYPE 1 (2600 MM)	Nos	1	12,182.04	12,182.04
2.2.1.3	ACB CABLE INTERLOCK TYPE 3 (3600 MM)	Nos	1	12,182.04	12,182.04
2.2.1.4	ACB CLOSING COIL 230V AC/DC	Nos	1	8,079.90	8,079.90
2.2.1.5	ACB COMMUNICATION MODULE	Nos	1	2,929.86	2,929.86
2.2.1.6	ACB EXTERNAL POWER SUPPLY MODULE 12V DC	Nos	1	6,080.00	6,080.00
2.2.1.7	ACB INTERLOCK PLATE FOR DMX3 (UPTO 2500A)	Nos	1	21,489.28	21,489.28
2.2.1.8	ACB MP4 LSIG RELEASE	Nos	1	41,153.30	41,153.30
2.2.1.9	ACB REAR TERMINAL FP DRAW-OUT FOR 2500A FRAME-1	Nos	1	14,224.40	14,224.40
2.2.1.10	ACB SHUNT TRIP 230V AC/DC	Nos	1	7,633.04	7,633.04
2.2.1.11	ACB SPRING CHARGING MOTOR 230VAC	Nos	1	37,159.75	37,159.75
2.2.1.12	ACB UNDER VOLTAGE RELEASE 230V AC/DC	Nos	1	12,175.74	12,175.74
2.2.1.13	AMMETER 1PH DIGITAL CL-1, CTR-1/5A, AUX SUPPLY 80-300V AC	Nos	2	1,375.24	2,750.48
2.2.1.14	AMMETER 30A DC 96SQMM	Nos	2	1,699.38	3,398.76
2.2.1.15	AMMETER THREE PHASE DIGITAL CL-1.0	Nos	2	2,073.85	4,147.70
2.2.1.16	ANNUNCIATOR 8 W 12V DC WITH PUSH BUTTON W/O BUZZER (1D)	Nos	2	22,005.38	44,010.76

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.17	ATS 250A FP 230 SERIES WITH CONTROLLER IN OPEN FRAME	Nos	1	1,70,022.87	1,70,022.87
2.2.1.18	ATS 630A FP 230 SERIES WITH C1000 CONTROLLER IN OPEN FRAME	Nos	1	3,03,084.24	3,03,084.24
2.2.1.19	AUTOMATIC BATTERY CHARGER 20A 230/12VDC	Nos	2	25,490.68	50,981.36
2.2.1.20	AUX CONT BLOCK 1NO+1NC FRONT MOUNTING {FOR PWR CONTACTOR}	Nos	2	497.23	994.46
2.2.1.21	AUX CONT BLOCK 2NO+2NC FRONT MOUNTING {FOR AUX CONTACTOR}	Nos	2	739.54	1,479.08
2.2.1.22	AUX CONTACTOR 2NO+2NC AUX 230VAC	Nos	2	1,727.71	3,455.42
2.2.1.23	AUX RELAY BASE 8 PIN FOR 2C/O	Nos	2	637.27	1,274.54
2.2.1.24	AUX RELAY WITH LED 2C/O 12V DC	Nos	2	637.27	1,274.54
2.2.1.25	BREAKER CONTROL SWITCH T-N-C 25A	Nos	2	2,402.73	4,805.46
2.2.1.26	BUZZER 12-220V AC/DC	Nos	2	2,039.25	4,078.50
2.2.1.27	CT 100/5A 10VA CL-1.0 RING TYPE CAST RESIN ID-30MM	Nos	2	1,699.38	3,398.76
2.2.1.28	CT 150/5A 10VA CL-1.0 RING TYPE CAST RESIN ID-30MM	Nos	2	1,359.50	2,719.00
2.2.1.29	CT 20/5A 5VA CL-1.0 WPL TYPE CAST RESIN	Nos	2	1,869.32	3,738.64
2.2.1.30	CT 200/5A 10VA CL-1.0 RING TYPE CAST RESIN ID-30MM	Nos	2	1,189.55	2,379.10
2.2.1.31	CT 250/5A 10VA CL-1.0 RING TYPE CAST RESIN ID-45MM	Nos	2	1,274.54	2,549.08

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.32	CT 30/5A 5VA CL-1.0 WPL TYPE CAST RESIN	Nos	2	1,359.50	2,719.00
2.2.1.33	CT 40/5A 5VA CL-1.0 WPL TYPE CAST RESIN	Nos	2	1,359.50	2,719.00
2.2.1.34	CT 60/5A 5VA CL-1.0 WPL TYPE CAST RESIN	Nos	2	1,359.50	2,719.00
2.2.1.35	CT 600/5A 10VA CL-1.0 RING TYPE CAST RESIN ID-55MM	Nos	2	1,274.54	2,549.08
2.2.1.36	CT 80/5A 10VA CL-1.0 WPL TYPE CAST RESIN	Nos	2	1,359.50	2,719.00
2.2.1.37	CT 800/5A 15VA CL-1.0 RECTANGULAR TYPE CAST RESIN ID:130X25MM	Nos	2	1,444.47	2,888.94
2.2.1.38	DC AMMETER SHUNT 30A	Nos	2	1,699.38	3,398.76
2.2.1.39	ENERGY METER CL-1.0, CTR-/5A AUX 80-300V AC/DC WITH RS485 PORT	Nos	2	4,698.48	9,396.96
2.2.1.40	ENGINE STARTING RELAY 12VDC	Nos	2	5,947.85	11,895.70
2.2.1.41	LED INDICATOR AMBER 240VAC 22.5MM GEN NEXT PRO TYPE	Nos	20	215.60	4,312.00
2.2.1.42	LED INDICATOR BLUE 240VAC 22.5MM GEN NEXT PRO TYPE	Nos	20	372.92	7,458.40
2.2.1.43	LED INDICATOR GREEN 240VAC 22.5MM GEN NEXT PRO TYPE	Nos	20	215.57	4,311.40
2.2.1.44	LED INDICATOR RED 12VAC/DC 22.5MM GEN NEXT PRO TYPE	Nos	20	215.57	4,311.40
2.2.1.45	LED INDICATOR RED 240VAC 22.5MM GEN NEXT PRO TYPE	Nos	20	215.57	4,311.40
2.2.1.46	LED INDICATOR YELLOW 240VAC 22.5MM GEN NEXT PRO TYPE	Nos	20	215.57	4,311.40

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.47	LED LIGHT 5W 230VAC	Nos	20	1,062.11	21,242.20
2.2.1.48	LIMIT SWITCHE WITH PUSH ROAD & PLASTIC PROTECTIVE COVER 10A/500V 1NO+1NC	Nos	20	849.70	16,994.00
2.2.1.49	MCB 10A DP C-CURVE 10KA DX3	Nos	2	972.43	1,944.86
2.2.1.50	MCB 10A SP C-CURVE 10KA DX3	Nos	2	302.12	604.24
2.2.1.51	MCB 16A DP C-CURVE 10KA DX3	Nos	2	972.43	1,944.86
2.2.1.52	MCB 16A DP D-CURVE 10KA DX3	Nos	2	996.03	1,992.06
2.2.1.53	MCB 20A DP C-CURVE 10KA DX3	Nos	2	972.43	1,944.86
2.2.1.54	MCB 32A DP C-CURVE 10KA DX3	Nos	2	972.43	1,944.86
2.2.1.55	MCB 32A FP C-CURVE 10KA DX3	Nos	2	2,119.50	4,239.00
2.2.1.56	MCB 32A FP D-CURVE 10KA DX3	Nos	2	2,125.79	4,251.58
2.2.1.57	MCB 40A FP C-CURVE 10KA DX3	Nos	2	3,016.40	6,032.80
2.2.1.58	MCB 63A FP C-CURVE 10KA DX3	Nos	2	3,016.40	6,032.80
2.2.1.59	MCB 6A DP C-CURVE 10KA DX3	Nos	2	972.43	1,944.86
2.2.1.60	MCB 6A SP C-CURVE 10KA DX3	Nos	2	302.12	604.24

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.61	MCCB 100A FP 25KA DPX3-250 MP BASED O/C S/C E/F REL.	Nos	1	44,367.95	44,367.95
2.2.1.62	MCCB 100A TP 25KA DPX3-160 TM O/CS/C REL.	Nos	2	7,914.70	15,829.40
2.2.1.63	MCCB 125A FP 25KA DPX3-160 TM O/CS/C REL.	Nos	1	13,897.14	13,897.14
2.2.1.64	MCCB 160A FP 25KA DPX3-160 TM O/CS/C REL.	Nos	1	17,695.56	17,695.56
2.2.1.65	MCCB 160A FP 25KA DPX3-250 MP BASED O/CS/CE/F REL.	Nos	1	48,894.90	48,894.90
2.2.1.66	MCCB 160A TP 50KA DPX3-160 TM O/CS/C REL	Nos	1	19,706.50	19,706.50
2.2.1.67	MCCB 200A FP 25KA DPX3-250 TM O/CS/C REL	Nos	1	24,966.71	24,966.71
2.2.1.68	MCCB 250A FP 25KA DPX3-250 MP BASED O/CS/CE/F REL.	Nos	1	57,048.78	57,048.78
2.2.1.69	MCCB 250A FP 36KA DPX3-250 MP BASED O/CS/CE/F REL.	Nos	1	50,411.76	50,411.76
2.2.1.70	MCCB 40A TP 50KA DPX3-160 THERMAL MAG O/C, S/C REL	Nos	1	13,362.15	13,362.15
2.2.1.71	MCCB 630A FP 36KA DPX3-630 MP BASED O/C S/C E/F REL.	Nos	1	72,464.34	72,464.34
2.2.1.72	MCCB 63A FP 25KA DPX3-160 THERMAL MAG O/C, S/C REL	Nos	1	11,003.48	11,003.48
2.2.1.73	MCCB 80A FP 25KA DPX3-160 THERMAL MAG. O/CS/C REL.	Nos	1	11,003.48	11,003.48
2.2.1.74	MCCB AUX/FAULT 1C/O CONTACT BLOCK FOR DPX3-160/1600A	Nos	2	1,136.07	2,272.14
2.2.1.75	MCCB EXTENDED DOOR OPERATING HANDLE FOR DPX-H 630	Nos	2	3,675.70	7,351.40

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.76	MCCB LOCK AND FLAT KEY DPX3 630	Nos	2	8,224.67	16,449.34
2.2.1.77	MCCB MOTOR MECHANISM 230VAC DPX 630	Nos	1	51,960.10	51,960.10
2.2.1.78	MCCB MOTOR OPERATOR 24-230VAC/DC FOR DPX3	Nos	1	32,067.92	32,067.92
2.2.1.79	MCCB PHASE BARRIER FOR DPX3-400,630	Nos	2	213.99	427.98
2.2.1.80	MCCB PHASE BARRIERS FOR TP/FP DPX3-160/DPX3-250	Nos	2	182.53	365.06
2.2.1.81	MCCB RONIS KEY BARREL FOR FRONT MOTOR OPERATOR DPX3 160 & 250	Nos	1	7,326.21	7,326.21
2.2.1.82	MCCB ROTARY HANDLE FOR DPX3-160/250	Nos	6	1,935.40	11,612.40
2.2.1.83	MCCB SPREADERS LINK FOR FP DPX^3 250/DRX-250HP	Nos	2	956.69	1,913.38
2.2.1.84	MCCB SPREADERS LINK FOR FP DPX3-160	Nos	2	956.69	1,913.38
2.2.1.85	MCCB SPREADERS LINK FOR TP DPX3-160	Nos	2	717.51	1,435.02
2.2.1.86	MCCB UNDER VOLTAGE RELEASE 200-240V AC DPX3 160/250	Nos	2	3,131.26	6,262.52
2.2.1.87	MCCB UNDER VOLTAGE RELEASE 230V AC DPX3 630/1600	Nos	2	3,752.80	7,505.60
2.2.1.88	MULTIFUNCTION LED METER 3PH AUX. 80-300V AC/DC CL-1 WITH RS-485 PORT	Nos	2	13,628.08	27,256.16
2.2.1.89	OVER LOAD RELAY 54-75A THERMAL RTX^3-100	Nos	2	6,372.67	12,745.34

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.90	OVER LOAD RELAY 7-10A THERMAL RTX³ 40	Nos	2	2,020.37	4,040.74
2.2.1.91	OVER LOAD RELAY 9-13A THERMAL RTX³ 40	Nos	2	2,020.37	4,040.74
2.2.1.92	OVER LOAD RELAY MOUNTING UNIT FOR RTX³ 100	Nos	2	1,189.60	2,379.20
2.2.1.93	OVER LOAD RELAY MOUNTING UNIT FOR RTX³ 40	Nos	2	758.42	1,516.84
2.2.1.94	POWER SUPPLY MODULE I/P 100-240VAC O/P 24VDC, 92W	Nos	2	1,054.25	2,108.50
2.2.1.95	PUSH BUTTON BLACK FLUSH HEAD TYPE	Nos	20	207.70	4,154.00
2.2.1.96	PUSH BUTTON ELEMENT NC	Nos	20	155.78	3,115.60
2.2.1.97	PUSH BUTTON ELEMENT NO	Nos	20	155.78	3,115.60
2.2.1.98	PUSH BUTTON GREEN	Nos	20	207.70	4,154.00
2.2.1.99	PUSH BUTTON MUSHROOM HEAD RED PUSH TRUN TYPE	Nos	10	387.08	3,870.80
2.2.1.100	PUSH BUTTON MUSHROOM HEAD RED WITH LOCK & KEY	Nos	5	748.98	3,744.90
2.2.1.101	PUSH BUTTON RED	Nos	20	207.70	4,154.00
2.2.1.102	PWR CONTACTOR 100A TP AC3 (2NO+2NC) 230V AC	Nos	1	20,005.46	20,005.46
2.2.1.103	PWR CONTACTOR 130A TP AC3 (2NO+2NC) 230V AC CTX3-150	Nos	1	29,750.15	29,750.15
2.2.1.104	PWR CONTACTOR 22A(1NO+1NC) TP AC3 DUTY 230V AC	Nos	2	2,471.96	4,943.92

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.105	PWR CONTACTOR 32A TP AC3 (2NO+2NC) DUTY 230V AC	Nos	1	5,183.10	5,183.10
2.2.1.106	PWR CONTACTOR 40A TP AC3 (2NO+2NC) 230V AC	Nos	1	7,677.10	7,677.10
2.2.1.107	RCBO 32A FP 30MA DX3	Nos	1	5,757.43	5,757.43
2.2.1.108	RCBO 40A DP 30MA DX3	Nos	2	5,061.95	10,123.90
2.2.1.109	RCBO 40A FP 30MA DX3	Nos	2	5,736.97	11,473.94
2.2.1.110	RELAY CRANKING 2C/O 12VDC	Nos	2	1,169.11	2,338.22
2.2.1.111	RELAY UNDER & OVER VOLTAGE 3PH 3W/4W SYSTEM VOLTAGE 380-440V AC 2C/O	Nos	1	5,017.89	5,017.89
2.2.1.112	SELECTOR SWITCH 2P 2W OFF 16A	Nos	2	813.50	1,627.00
2.2.1.113	SELECTOR SWITCH 2P 2W OFF 6A	Nos	2	429.57	859.14
2.2.1.114	SELECTOR SWITCH 2P 3W WITH OFF 6A	Nos	2	528.70	1,057.40
2.2.1.115	SPACE HEATER 100W 230/240VAC	Nos	4	2,549.07	10,196.28
2.2.1.116	THERMOSTAT 35-75.C 240V AC	Nos	4	1,062.11	4,248.44
2.2.1.117	TIMER ON DELAY MICON 175 0.3SEC-30 HRS 12V DC 1 C/O	Nos	4	1,622.28	6,489.12
2.2.1.118	TIMER ON DELAY MICON 225 24-240V AC/DC 0.1-10 HRS. 2C/O	Nos	2	2,311.47	4,622.94

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
2.2.1.119	TIMER STAR DELTA Micon 175 SER. 240VAC	Nos	2	1,444.47	2,888.94
2.2.1.120	TOGGLE SWITCHES SP OFF-ON 10A/250V AC	Nos	2	849.68	1,699.36
2.2.1.121	VOLTMETER 0-50V DC 96SQMM	Nos	2	1,699.38	3,398.76
2.2.1.122	VOLTMETER THREE PHASE DIGITAL CL-1.0	Nos	2	2,073.87	4,147.74
2.2.123	Supply of High mast timer for automation of lighting GIC make FM1/ Quartz Daily 240VAC Base	Nos	10	1,040.00	10,400.00
2.2.124	Supply, Installation, Testing and commissioning of 12 V/180Ah SMF-(VRLA) battery with battery terminal wire, duly charged complete with 36 months warranty complete (For DG & Diesel Pump)	Nos	2	23,550.99	47,101.98
2.2.127	Supply of Oil CI4 PLUS 15W 40 industrial grade oil for diesel generator	Litre	200	205.00	41,000.00
Section 2.3	Annual Maintenance Contract of EOT crane Make: Electromech, Model: SG EOT, Capacity: 5T, Span: 11.9 Mtrs, Sr.No.: 5675, Cls.Duty : M5 in RSS (Panchanand)	Nos	1	2,83,200.00	2,83,200.00
Section 2.4	**Manpower for non-Schedule works**				
E.11	Semi-skilled woker (As when required).	Man/day	50	779.98	38,999.00
E.12	Unskilled workers (As when required).	Man/day	50	733.96	36,698.00
	TOTAL COST OF SCHEDULE-2 (in INR)				**25,53,824.58**

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
Schedule-3 : UPS Maintenance					
Section 3.1	**Preventive & Corrective maintenance of UPS**	**Unit**	**Quantity**	**Rate(INR)**	**Amount (INR)**
	Total 4 Preventive Maintenance Service Visits in a 1 Year covering unlimited breakdown calls/Corrective Maintainance covering following scope of work : Checking of all parameters and alarms and warnings, Individual battery voltage check, Servo Voltage Control Stabilizer (SVCS), Cleaning UPS & electronics cards, Fan check, UPS overall operation check (Loading, Synchronization, Bypass), Connection checking & tightening, Mechanical Check & software upgrade.				
3.1.1	60 KVA, Vertiv make	Nos	2	21948.00	43,896.00
3.1.2	60 KVA, Numeric make	Nos	8	21948.00	1,75,584.00
3.1.3	60 KVA, Schinder make	Nos	4	21948.00	87,792.00
3.1.4	40 KVA, Schinder make	Nos	8	14632.00	1,17,056.00
3.1.5	100 KVA, Reillo make	Nos	2	36580.00	73,160.00
3.1.6	150/160 KVA, Reillo make	Nos	2	54870.00	1,09,740.00
3.2	**INCIDENTAL/EMERGENCY SPARES SUPPLY FOR UPS MAINTENANCE**				
SN	**Description**	**Unit**	**Quantity**	**Rate (INR)**	**Amount (INR)**

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
1	Fuse, Semiconductor, Ceramic, 200 Amp, 500 Vac/dc, Fast, 50 kA, 8500 Amp Sq Sec, Centre Bolted Blade, 29.4 X 92.1 mm, RoHS	Nos	2	5074.00	10,148.00
2	Capacitor, Metallized Polypropylene Film, Panel Mounted, Stud terminal, 100 uF, 250 Vac, +/-5%, -40 to 70 Deg C, 35 mm, D63.5 X 107 mm, RoHS	Nos	2	5000.84	10,001.68
3	Capacitor, Aluminium Electrolytic, Panel Mounted, Screw Lead, 4700 uF, 450 Vdc, +/-20%, -40 to 85 Deg C, 31.6 mm, D76 X 145 mm, RoHS	Nos	2	18719.52	37,439.04
4	Fan, Axial, 230 Vac, 45 W, 194 CFM, 2800 RPM, 172 X 150 X 55 mm, IP20	Nos	2	14919.92	29,839.84
5	Fan, Axial, 230 Vac, 64 W, 520 CFM, 2550 RPM, 260 X 225 X 80 mm, IP44	Nos	2	27772.48	55,544.96
6	Capacitor, Metallized Polypropylene Film, Panel Mounted, Double Fast on, 30 uF, 450 Vac, +/-5%,-25 to 70 Deg C, D45 X 132 mm	Nos	2	1633.12	3,266.24
7	Fuse, Semiconductor, Ceramic, 250 Amp, 700 Vac/dc, Fast, 10 kA, 42500 Amp Sq Sec, Centre Bolted Blade, 50.8 X 129.3 mm, RoHS	Nos	2	8484.20	16,968.40
8	IGBT, Heatsink Mounted, Dual Module, 300 Amp, 1200 V, 1.85 V, 2.5 Ohm, 106.4 X 61.4 X 30.5 mm, RoHS	Nos	2	35185.24	70,370.48
9	Hall Effect Sensor, 200 Amp, +/- 600 Amp, Output Voltage - 4 V, Open Loop, Supply voltage - 15 V, Panel Mounting	Nos	2	5944.84	11,889.68
10	Thyristor, Heat Sink Mounted, Module, 190 Amp Average, 300 Amp RMS, 1600 V	Nos	2	15835.60	31,671.20

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
11	Hall Effect Sensor, 200 Amp, +/- 600 Amp, Output Voltage - 4 V, Open Loop, Supply voltage - 15 V, Panel Mounting	Nos	2	5944.84	11,889.68
12	IGBT, Heatsink Mounted, Dual Module, 300 Amp, 1200 V, 1.85 V, 2.5 Ohm, 106.4 X 61.4 X 30.5 mm, RoHS	Nos	2	17586.72	35,173.44
13	PCA - DC-DC Converter Card, 360 V Transformer less UPS, 1130DB-1/11	Nos	2	19765.00	39,530.00
14	PCA - Snubber Card, 856DB-1	Nos	2	1958.80	3,917.60
15	PCA - MOV Card for 3 Phase, 933DB-1/2	Nos	1	29252.20	29,252.20
16	PCA - AC Static Switch Interface Card, 1347DB-1	Nos	2	8871.24	17,742.48
17	PCA - Mun Card, 15B10895G1, 80 Net UPS	Nos	2	75343.00	1,50,686.00
18	PCA - CIB Card, 710-02375, 80 Net UPS	Nos	1	123121.20	1,23,121.20
19	PCA - Conditioning Board, 15B10893G1, 80 Net UPS	Nos	2	53454.00	1,06,908.00
20	PCA - DIC Board, 710-02821, 80 Net UPS	Nos	1	114070.60	1,14,070.60
21	PCA - SMPS Card, 15B10952G2	Nos	1	176343.92	1,76,343.92
22	PCA - Static Switch Control Card, 1 Phase for Transformer less UPS, 1078DB-3/1	Nos	2	6962.00	13,924.00
23	PCA - SMPS Interface Card, 1307DB-1	Nos	2	20005.72	40,011.44
24	PCA - IGBT Driver Card, 15B10932G1	Nos	2	34692.00	69,384.00

S.No.	Service Description	UOM	Qty	Rate in INR (incl. GST)	Amount in INR (incl. GST)
	Sub Total		**Total**		**12,09,094.08**
	TOTAL COST OF SCHEDULE-3 (in INR)				**18,16,322.08**
	SCHEDULE-4 (in INR)				
1	**Breakdown in any equipment which is not covered above if any (Charges for incidental & unforeseen items). Payment will be made as per actual expenditure if required.**	**Lump-sum**	1	1770000.00	17,70,000.00
	TOTAL COST OF SCHEDULE-4 (in INR)				**17,70,000.00**
	Sub Total (Schedule 1, 2 & 3)				**1,44,87,373.22**

Part B: Schedule 1: Preventive Maintenance for OHE

SN	Description of Work	Unit of Measurement	Total Qty of Assets	Rate in INR (incl. GST)	Amount in INR (incl. GST)
Part (I) - Preventive Maintenance for Over Head Equipment (OHE) of NMM					
1.1	Maintenance of Cantilever assembly, OHE Structure, TTU, DA and allied OHE SPS and structures.	Nos.	2312	677.71	15,66,865.52
1.2	Maintenance of Catenary system (Contact wire, catenary wire, droppers, OPC, BEC, 1.1 KV RC, Current Collection Test)	Per TKM	122	4,066.28	4,96,086.16
1.3	Maintenance of all type of 25 KV OHE Jumpers	Nos.	161	655.76	1,05,577.36
1.4	Maintenance of Anti Creep Centre (ACC), Anti Creep Anchor (ACA) and Fix Termination Anchor (FTA arrangement)	Nos.	89	1,639.40	1,45,906.60
1.5	Maintenance of depot and Mainline Isolators, Interrupter, Voltage transformer	No.	84	1,639.40	1,37,709.60
1.6	Maintenance of Overlaps (insulated and uninsulated}	No.	26	1,639.40	42,624.40
1.7	Maintenance of Cross over & Turnouts	Nos.	40	4,066.28	1,62,651.20
1.8	Maintenance of all type Section Insulator Assembly & Neutral Section assembly	Nos.	42	4,066.28	1,70,783.76
1.9	Maintenance of BWA type Auto tension Device (ATD)	Nos.	84	2,033.12	1,70,782.08
1.10	Maintenance of ITL	Nos.	22	546.46	12,022.12
1.11	Maintenance of Earthing System with its whitewash/painting, grass cutting (as required), tree trimming (as required) & value writing in depot (YRLY)	Nos.	51	498.27	25,411.77
1.12	Reconditioning of Earth pit with materials & when required	Nos.	51	1,626.51	82,952.01
1.13	Current Collection Test	Per TKM	22.4	1,062.60	23,802.24

SN	Description of Work	Unit of Measurement	Total Qty of Assets	Rate in INR (incl. GST)	Amount in INR (incl. GST)
Part (II) - Breakdown Maintenance & other for Over Head Equipment of NMM					
3.1	Breakdown attention by a gang for restoration of 25 KV OHE/PSI during accidents/unusual occurrence for checking OHE parameters. Breakdown attention gang shall be a part of CM/PM maintenance team.	Nos.	3	17,582.35	52,747.05
3.2	Panto entanglement due to OHE component like Turn out, Overlap, non-OHE zone, Jumper, Dropper, Cantilever steady arm & other component of Cantilever, Section insulator, Neutral Section, Foreign Material etc.	Nos.	4	12,857.45	51,429.80
3.3	Erection of Catenary wire splicing or Contact wire splicing	Nos.	4	17,582.35	70,329.40
3.4	Replacement / Re-erection of various types of insulators	Nos.	6	6,428.72	38,572.32
3.5	Splicing of OPC	Nos.	4	4,853.75	19,415.00
3.6	Replacement/ Re-erection of Section Insulator I(double rod type), Neutral Section assembly	Nos.	2	25,975.88	51,951.76
3.7	Replacement / Re-erection BWT types of ATD, Interrupter/BM, VT, Isolator 'including loading & unloading'	Nos.	4	80,396.56	3,21,586.24
3.8	Replacement/ Re-erection of Single/Double/Tripple bracket assembly Cantilever	Nos.	4	6,555.55	26,222.20
3.9	CAD Weld from ITL to Rail.	Nos.	10	8,251.49	82,514.90
3.10	Stencilling of OHE structure with materials	Nos.	100	448.40	44,840.00
3.11	Repair of discharge rod without material	Nos.	100	109.74	10,974.00
3.12	Supply & Erection of all types of boards	Nos.	10	1,475.00	14,750.00
3.13	Rectification of leaning mast with material	Nos.	1	10,938.60	10,938.60
3.14	Replacement of OHE light sensor aviator light/bulb indicator Red/Green	Nos.	6	1,475.00	8,850.00
Total of Schedule (1)					**39,48,296.09**

Part B: Schedule 2: Miscellaneous & consumable items including small tools etc. for OHE					
SN	**Description of Work**	**Unit of Measurement**	**Total Qty. of Assets**	**Rate in INR (incl. GST)**	**Amount in INR (incl. GST)**
1.1	Miscellaneous & consumable items including small tools, testing of equipment etc. and payment shall be made as per actual expenditure	Lump Sum	1	2,36,000.00	2,36,000.00
	Total of Schedule (2)				**2,36,000.00**
	Grand Total (Schedule 1 + Schedule 2)			-	**41,84,296.09**

Part B: Schedule 3: Part -I - Preventive Maintenance for Power Supply (RSS. ASS & Switching Post)

SN	**Description of Work**	**Unit of Measurement**	**Total Qty. of Assets**	**Rate in INR (incl. GST)**	**Amount in INR (incl. GST)**
A	**Preventive Maintenance activities for RSS Equipments**				
1.1	Preventive Maintenance of 25MVA, 220/33 KV Transformers	Nos	2	3,18,600.00	6,37,200.00
1.2	Transformer oil filtration- 25 MVA transformer	Per ltr	47200	3.54	1,67,088.00
1.3	Preventive Maintenance of 10MVA, 33/27.5 KV Transformers	Nos	4	2,65,500.00	10,62,000.00
1.4	Transformer oil filtration- 10 MVA transformer	Per ltr	24000	3.54	84,960.00
1.5	Maintenance of 220 KV GIS for 2 Bay out of 5	Nos	2	20,06,000.00	40,12,000.00
1.6	Maintenance of 33 KV GIS	Verticals	25	33,040.00	8,26,000.00
1.7	Maintenance of 25 KV GIS	Verticals	12	33,040.00	3,96,480.00
1.8	Maintenance of 33kV/415V Dry Type Transformer	Nos.	2	4,982.60	9,965.20

SN	Description of Work	Unit of Measurement	Total Qty. of Assets	Rate in INR (incl. GST)	Amount in INR (incl. GST)
1.9	Maintenance of ACDB	Nos.	2	2,491.28	4,982.56
1.1	Maintenance of DCDB	Nos.	2	2,491.28	4,982.56
1.11	Maintenance of Battery Charger	Nos.	2	2,491.28	4,982.56
1.12	Maintenance of Battery Bank	Nos.	4	4,982.60	19,930.40
1.13	Maintenance of Earthing System with its whitewash/painting & value writing	Nos.	35	498.25	17,438.75
1.14	Maintenance of Burried Rail	Nos.	2	4,982.60	9,965.20
1.15	UPS (6KVA)	Nos	4	2,832.00	11,328.00
1.16	UPS (5 KVA)	Nos	1	2,360.00	2,360.00
1.17	RTU	Nos	13	1,711.00	22,243.00
Preventive Maintenance activities for ASS Equipments					
2.1	Maintenance of 33 KV RMU	Nos.	27	30,680.00	8,28,360.00
2.2	Maintenance of Dry type Transformer	Nos.	26	3,278.75	85,247.50
2.3	Maintenance of Battery Charger	Nos.	13	1,660.84	21,590.92
2.4	Maintenance of Battery Bank	Nos.	13	1,660.84	21,590.92
2.5	Maintenance of ACDB	Nos.	13	1,245.64	16,193.32
2.6	Maintenance of DCDB	Nos.	13	1,245.64	16,193.32
2.7	Maintenance of IGBT	Nos	12	1,793.60	21,523.20
2.8	Transportation charge including driver and all fuel charges, 24x7 monthly services up to 2,000 KMs per month (Camper Yoddha), including all maintenance charges. *Any additional kilometres beyond 2,000 KMs shall be charged on a pro-rata basis.*	month	12	1,07,022.00	12,84,264.00

SN	Description of Work	Unit of Measurement	Total Qty. of Assets	Rate in INR (incl. GST)	Amount in INR (incl. GST)
Switching Post & Viaduct Light					
3.1	Viaduct Lighting and Power sockets as & when required	Nos	1800	498.27	8,96,886.00
Part B: Schedule 3: Part- II - Breakdown Maintenance activities					
4.1	33kV and 25kV cable end termination jointing work (Jointing kit will be provided by Maha-Metro & Contractor has to provide certified jointer by OEM)	Nos	6	3,597.00	21,582.00
4.2	33kV and 25kVcable straight through joint on site (Jointing kit will be provided by Maha-Metro & Contractor has to provide certified jointer by OEM)	Nos	6	3,597.00	21,582.00
4.3	Breakdown maintenance for 220 KV GIS By OEM	Man -days	5	1,69,920.00	8,49,600.00
4.4	Breakdown maintenance for 33 KV GIS by OEM	Man -days	5	44,840.00	2,24,200.00
4.5	Breakdown maintenance for 25 kv GIS by OEM	Man -days	5	44,840.00	2,24,200.00
4.6	Breakdown maintenance for 33 KV RMU by OEM	Man -days	5	42,480.00	2,12,400.00
4.7	Breakdown Maintenance for 25MVA Auxiliary transformer by OEM	Man -days	5	70,800.00	3,54,000.00
4.8	Breakdown Maintenance for 25MVA Auxiliary transformer NIFPS by OEM	Man -days	5	38,350.00	1,91,750.00
4.9	Breakdown Maintenance for 10MVA Traction Transformer	Man -days	5	70,800.00	3,54,000.00
4..10	Breakdown Maintenance for 10MVA Traction Transformer NIFPS	Man -days	5	38,350.00	1,91,750.00
4.11	Breakdown Maintenance of 220/33/25 KV CRP/SAS by OEM	Man-days	40	59,472.00	23,78,880.00
4.12	Breakdown Maintenance of OCC SCADA/RTU by OEM	Man-days	20	49,560.00	9,91,200.00
4.13	Breakdown Maintenance of IGBT by OEM	Per day	3	17,700.00	53,100.00
4.14	Replacement & laying of 33&25kV Cable on Viaduct	mtr	20	177.00	3,540.00
4.15	Replacement & laying of 33&25kV Cable in ground	mtr	20	708.00	14,160.00

SN	Description of Work	Unit of Measurement	Total Qty. of Assets	Rate in INR (incl. GST)	Amount in INR (incl. GST)
4.16	Laying of Control & LT Cable upto 70 Sq.mm.	mtr	300	54.28	16,284.00
4.17	Hire charge of diesel Truck-9Tonne for shifting of material from store to site (As & when required)	per day	2	5,192.00	10,384.00
4.18	SF6 Gas multi analyser	per day	1	56,404.00	56,404.00
4.19	Breakdown maintenance of 33KV DTT (ABB)	per day	2	29,500.00	59,000.00
4..20	Semi-skilled worker (as when required)	man/day	35	779.95	27,298.25
4.21	Supply of 245kV CGL make condenser bushing	nos	1	14,86,800.00	14,86,800.00
4.22	Supply of 36kV porcelain bushing with metal part assembly	nos	1	3,18,600.00	3,18,600.00
4.23	Supply of 52kV CGL make condenser bushing	nos	1	7,91,308.00	7,91,308.00
4.24	Supply of 36kV porcelain bushing with metal part assembly	nos	1	3,18,600.00	3,18,600.00
Total of Schedule 3					**1,96,56,377.66**

Part B: Schedule 4: Miscellaneous & consumable items including small tools etc. for PSI

SN	Description of Work	Unit of measurement	Total Qty. of Assets	Rate in INR (incl. GST)	Amount in INR (incl. GST)
1.1	Provisional Sums: Miscellaneous & consumable items and payment shall be made as per actual expenditure	Lump Sump	1	17,70,000.00	17,70,000.00
Total of Schedule 4					**17,70,000.00**
	Grand Total (Schedule 3 + Schedule 4)				**2,14,26,377.66**