



**E-TENDER FOR**

**Design, Manufacture, Testing and Commissioning of Main Auxiliary  
Converter (APS) Units for Mumbai Monorail**

**TENDER DOCUMENT**

**Monorail PIU, M.M.R.D.A  
Wadala Depot, Next to Anik Bus Depot, Mumbai - 400037**

## **Tender Notice**

**MMRDA E-Tendering portal: <https://etendermmrda.maharashtra.gov.in>**

Digitally signed and unconditional online tenders in B-2 Form (Item Rate) are invited by the COO, Monorail PIU, Mumbai Metropolitan Region Development Authority, Bandra (East), Mumbai-400 051 for the following work from experienced agencies who are having the experience in Design, Manufacture, Testing and Commissioning of Main Auxiliary Converter (APS) Units for Metro/ Monorail/ Railways/ Central Govt. Organizations/ Central Government Public Sector Undertakings (CPSU)/ Airport Authority of India/ State Govt. organization/ State Govt. Undertakings through Govt. and or Govt. appointed Agencies or reputed private firms. The e-Tender will be available on the above mentioned portal from 24.03.2021 to 08.04.2021.

Sr. No	Name of Work	Estimated cost (In Rs.)	Earnest Money (In Rs.)	Security Deposit (In Rs.)	Contract Period
1	2	3	4	5	6
1	Design, Manufacture, Testing and Commissioning of Main Auxiliary Converter (APS) Units for Mumbai Monorail	9,60,00,000/- (Exclusive of GST)	4,80,000 /-	28,80,000 /-	06 Months

Tenderers who are participating in e-tendering for the first time shall have to obtain digital ID & password from the above mentioned portal.

All information regarding e-tendering is available on above portal.

For any additional information & help for uploading & downloading thee-tender, please contact MMRDA's e-tendering service desk at the following id: [etendersupport@mailmmrda.maharashtra.gov.in](mailto:etendersupport@mailmmrda.maharashtra.gov.in)

Phone No.:022-2659 7445.

Date: 24.03.2021  
Place: Mumbai

Sd/-  
COO  
Monorail PIU, MMRDA

**Design, Manufacture, Testing and Commissioning of Main Auxiliary Converter (APS) Units for Mumbai Monorail.**

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## Chapter-I

### Detailed e-Tender Notice and guidelines for submission of tender

**DETAILED E-TENDER NOTICE AND GUIDELINES FOR SUBMISSION OF E-TENDER**MMRDA e-Tendering Portal: <https://etendermmrda.maharashtra.gov.in>**1. General:**

Mumbai Metropolitan Region Development Authority (MMRDA) invites digitally Signed & unconditional online Tender in form "B 2" (Item Rate) from the Eligible Tenderers, who fulfills the qualifying or eligibility criteria as stipulated in Clause 9 of "Detailed e-Tender Notice" for the work of "Design, Manufacture, Testing and Commissioning of Main Auxiliary Converter (APS) Units for Mumbai Monorail".

**2. Key Details:**

Sr. No	Name of Work	Estimated cost (In Rs.)	Earnest Money (In Rs.)	Security Deposit (In Rs.)	Contract Period
1	2	3	4	5	6
1	Design, Manufacture, Testing and Commissioning of Main Auxiliary Converter (APS) Units for Mumbai Monorail	9,60,00,000/- (Exclusive of GST)	4,80,000/-	28,80,000/-	06 Months

**3. Online E-Tender Schedule**

Sr. No.	MMRDA's Schedule	Tenderer's Schedule	Start Date & Time	End Date & Time
1.	Tender Authorization and Publishing	-----	24/03/2021, 10.01	24/03/2021, 11.00
2.	-----	Tender Document Download	24/03/2021, 11.01	08/04/2021, 11.00
3.	-----	Pre-Bid Meeting	01/04/2021 14.00	Wadala Monorail depot Building, Wadala East Mumbai-400037
4.	-----	Bid Preparation and Submission	24/03/2021, 11.01	08/04/2021, 16.00
5.	Tender Closing	-----	08/04/2021, 16.01	08/04/2021, 18.00
6.	-----	Online Control Transfer of Bid	08/04/2021, 18.01	12/04/2021, 10.00
7.	Opening Envelope A– Tender Fees, EMD	-----	12/04/2021, 10.01	30/04/2021, 18.00
8.	Opening Envelope B– Technical Bid	-----	12/04/2021, 10.01	30/04/2021, 18.00
9.	Opening Envelope C– Financial Bid	-----	12/04/2021, 10.01	30/04/2021, 18.00

4. Tenderers who are participating in e-tendering for the first time shall have to obtain User ID & password from the above mentioned portal.
5. Bid Document and Supporting Documents can be downloaded for reference purpose from the e-Tendering Portal of MMRDA during the period mentioned in the tender notice. Interested Tenderers have to make payment of Rs. 3,540/- (Rupees Three Thousand Five Hundred Forty only) inclusive of GST (non-refundable) as Tender Processing Fee using online payment gateway during bid preparation using i.e. Debit Card/Credit Card/Net Banking. Tender Fee receipt can be system generated during bid preparation by the Tenderer. Tender fee receipt must be uploaded during bid preparation by the tenderer.
6. The competent authority reserves the right to reject any or all of the tender offers, without assigning any reason thereof.
7. The tenders shall be received online on above mentioned MMRDA official E-Tendering portal.
8. All tenderers shall submit the bid into 3 envelopes as listed below:-

**A. Envelope No. 1 :**

Confirming the documents as per tender clause: 2.3

**B. Envelope No.2 (Technical Proposal) :**

Confirming the documents as per tender clause: 2.4

**C. Envelope No.2 (Financial Proposal) :**

Confirming the documents as per tender clause: 2.5

**9. Eligibility Criteria:**

- a. The tendering firm/company should be either an Original Equipment Manufacturer (OEM) / authorized representative of OEM / Authorized Distributor / RDSO approved Company / Authorized Dealers or should be registered with appropriate authority. Authorization certificate / letter to be provided by the selected bidder. This may be relaxed based on recommendation of Competent Authority of the Mumbai Monorail.
- b. OEM should not be blacklisted globally or in India.
- c. **Average Annual Financial Turnover**  
The tenderer shall have achieved a minimum average annual financial turnover as certified by 'Chartered Accountant' equal to Rs.2.88 crores during last Three (3) financial years immediately preceding the Financial Year in which bids are invited.
  - To ascertain this, tenderer shall furnish /upload the financial statement (Audited balance sheet) duly certified by Chartered Accountant.
  - CA certificate mentioning the average annual turnover of similar works duly certified by Chartered Accountant
  - The turnover can be enhanced by 10% every year to bring the present level.
- d. **Work Experience:**

Experience of having successfully completed similar works during last 3 years ending last day of month previous to the one in which applications are invited should be either of the following:

The tenderer shall have successfully executed orders confirming to any of i to iii listed below, for Design, Manufacture, Testing and Commissioning of Main Auxiliary Converter (APS) Units or Similar items of equal rating and capacity during Three years. The tenderer should furnish a Completion certificate from his client regarding successful completion of work/s.

i. One single work of "Similar Nature" of value at least Rs. 7.68 Crores.

OR

ii. Two works of "Similar Nature" of value at least Rs. 4.80 crores each

OR

iii. Three works of "Similar Nature" of value at least Rs. 3.84 Crores each

(Note: Definition of the "similar work" means Design, Manufacture, Testing and Commissioning of Main Auxiliary Converter (APS) Units for Metro/ Monorail/ Railways/ Central Govt. Organizations/ Central Government Public Sector Undertakings (CPSU)/ Airport Authority of India/ State Govt. organization/ State Govt. Undertakings through Govt. and or Govt. appointed Agencies or reputed private firms and a certificate from the employer for satisfactory completion of work or any of the relevant document indicating the date of commencement of work, date of completion of work and cost of completed work should be submitted as per condition above. The experience/completion certificate should be signed by the Engineer in charge, not below the rank of an Executive Engineer or equivalent).

10. Validity period of the offer of the tenderer will be 180 days from the date of opening of the financial bid of the e-tender.
11. The Defects Liability Period from the date of delivery of last materials Completion is **3 Years**.
12. The lowest tenderer will have to submit the rate analysis of all items, if called for.
13. While quoting the offer, the tenderer should mention individual Item Rate.
14. Tenderer should upload scanned attested photo copies of all documents on above mentioned MMRDA official e-Tendering portal & produce in original on request by MMRDA at any stage from e-Tender opening.
15. A statement showing names of partners, Directors, etc. of the firm with complete address of each should be uploaded to above mentioned MMRDA official e - Tendering portal and authorized person on behalf of firm should sign e-tender using digital signature certificate.
16. The acceptance of tender will be intimated by email or otherwise by the authority competent to accept the tender or by the higher Authority of MMRDA, to the tenderer, which shall be deemed to be an intimation of the tender given by the Authority Competent to accept the tender.
17. The lowest tenderer shall be equally responsible for executing, completing the work as per specifications and if any decision of consumer/any Hon. Court is received regarding quality of work then the judicial decision will be binding on the tenderer for rectification.

18. Awarded tenderer shall have to submit signed copy of tender manually to the department, if asked by MMRDA.
19. MMRDA reserves the right to verify financial transaction of tenderer in his Bank /Financial Institutions. Tenderer should give authority to that effect along with his accounts number and Bank/Financial institution name & address. Any changes/ modification may be communicated to MMRDA immediately.
20. If there is any amendment in the tender the same shall be published on following MMRDA's official e-Tender portals/website:  
  
MMRDA Portal: <https://etendermmrda.maharashtra.gov.in>  
  
MMRDA Website: <https://mmrda.maharashtra.gov.in>
21. The tenderer should visit the site prior to submission of tender and ascertain the local site condition, working restrictions, obstructions, conditions in tender document regarding necessary approvals, NOC required for the work from the local Authorities and shall quote the offer inclusive of all such expenses likely to be incurred while execution of the work. No claim or compensation for any extra payments incurred by the tenderers towards the approvals/NOC's/permissions will be entertained by MMRDA, which shall be noted.
22. In case of any queries, Tenderers may contact MMRDA's e-tendering service desk at [etendersupport@mailmmrda.maharashtra.gov.in](mailto:etendersupport@mailmmrda.maharashtra.gov.in) on any working day from 10 am to 5.30 pm. before final date of submission of the e-tender (PhoneNo.022-26597445).
23. If tenderer fails to supply the material as per requirement, the material will be procured from other agency on his risk and cost.
24. The tenderer has to supply material as per the orders and requirement of Engineer in-charge. The exact quantity of supply will be informed from time to time to the tenderer.
25. The charges for periodical testing and/or Third Party Inspection (TPI) report (If any) shall be borne by tenderer. The price quoted of the item in the Schedule "B" should be inclusive of periodical testing and/or Third Party Inspection (TPI) report (If any).
26. All tenderers shall submit one set of hard copies of the all documents which are uploaded in Envelope A & B; in the office of COO, Monorail - PIU, Wadala Monorail Depot, Next to Anik Bus Depot, Wadala (E), Mumbai 400 037; within 2 days from the last date of online control transfer of bid.



# Guidelines for submission of e-Tender

## 1. GENERAL GUIDELINES

### 1.1 Location of the work:

Wadala Monorail depot in Mumbai.

### Scope of work in brief:

The scope of work for Design, manufacture, testing and commissioning of Main Auxiliary Converter (APS) Units are given below-

- 1 It includes engineering, design, manufacturing, supply, erection, testing and commissioning of auxiliary power converter for Mumbai Monorail trains to supply output of 3\*415 Volt AC load and 24 V DC to Battery charger and DC load.
- 2 The Proposed Auxiliary Power Converter should be identical to the existing auxiliary power converter in all cases, i.e. Design, rating of individual parts, Input, output, dimensions and weight.
- 3 Bidder should study the technical specifications of existing auxiliary power converter installed in Mumbai Monorail trains and capable to provide same design and technical specifications in proposed auxiliary power converter.
- 4 Successful bidder shall design; manufacture a proto type unit of auxiliary power converter.
- 5 Prototype tests will be performed on one unit (manufactured as per approved design) to verify that product to meet the requirements specified and agreed upon between MMRDA & bidder. Series manufacture shall commence only after successful prototype tests.
- 6 The prototype units will be inspected & tested by the MMRDA at the factory premises or at mutually decided venue where all the facilities should be made available for carrying out the prototype test.
- 7 The equipment will be kept in field trials for a period of three months. MMRDA have reserve right to increase or decrease period of testing for proto type unit.
- 8 Further, Serial production shall only start after successful trial run on Mumbai Monorail trains and clearance to this effect given by MMRDA.
- 9 The MMRDA will associate and witness the tests in the RSTs also till they are successfully completed.
- 10 Any defects noticed / design improvement found necessary as a result of the test / trial shall be carried out by the bidder in the least possible time.
- 11 Routine tests are to be carried out to verify that properties of the product corresponding to those measured during type tests. Routine test are to be carried out by the manufacturer on each equipment.

- 12 The bidder shall submit complete test programme for type and routine test to MMRDA as a part of design approval. Bidder will carry out the test as per mutually agreed test programme at his own cost and all the expenses for factory visit shall be borne by bidder.
- 13 The bidder shall supply detailed instructions for proper installation of the equipment on the trains. For this purpose the bidder should also depute his representative during installation of the first prototype unit.
- 14 The bidder shall be responsible for commissioning, testing & field trials of the prototype equipment in service and depute team of engineers for this purpose.
- 15 The bidder shall also quote for special tools, testing jigs, laptop preloaded with MS Windows and application software and instruments, which may be required for troubleshooting and maintenance of the auxiliary power converter.
- 16 The bidder shall be responsible for carrying out all the modifications at his own cost on any part of the equipment supplied for satisfactory operation of the equipment.
- 17 The design shall be developed as per requirement given in the specification. The detailed design shall be submitted to MMRDA for scrutiny and approval before commencing of the manufacturing.
- 18 The bidders shall be responsible for performance of complete Auxiliary Power Converter.
- 19 The converter/inverter system will be capable of withstanding the maximum short circuit current under fault conditions and these will be established through calculations. The converter / inverter system shall also be designed to withstand extreme disturbances like short-circuit / open circuit etc. at all points of input / output interfaces with trains, without any failure.
- 20 The electronics of the Converter shall be designed to be sealed from the remaining part of the Converter so as to ensure that there is no dust ingress whatsoever in to the electronics.
- 21 The proposed Auxiliary power Converter should be IP65 and self-cooled so that there will be no dust ingress inside the panel.
- 22 For its cooling, internal ventilation arrangement for removal of heat shall be provided. Bidder shall propose modular cooling system on approval of MMRDA authority.
- 23 All equipment shall be adequately earthed, insulated, screened or enclosed. They should be provided with essential interlocks and keys as may be adequate to ensure the protection of the equipment and safety of those concerned with its operation and maintenance.
- 24 In design and construction, reliability and maintainability will be of paramount consideration. Bidder will submit reliability calculations for different devices, cards and sub-assemblies. Adequate margin will be provided to take into account ambient conditions prevailing in India.

- 25 Modular constructions will be adopted wherever considered possible. Easy access for inspection / maintenance and minimum maintenance requirement will be given special consideration in design and layout.
- 26 A safety margin of at least 10°C shall be kept with respect to maximum permissible junction temperature of power devices declared by the manufacturer.
- 27 The design calculations of worst case temperature rise of equipment shall be made.
- 28 The electronic rack shall be housed within a sealed casing. The internal airflow will be provided by internal fans, if required.
- 29 All the proposed equipments shall not violate the given space envelopes of the equipment to be replaced. Any needed change due to new equipment has to be demonstrated with the help of suitable drawings.
- 30 It is the bidder responsibility to make sure that output quality of the Auxiliary Power Converter is entirely suitable for the existing system installed in Mumbai Monorail (RSTs).
- 31 The bidder can suggest his own cooling system within the existing floor layout available.
- 32 MMRDA may conduct surprise check on manufacturing process and quality control along with any of the test to ensure quality of product.
- 33 A suitable fault diagnostics and trouble-shooting arrangement shall be provided locally on the auxiliary converter. The faults shall be down loadable on a laptop computer through a standard port /interface.
- 34 Large capacity of storage of faults along with the background data should be provided, so that data pertaining to at least 30 days are kept stored. Details of the fault diagnostics and indication of faults / health status shall be finalized during the design approval stage.
- 35 The individual equipments, system and sub-system as may be necessary shall be type tested and routine tested in accordance, with relevant IECs.
- 36 All the instruments used for testing should be duly calibrated. The calibration certificates are to be shown to inspecting authority on demand.
- 37 The bidder shall arrange training to MMRDA Engineer and technicians for operation and maintenance of Auxiliary power converter including fault trouble shooting and rectification.
- 38 All the commissioning testing shall be done by bidder at site.
- 39 The bidder shall be responsible for commissioning, testing & field trials of all the equipments in service and depute team of engineers for this purpose.
- 40 The use of wires / cables shall be reduced to minimum. Bus bars will be of high grade Copper and insulated bus bar is preferable. The wires / cables shall be of high grade, Copper with halogen free thin walled insulations. All the cable terminations shall be made through crimped sockets / lugs and wires with circuit and diagram furnished.

**41. Safety :**

Following shall be provided in each Auxiliary converter cubicle for human safety.

- a) Indication of presence of high voltage (Voltage Indicator)
- b) Safety interlocks on front panel with lock.
- c) Acoustic Noise generated by circuits and components should be as low as possible, less than 80 dB (A) at a distance of 1 M from the equipment.
- d) The cards shall be provided with LED indication to show the health of cards, to assist Maintenance and operating personnel in trouble shooting.
- e) The power portion of the equipment should be suitably protected to prevent accidental contact. The shields and screens shall be properly earthed.
- f) The major equipments / subassemblies should bear marking and serial number. The equipment should contain serial number and make of bidder.

**42. VMS :**

Control and communication of Auxiliary power converter with Vehicle Management System (VMS) shall be identical as per existing auxiliary Power Converter installed in Mumbai Monorail (RSTs).

**43. Manufacturing Information for Auxiliary Power Converter must be submitted along with following documents / details:**

- 1 General arrangement drawing.
- 2 Tree structure based bill of material covering all the items including hardware.
- 3 Mechanical drawings with tolerances for all the components and final structure.
- 4 Power scheme wiring diagram and cable schedule with harness details.
- 5 Control electronics wiring diagram and cable schedule with harness details
- 6 Process details (manufacturing and assembly instructions),

**44. Temperature**

1. Maximum temperature inside stabled RST under sun : 50°C
2. Maximum temperature inside working loco : 55°C
3. Minimum temperature : 0°C
4. The equipment shall be able to start up at the maximum specified temperature inside the RST without any pre-cooling requirement.
5. **Humidity:** Up to 100% during rainy season.
6. **Rainfall:** Very heavy in certain areas. The equipment shall be designed suitably.

**45. Vibration:**

The equipment shall be designed to withstand the vibrations and shock encountered in service satisfactorily as specified in IEC 61287 and IEC 60571 publications for the converter and electronic equipments.

#### 46. **Protection**

The devices used shall be protected against high rate of rise of voltage & current, line transient surge, switching surges etc. The Auxiliary Power converters shall be protected against:

- (a) Ground fault in 3-phase load
- (b) Auxiliary converter fault
- (c) Thermal over loading
- (d) Failure in converter
- (e) High / low voltage in DC link
- (f) Failures of power supply to control electronics
- (g) DC link short circuit
- (h) Over voltage / under voltage
- (i) Over current

#### 47. **Testing :**

##### i. Visual Inspection : ( Tolerance, dimensions and weight )

- a. Visual inspection –The object of visual inspection is to check that the equipment is free from defects and the equipments are as per approved drawing.
- b. The make, rating of equipments, subassemblies will be checked with the details as per approved design proposal submitted in design proposal.
- c. All the important dimensions will be measured and should be within permissible tolerance.

##### ii. Burn in test

The cards used on the equipment will be subjected to burn- in test. The cards will be kept energized during the test. Functional test of each card will be carried out after the burn in test. This will be part of internal test by manufacturer, whose results will be submitted during routine test.

##### iii. Cooling test –

The purpose of this test is to verify that the cooling of various components / assemblies. The parameters for measurement to check efficacy of cooling system will be decided based on scheme proposed as part of design proposal. It should be as per approved design signed by competent authority.

##### iv. Insulation resistance and Dielectric test –

The insulation resistance with 1000 V megger shall not be less than 100 M ohms for all the circuits.

##### v. Temperature rise test –

Temperature rise should not exceed as specified in the design approved by MMRDA.

##### vi. Damp heat test – Function test of each card will be carried out after the damp heat test.

##### vii. Performance Test –

Performance of Converter, Inverter and Battery charger at full load and half load.

viii. Short Circuit test –

To be conducted as per specification, short circuit current should be measured.

ix. Weight: It should be as per specification and approved design signed by competent authority.

x. Output Voltage and Current measurement.

xi. Endurance test.

xii. Dry heat and Damp heat - As per IEC 60571.

xiii. Load break test.

xiv. Input under voltage and Over Voltage Test – As per specification given in the proposal.

xv. Over Voltage and over load protection.

xvi. Emergency mode operation test (Emergency protection).

xvii. Power loss determination.

xviii. Interference on control electronics/ VMS (Vehicle Management System) with existing system.

xix. DC link discharge.

xx. Performance test by fault simulation.

xxi. Earth fault –

Simulate the earth fault by connecting a suitable resistor between cubicle frame and output phases. The Power Converter should not trip and earth fault indication will be in “OFF” state till the leakage current is less than limit approved as part of design proposal submitted by the Bidder.

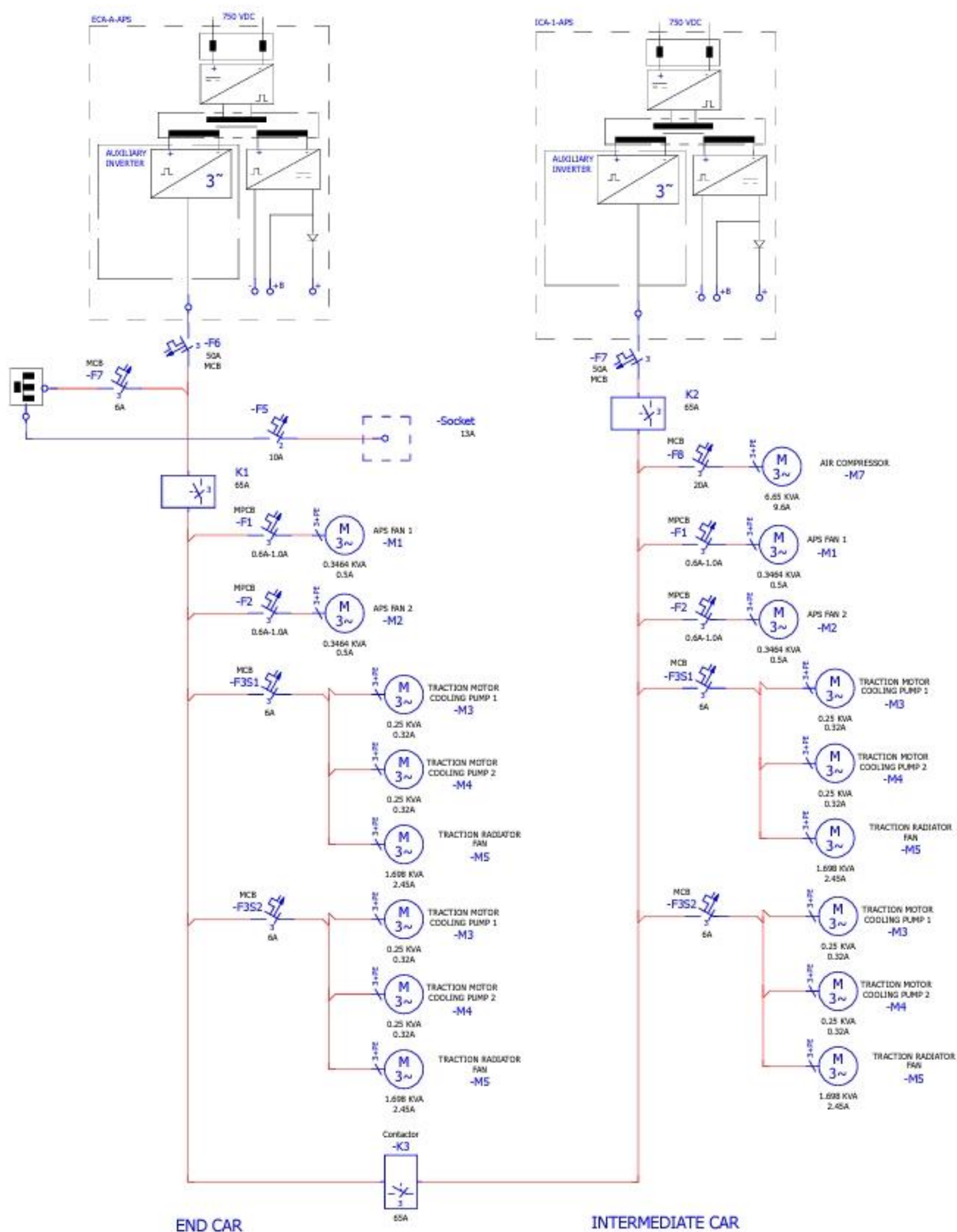
**48. Reconnection of the loads under emergency**

If one of the auxiliary power converters of end car or intermediate car fails then the provision is made for continued operation with adjacent Auxiliary power converter. The restoration of loads is done with the help of contactors with interlocking feature. These contactors are controlled by the VMS. The necessary actions will be through VMS.

In existing Auxiliary Power supply system, Auxiliary Power Converter installed in end car and intermediate car are different from each other such that intermediate car Auxiliary power converter supplying to Air compressor and end car auxiliary power converter provided with zigzag transformer for 230V Power output in end car.

While designing proposed Auxiliary Power converter, both end car and intermediate car Auxiliary power converter should be identical with required modification so that any of the Auxiliary power converter can be used in both the cars. Please refer circuit shown below for existing auxiliary power converter

**Diagram :-**





**49. Deliverables:**

Along with the APS units, successful bidder must have to provide following items:

**i. Laptops:**

Total 4 Nos. of laptops must have to be given for the troubleshooting and remote assistance purpose. Out of 4 Nos, 2 Nos. of laptops should having touch screen facility. The laptops should have authorized license for all required & essential software like operating system, Microsoft office, antivirus protection and any other software required to operate/maintain/repair/assist to APS system.

**ii. Manuals:**

Operating, repair and maintenance manuals must have to submit along with each APS unit in total 2 hard copies & 1 soft copy.

**iii. Spares List:**

The success bidder shall provide the 1 (one) set of critical spares of each APS unit after successful commissioning of the materials. And also provide the complete list of spares / consumables parts of each APS unit.

**1.2 Preliminary works:-**

The following allied activities are also included in the scope of the work. No separate payment shall be made for these activities.

- a) A detailed program for the said work should be worked out in consultation with Engineer-in-charge.
- b) Getting tested samples of various materials proposed to be used on the work as required as per the provisions of the contract and as per instruction Engineer-in-charge/COO.
- c) All items included in the tender are completed items of work and are inclusive of all labour, material, machinery all leads and lifts and equipment required for completion of work. The rates are inclusive of all taxes / levies including works contract tax and stamp duties wherever applicable, except stated otherwise, elsewhere.
- d) Contactor may avail the facility of electricity, water and adequate office area for execution of repair works in Mumbai Monorail Depot free of charge.

**1.3 Time limit for Completion of Work:-**

The work completion period is expected over in 06 (Six) months from the date of work order to commence the work, or and when required time to time.

**1.4 Earnest Money and Security Deposit:**

Earnest money for this work will be 0.5% of estimated cost put to tender (i.e. Rs.4,80,000/-). Security deposit will be 3% of estimated cost put to tender (i.e. Rs. 28,80,000/-)

**1.5 Details of Earnest Money:-**

EMD Payment as mentioned above has to be made through RTGS / NEFT mode using the System Generated Challan. Tenderers should ensure that the payment to the EMD is made at least 5 working days prior to the last date of Bid Preparation and Submission of the Tender Schedule to have seamless submission.

Tenderers need to upload scanned copy of EMD paid receipt during bid preparation.



Tenderers should mention the beneficiary details for EMD refund in the Earnest Money Deposit Form for fields marked as details required for Refund. MMRDA or e-Tendering Service Provider will not be liable for delays caused in EMD refund due to incorrect beneficiary details.

The earnest money deposit of unsuccessful tenderers will be refunded through RTGS, NEFT mode only after finalization of the tender for which the above refund details are required. Tenderers should also upload scanned copy of cancelled cheque along with refund letter for refund of their EMD payment. In case of successful tenderer, amount of the earnest money deposit may be transferred towards part of the security deposit to be paid after the award of the work, if he intends to do so in writing.

Tenderers failing to complete the payment of EMD using the above mentioned process of RTGS / NEFT after downloading the system generated challans will not be able to submit their bids.

**Note:** Kindly note that transfer of funds to MMRDA's account through NEFT/ RTGS mode, from the Tenderers' ICICI accounts is currently not possible. In case of funds transfer through NEFT / RTGS, Tenderers are requested to transfer from any other bank (excluding ICICI Bank).

- EMD Refund Account should remain active until tender is awarded.
- EMD Refund will happen only after awarding of tenders.

#### **1.6 Details of Security Deposit:**

The successful tenderer shall have to pay a sum of Rs. 28,80,000/-- or 3% of accepted tender cost, whichever is higher, as security deposit by Bank Guarantee issued by the bank as enlisted in Annexure -I only, drawn in favor of 'Mumbai Metropolitan Region Development Fund' payable at Mumbai. The BG should be in SFMS mode only. Details required for SFMS mode will be shared separately, if asked by tenderer. The tenderer shall be responsible to pay stamp duty as payable under Bombay Stamp Duty Act for deposits in the form of Bank Guarantee etc. and shall furnish a copy of challan having paid the same. Circular issued by F&A towards acceptance of BG is attached at Annexure-I. Successful bidder needs to comply with the same and submit.

**1.6.1** The tenderer shall be responsible to pay stamp duty as payable under Bombay Stamp Duty Act 1978 for Deposit paid in form of Demand Draft / Bank Guarantee etc. and shall furnish a copy of challan having paid the same to Government. Failure to furnish within 1 month from the date of work order, the same will be covered at the rates in prevalence as per Stamp Duty Act. From the bills and resubmitted to Government.

#### **1.6.2 Refund of Security Deposit:**

50% of the total security deposit shall be refunded to the tenderer after completion of work, unless Engineer in-charge/COO is of the opinion that in order to safe guard against defects and pending claims against the tenderer, it is necessary to retain more than 50% of the total security deposit. On expiry of defects liability period or payment to final bill whichever is later, Engineer-in-charge shall on demand from the tenderer, refund to him the remaining portion of the security deposit, provided Engineer in-charge is satisfied that there is no demand outstanding against the tenderer.

#### **1.6.3 Validity of Tender:-**

Ninety days (180 days) from the date of opening of bid. During this period no tenderer shall be allowed to withdraw his tender or revise the rates.

### **1.7 Revision or Amendment in Bid Document:**

The Competent Authority, may omit or suspend certain items of work, revise or amend the tender document before online submission of tender. Such revisions or amendments or extension, if any, shall be communicated to all concerned by email or above mentioned MMRDA official e-Tendering portal which will be issued at least 7 days before the due date of receipt of tender.

### **1.8 Tender Rates:**

The rates quoted in schedule 'B' are for finished and completed items and no extra amount for carting or transporting material, labour etc. shall be paid unless specifically so mentioned or provided for in the tender. The rates are inclusive of all leads and lifts for all materials in the completed items and also include all taxes, duties (including stamp duty), royalties etc. including GST/Works Contract Tax. No extra payment on this account will be made. The Income Tax, Works Contract Tax, Labor cess etc shall be deducted at source at the rate that will be in force from time to time.

- 1.9 The successful tenderer will have to sign an agreement as required. The necessary stamp duty, etc. required for completing the agreement will have to be borne by the tenderer.
- 1.10 The tenderer is requested to visit the site of the work and see for himself the site conditions regarding layout and all other matters, affecting the work before quoting the rates which may above/below the estimated rates. Submission of a tender by a tenderer implies that they had read these instructions and has made himself aware of the scope of the work, conditions of contract and the MMRDA will not, therefore, bear any extra charges on any account, in case he finds on to have misjudged the site conditions or specifications.
- 1.11 Conditional tender shall not be accepted.
- 1.12 The right to reject all or any of the tenders without assigning any reason, whatsoever, is reserved with the Competent Authority.
- 1.13 The COO, Monorail-PIU MMRDA shall be the Competent Authority for accepting the tender.
- 1.14 The tenderer will have to enter into regular agreement in form B-2 on the receipt of acceptance of the tender and shall abide by all the rules and regulations embodied therein and pay the initial security deposit as shown in the detailed e-tender notice, failing which the MMRDA shall be entitled to forfeit the full amount of earnest money deposited by the tenderer.
- 1.15 (1) The successful tenderer shall have to work in co-ordination and cooperation with any other contracting agencies appointed by the MMRDA to work simultaneously in the same or adjoining area. The decision of the MMRDA in case of any dispute between the different agencies appointed by the MMRDA shall be final and binding.
  - (2) Income tax, GST, labour cess and any other central, state, local body tax ordered by the competent authority at the rates in force during the progress of contractor the percentage that will be in force from time to time shall be recovered /deducted from the gross amount of the bill whether for measured work or advance payment or secured advance.
  - (3) The Tenderer shall have to make his own arrangement at no extra cost to the MMRDA for water supply, sanitation and electric supply etc. at the site of work.
  - (4) The detailed E-tender notice along-with the subsequent corrigendum, addendum etc. shall form part of the tender document.

- (5) If the tenderer wishes to furnish the initial security deposit in Government Securities, endorsed to the Engineer or Bank Guarantee Bond, the validity period of such Bond shall be at least twice the specified time provided in the tender or up to the defect liability period whichever is more.
- 1.16 (1) The tenderer shall furnish all tools, instruments, supervisory staff, labour, materials, any temporary works, consumable and everything necessary whether or not such items are specifically stated here in, for completion of the job in accordance with the specification requirements.
- (2) The Tenderer shall carry out the necessary surveys of the site required for above work before starting the work.
- 1.17 The tenderer shall familiarize himself with the site where he is expected to execute the work considering all the hurdles likely to face during execution.
- 1.18 The tenderer whose tender is accepted will be required to produce to satisfaction of the Concerned Authority valid and current license issued in his favor under the provision of the contract labor (Regulations and abolition) Act 1970 and in case of failure to do so the acceptance of the tender would be liable to be withdrawn and earnest money forfeited.
- 1.19 Bids from joint ventures are not accepted.

## **2. GUIDELINES FOR SUBMISSION OF e-TENDER**

**2.1** Tenderer shall follow the instructions on the portal for submission of e-tender.

**2.2** Tender shall be submitted online on the e-tendering portal in 'three electronic envelopes system' within prescribed schedule.

### **2.3 e-Envelope A**

Tenderer should generate and upload scanned copies of Receipt for the following:

- i. Generate Receipt for e-tender fee.
- ii. Upload Receipt of Earnest Money Deposit.

### **2.4 e-Envelope B (Technical bid):**

Tenderer shall upload scanned copies of the following:

- i. Certificate of registration, if any, as approved tenderers in appropriate category and class.
- ii. Copies of original documents defining the constitution or legal status, place of registration and principal place of business, written power of attorney of the signatory of the Bid to commit the Tenderer.
- iii. Scanned copy of GST registration certificate & PAN Card.
- iv. Last three years audited financial statements and certificate from CA stating the "Average Annual Turnover". CA certificate must include UDIN.
- v. ITR copies of last 3 financial years.
- vi. Solvency Certificate from the as per list of banks given in Annexure - 1 of the tenderer's financial stability (20% of amount put to tender). The solvency certificate shall be as per Format – V of the bid document. Solvency certificate other than the Format V will be rejected. Certificate should be within 3 months from last date of submission of tender. CA certificate must include UDIN.
- vii. Net worth Certificate of the previous financial year; Net worth of the firm/company should be positive. Certificate should be issued by a Chartered Accountant.
- viii. Total monetary value of works performed for each of the last Three Years (As per Format – VI).
- ix. Financial eligibility: The bidder should have current asset – current liability as per balance sheet at least = estimated cost put to tender.
- x. Experience in works of a similar nature and size for each of the last Three Years and details of works underway or contractually committed and clients who may be contacted for further information on those contracts (As per Format – VII)
- xi. Scanned copy of Power of Attorney, if applicable.

- xii. Details of technical personnel available with the Tenderer. (As per Format – VIII)
- xiii. Declaration by the tenderer as mentioned in Format – I.
- xiv. Format for Submission of “Eligibility Requirements and Undertaking” (As per Format – II)
- xv. Declaration regarding original equipment manufacturer (OEM) tenderer (As per Format – III)
- xvi. Compliance sheet to the specifications to be provided by the tenderer as mentioned in bid document.
- xvii. Affidavit on Rs. 500/- stamp paper as mentioned in Format –IV
- xviii. Current litigation history as mentioned in Format - IX
- xix. Scanned copy of duly signed common set of deviations, if any.

## **2.5 e-Envelope C (Financial bid):**

- a) Upload the digitally signed copy of Schedule B.

## **2.6 Procedure for Tender opening:**

- a) Contents of e-Envelope A will be scrutinized and only those tenderers who have fulfilled the requirements shall be eligible for opening of e-Envelope B. Similarly, contents of e-Envelope B will be scrutinized and only those tenderers who have fulfilled the requirements shall be eligible for opening of e-Envelope C.
- b) Tenderer may remain present in the office of the tender opening authority at the time of opening of financial bids. However, the results of the financial bids of all tenderers shall be available on the e-Tendering portal immediately after completion of the opening process.
- c) MMRDA may ask the clarifications / required documents related to bid submissions, if necessary.

## **Chapter - II**

# **General Conditions and Special Conditions of Contracts**

## **CHAPTER-II**

### **General Conditions and Special Conditions of Contracts**

1. These are to apply as General Conditions and Special Conditions of Contracts, unless otherwise already provided for contrary elsewhere in this contract.

#### **2. Interpretation**

- 2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neutral, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about the Conditions of Contract.
- 2.2 If sectional completion is specified in the bid document, references in the Conditions of Contract to the works, the Completion date, and the Intended Completion Date apply to any section of the works (Other than references to the Completion date & intended completion date for the whole of the works).
- 2.3 The documents forming the Contract shall be interpreted in the following order of priority, however in all cases of errors, omissions or doubts or discrepancies in dimensions or description in drawing or in specification etc:
  - i. Letter of Intent/Acceptance
  - ii. Letter of Awards of Contract
  - iii. Common Set of Clarifications/Deviations and Addendum/corrigendum, if any
  - iv. Addition General and Project Specific Conditions
  - v. Schedule of Price Bid
  - vi. Technical Specifications
  - vii. Tender Drawings, if any

#### **3. Engineer's Decisions:**

Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

#### **4. Delegation:**

The Engineer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

#### **5. Communications:**

Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

#### **6. Other Contractors:**

The Contractor shall cooperate and share the Site with other contractors, public authorities, Owners of utilities, and the Employer between the dates given in the Schedule of Other Contractors. The Contractor shall provide facilities and services for them as described in the Schedule. The employer may modify the schedule of other contractors and shall notify the contractor of any such modification.

## **7. Approval by the Engineer:**

- 7.1** The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Engineer, who is to approve them if they comply with the Specifications and Drawings.
- 7.2** The Contractor shall be responsible for design of Temporary Works.
- 7.3** The Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works.
- 7.4** The Contractor shall obtain approval of third parties to the design of the Temporary Works where required.
- 7.5** All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Engineer before their use.

## **8. Safety:**

The Contractor shall be responsible for the safety of all activities on the Site.

## **9. Correction of Defects:**

- 9.1** The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period (**3 years**). The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 9.2** Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the time specified by the Engineer's notice.

## **10. Uncorrected Defects:**

If the Contractor has not corrected a Defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

**Note:** Where in certain cases, the technical specifications provide for acceptance of works within specified tolerance limits at reduced rates, Engineer will certify payments to Contractor accordingly.

## **11. Currencies:**

All payments shall be made in Indian Rupees Only.

## **12. Recovery of compensation for delayed completion of contract:**

- 12.1** The Contractor shall pay compensation to the Employer at the rate per day stated in the document that the Completion Date is later than the Intended Completion Date. The Employer may deduct the compensation from payments due to the Contractor. Payment of liquidated damages does not reduce the Contractor's liabilities.
- 12.2** If the Intended Completion Date is extended after compensation has been paid, the Engineer shall adjust the same in next payment certificate.

"Time is the essence of the contract and payment or deduction of compensation shall not relieve the contractor from his obligation to complete the work as per agreed construction



program and milestones or from any other of the contractor's obligations and liabilities under the contract."

### **13. Factory acceptance Test:**

13.1 Prior to packing of the components for shipment deliver, supplier shall at its own cost, carry out the factory inspection and testing of the components to ensure that the components confirm in each and every aspect of the specification.

13.2 The supplier shall notify MMRDA of the schedule and place of factory inspection and testing by giving at least ten (10) days advance notice, before such factory inspection and testing. Attendance or non-attendance at the factory inspection and testing by MMRDA shall not relive supplier of its obligation under this contract, or be interpreted in any way of implying acceptance of service and/or Component.

13.3 If any part of the Component has been covered up or put out of view before the requisite factory inspection and testing, the Supplier shall uncover any part or make openings or access as required by MMRDA. All expenses for making such openings or access and the subsequent reinstatement shall be borne by the Supplier.

13.4 The Supplier shall submit a written report to MMRDA after the completion of factory inspection and testing.

13.5 MMRDA may reject any Component that fails to comply with the Specifications and in such an event, the Supplier shall at its own costs and expense promptly rectify non-conforming Components, which shall be subject to re-inspecting and re-testing. The Supplier shall not be entitled to an extension of the Completion Date and the delivery of non-conforming Services and/or Components shall not constitute delivery of the Service and/or Components in accordance with the terms of the Contract.

13.6 Upon FAT, Supplier will arrange the trip and accommodation of 4 people for 3 nights for FAT purposes; the cost for which shall be borne by the bidder.

13.7 Post successful FAT, Supplier to deliver 4 units of APS to MMRDA, which RST team will fix in one Train and check the performance of the same for 14 days. Within these 14 days, MMRDA may either give its comments requiring modification in the APS unit(s) or approves the same. Post such approval supplier to deliver, test and commission the balance units of APS.

### **14. Completion:-**

The Contractor shall request the Engineer to issue a Certificate of Completion of the Works and the Engineer will do supervision on deciding that the Work is completed.

### **15. Taking Over:-**

The Employer shall take over the Site and the Works within seven days of the Engineer issuing a certificate of Completion.

### **16. Final Account:-**

The Contractor shall supply to the Engineer a detailed account of the total amount that the

Contractor considers payable under the Contract before the end of the Defects Liability Period. The Engineer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within reasonable period of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within reasonable period a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate, within reasonable period of receiving the Contractor's revised account.

**17. Operation, Maintenance Manuals and Training to MMRDA Technical Team:**

Contractor shall have to submit one soft copy on CD of "Operation and Maintenance Manual" and one hard copy within 10 days after completion of work for each equipment.

Contractor shall provide Training to MMRDA Technical Team about operating and maintenance of the APS, after successful commissioning of all the items of this tender.

If the Contractor does not fulfill above requirements by the dates stated as above, or they do not receive the Engineer's approval, the Engineer shall withhold the amount of Rs.5,00,000/-from payments due to the Contractor.

**18. Termination:-**

**18.1** The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

**18.2** Fundamental breaches of Contract include, but shall not be limited to the following:

- (a) The Contractor stops work when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Engineer.
- (b) The Engineer instructs the Contractor to delay the progress of the Works and the instructions are not withdrawn.
- (c) The Employer or the Contractor is made bankrupt or goes into liquidation other than for are construction or amalgamation.
- (d) The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer.
- (e) The Contractor does not maintain a security which is required.
- (f) The Contractor has delayed the completion of works for which the maximum amount of liquidated damages can be paid as defined in the Contract.
- (g) If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in the executing the Contract.

For the purpose of this paragraph: "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment to the Employer, and includes collusive practice among Tenderers (prior to or after bid

submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.”

**18.3** When either party to the Contract gives notice of a breach of contract to the Engineer for a cause other than those listed above, the Engineer shall decide whether the breach is fundamental or not.

**18.4** Notwithstanding the above, the Employer may terminate the Contract for convenience.

**18.5** If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

**19. Payment upon Termination:**

**19.1** If the contract is terminated because of a fundamental breach of contract by the contractor, the Engineer shall issue a certificate for the value of the work done less advance payment received upto the date of the issue of the certificate, less other recoveries due in terms of contract, less taxes due to deducted at source as per applicable law and less 20% percentage to apply to the amount of work not completed. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the contract or the difference shall be a debt payable to the Employer.

**19.2** If the Contract is terminated at the Employer's convenience or because of a fundamental breach of contract by the Employer, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the works and the contractor's costs of protecting and securing the works and less advance payments received upto the date of the certificate, less other recoveries due in terms of contract, less taxes due to deducted at source as per applicable law.

**20. Property:**

All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.

**21. Release from Performance:**

If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

The contractor shall engage an authorized and fulltime qualified technical representative on the work capable of managing and guiding the work and understanding all the specifications and contract conditions who will take orders as shall be given by the Engineer or his representative from time to time and shall be responsible for carrying out the work promptly and correctly. His technical representative should be posted at the site with prior approval of the Engineer and should not be removed from the site without his prior approval.

**22. Permits and Licenses:**

The Contractor shall procure at his own expenses all permits and licenses comply with rules and regulations laid down by the concerned authority and pay all charges, fees and give all

notices necessary and pay all dues in connection with lawful execution of the work.

**23. Indemnity:**

**A.** The contractor shall indemnify the MMRDA against all actions, suits claims, damages and demands brought or made against him in respect of anything done or omitted to be done by the contractor in execution of or in connection with the work of this contract and against any loss or damage to the MMRDA in consequences of any action or suit being brought against the contractor for anything done or omitted to be done in execution of the work of this contract.

**B. Project Specific Conditions:**

**a. Agency Obligation:**

- i. The contractor shall co-ordinate with the works of other designated contractors of MMRDA on or in the vicinity of the stations;
- ii. The contractor shall carry out the work in such a way so as to take all safety precautions necessary during the course of loading the materials;
- iii. The contractor shall arrange insurance for employees as well as own & hired equipment's as required under applicable law;
- iv. The contractor shall hold MMRDA harmless and save MMRDA from and against all actions, suits, proceedings, loss, cost, damages, charges, claims and demand of every nature and description brought or recovered against MMRDA by reason of act or omissions;
- v. The contractor during the execution of works shall keep the site free from all unnecessary obstructions, and shall store or dispose any equipment or surplus material;
- vi. The contractor shall be responsible for keeping unauthorized persons off the site, and authorized persons shall be limited to the employees, workmen or consultant, representatives or the persons authorized by MMRDA;
- vii. The contractor shall familiarize themselves and confirm in all respects with applicable laws. They shall indemnify MMRDA against any liabilities incurred by MMRDA arising out of non-compliance of applicable laws during execution of the works;
- viii. Any other item not mentioned explicitly above but required is deemed to be included in the scope of work;

**b. Payment Terms:**

The Contractor's/bidder's request(s) for payment shall be made to the MMRDA in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to Delivery and document Clause of the GCC and upon fulfillment of other obligations stipulated in the contract.

Payments shall be made promptly by the MMRDA but after fulfilling all the terms and conditions of the Work order with all supporting documents in original.

Payment shall be made in currency as indicated in the contract/Purchase Order.

Payment schedule will be:

- I. 10 % After the Factory Acceptance Test (FAT)
- II. 50% after the delivery of the material and receiving of Goods Receipt and Inspection Report from Concern person of Monorail along with all original and relevant documents.

III. 30 % after 3 months of successful commissioning of all items.

IV. 10% after completion of Defect Liability Period of 3 years.

**c. Liquidated Damages:**

Liquidated damages for delay in completion of delivery at site shall be imposed penalty at 0.5% of contract value per week subject to maximum of 10% of the contract value.

Liquidity damage for system unavailability on daily working of commercial operations:

<b>Down Time Deduction Charges (as Penalty / Liquidity Damage)</b>	<b>Unit</b>	<b>Rate</b>
1. beyond 2hrs. upto 3hrs.or part thereof in total down time in a day.	Each	Rs.200.00
2. beyond 3 hrs. upto 4 hrs. or part thereof in total down time in a day.	Each	Rs.300.00
3. beyond 4 hrs. upto 5 hrs. or part thereof in total down time in a day.	Each	Rs.400.00
4. beyond 5 hrs. or part thereof in total down time in a day.	Each	Rs.500.00

Note: No breakdown charges will be deducted upto 2 hour or part thereof in total down time in a day.

**RESOLUTION OF DISPUTE:**

The Executing office and/or the Consultant shall make every effort to resolve any disagreement or dispute arising between them in connection with the contract amicably as per terms conditions of contract by direct informal negotiations. In case of non-resolve, the dispute shall be referred to COO, Monorail - PIU for amicable settlement. However, in case of failure of negotiation between the COO, Monorail - PIU and the Contractor, the parties shall refer their present and future disputes relating to the contract itself or arising out of or concerning or in connection with or in consequence of the contract to the Metropolitan Commissioner, MMRDA whose decision shall be final and binding on both the parties. The contract shall be governed by The Indian Contract Act, 1872.

**JURISDICTION OF COURTS:**

All disputes which could not be resolved at the intervention of COO shall be subjected to exclusive jurisdiction of courts at Mumbai only.

**TIME EXTENSIONS:**

The Contractor may claim extension of the time limits in case of: Changes ordered by MMRDA.

Delay in supply of any materials or services which are to be provided by MMRDA. Force Majeure; Delay in performance of work caused by orders issued by MMRDA.

**PENALTY CLAUSE**

Subject to GCC Clause on Force Majeure, if the Contractor fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the MMRDA shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage specified in bid document of the delivered price of the delayed Goods or unperformed Services or contract value for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage specified in bid document. Once the maximum is reached, the MMRDA may consider termination of the Contract pursuant to GCC Clause on Termination for Default. The bid document shall also indicate the basis for ascertaining the value on which the penalty shall be applicable.

**FORCE MAJEURE:**

In the event that the Contractor is delayed in performing its obligations in the contract, and such delay is caused by force majeure including war, civil resurrection, strikes (other than the strike solely by the Contractor's men), fire, flood, epidemics, earthquakes, extremely adverse climatic conditions, such delay may be excused and the period of such delay may be added to the time of performance of the obligations without any addition to the contract price.

If a force majeure situation arises, the Contractor shall promptly notify the Board in writing of such condition and the cause thereof, but not later than 7 days from its occurrence. Unless otherwise directed by the MMRDA in writing, the Contractor shall continue to perform its obligations under the contract as far as reasonably practicable. The Contractor shall demonstrate to the MMRDA's satisfaction that it has used its best endeavor to avoid or overcome such causes of delay and the parties will mutually agree upon remedies to mitigate or overcome such causes of delay without having any right to any claim on account of such force majeure.

In any other situation, which is beyond the reasonable control of the Contractor in the opinion of the Engineer In-charge, and where the Contractor has promptly notified the MMRDA in writing about such situation, it may be considered as “Force Majeure” situation.

**INSURANCE:**

All the men/women to be deployed by the Contractor for performing the contract shall be insured against injury / accidents/death, by the Contractor at his own cost.

The Contractor shall indemnify MMRDA against all losses and claims in case of death or injury caused to any person by him/her during the execution of the work.

**DEDUCTION:**

Deduction of taxes at source shall be made from the bill of the Contractor in accordance with the prevailing rules of MMRDA.

While performing under the contract, the damages caused by the Contractor or his/her workmen to any of the MMRDA property shall be promptly made good by the Contractor at his/her own cost. In case the Contractor fails to repair/replace the damage, MMRDA shall have the right to take steps to make good the damages and all the cost on this account shall be recovered from the bills of the Contractor or any money due to the Contractor from this contract or any other contract or any other transaction. In determination of the damage, the opinion of the Engineer In-charge (EIC) shall be conclusive.

Any dues arising out of failure on the part of the Contractor to carry out any obligation under the contract shall be deducted from the bills of the Contractor or from any money due to the Contractor from this contract or any other contract including Earnest Money Deposit and Security Deposit or so.

**VARIATION IN CONDITIONS OF CONTRACT:**

In case of any variation in Instructions to Tenderers (ITB), General Conditions of Contract (GCC) and Special Conditions of Contract (SCC), the Special Conditions of Contract – if any, shall prevail. But in case of any requirement / condition specified in the Scope of Work, it shall prevail over all other conditions. It may please be noted that at any time prior to the dead line for submission of Bids, MMRDA may, for any reason, whether at its own initiative or in response to a clarification requested by any prospective tenderer, modify the tender document by amendment / issue of addendum/corrigendum. In such cases, MMRDA may, at its discretion, extend the dead line for submission of bid.

**CRITERIA FOR SPLITTING OF TENDER QUANTITY:**

- i. The MMRDA reserves the right to distribute the tendered quantity on one or more of the eligible tenderers. Consideration of such eligible tenderers will be the right of the MMRDA.
- ii. Whenever distribution/splitting of the tendered quantity is made, the quantity distribution will depend (in an inverse manner) upon the differential of rates quoted by the tenderers (other aspects i.e, adequate capacity – cum-capability, satisfactory past performance of the tenderers, outstanding orders load for the MMRDA making the procurement, quoted delivery schedule vis-à-vis the delivery schedule incorporated in the tender enquiry etc. being same / similar) in the manner detailed in the table below:

Price differential between L1 and L2	Quantity distribution ratio between L1 and L2
Up to 3%	60 : 40



More than 3% and upto 5%	65 : 35
More than 5%	At least 65% on the L1 tenderer ( For the quantity to be ordered on the L 2 tenderer, MMRDA reserves the right to decide keeping in view the conditions as given at iii & iv below)

- iii. The rate of the highest eligible tenderer within the zone of consideration has to be, per-se, reasonable to the MMRDA.
- iv. In the cases of inadequate capacity-cum-capability, dissatisfactory past performance, large quantity of outstanding orders (liquidation of which will take very long time) etc., the MMRDA shall have the right to distribute the procurable quantity amongst tenderers with due consideration to these constraints and in such a manner as would ensure timely supply of materials in requisite quantity to meet the needs of operation, maintenance, safety etc. of the MMRDA, regardless of inter-se ranking of the tenderers and in a fair and transparent manner with due conformity to the Principle of natural Justice and Equity.
- v. If splitting of quantity is required to be done by ordering on tenderers higher than the L2 tenderer, then the quantity distribution proportion amongst the tenderers will be decided by transparent / logical / equity based extrapolation of the model as indicated in Para ii above.
- vi. The MMRDA reserves the right to counter offer the lowest acceptable rate for bulk ordering to the higher tenderer(s). In the event of rejection of such counter offer(s), the MMRDA will reserve their right to decide on the quantity distribution ratio / proportion.

#### **SUPPLY OF MATERIALS AND EQUIPMENT:**

On request of the Contractor, MMRDA may supply materials and/or provide equipment to the Contractor for the work subject to availability and Contractor's acceptance of the prevailing MMRDA conditions.

On request of MMRDA, to avoid delay, the Contractor shall supply materials / spares which are not available with MMRDA and not included in the scope of the Contractor and payment for such supply shall be made by MMRDA as per actual on the basis of documentary evidences like purchase vouchers etc.

#### **IDLE CHARGES:**

All efforts shall be made for timely supply of materials and/or equipment where it is included in the scope of MMRDA. However, the Contractor shall not be entitled to any idle charges for delay in supply of materials and/or equipment by the MMRDA. Further, in case of any delay due to stoppage of work ordered by the MMRDA to avoid interruption in other important activities of MMRDA, the Contractor shall not claim any idle charges.

#### **PERSONAL PROTECTIVE EQUIPMENT: (PPE)**

The Contractor shall be solely responsible, at his own cost, for the supply of required PPE to his/her workers and staff and he/she shall also ensure the use of PPE such as helmets, nose masks, and hand gloves etc. by his/her staff at site.

#### **CONDUCT:**

The Contractor, at all times during execution of the contract, shall take all measures to prevent any unlawful, riotous or disorderly conduct by or amongst his staff at the site and for the preservation of peace and protection of persons and property at the work site as well as in the neighborhood of the works.



In case of any unlawful / riotous / disorderly conduct by any workman of the Contractor, MMRDA reserves the right to direct the Contractor to disengage the worker temporarily or permanently with a suitable replacement. If the Contractor does not take action as directed, MMRDA may terminate the contract and / or forfeit the security deposit of the Contractor.

**ACCIDENT:**

The Contractor shall, within 24 hours of the occurrence of any accident, at or about the work site or in connection with execution of the contract, report such accidents to the Engineer In-charge giving all the details. He/She shall also provide additional information about the accident as requested by the EIC.

**WATCH AND WARD:**

During the execution of the contract, it shall be the responsibility of the Contractor to arrange watch and ward of the work including the raw materials, machine / equipment / system used for the work at his/her own cost till the date of acceptance of the work by MMRDA.

**AGREEMENT COPY:**

The agreement shall be made in two sets, one original and one copy. One copy of the agreement shall be given to the Contractor. For each additional copy, the Contractor shall have to pay the cost of the bid documents and 20% overhead charges.

**UNDERTAKING BY THE CONTRACTOR:**

Having understood all the terms and conditions of the tender document and having assessed the site conditions, we hereby confirm that the price offered by us is a firm price and includes all the taxes, duties, fees, Cess etc. and all incidental charges.

**Standards**

The Goods supplied and services rendered under this Contract shall conform to the standards mentioned in the Technical Specifications and Schedule of Requirements, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

**Inspection and Testing**

The Contractor shall at its own expense and at no cost to the MMRDA carry out all such tests and/or inspections of the Goods and Related Services as are specified in the bid document or as discussed and agreed to during the course of finalization of contract.

The MMRDA or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the MMRDA. The Technical Specifications and/or bid document shall specify what inspections and tests the MMRDA requires and where they are to be conducted. The MMRDA shall notify the Contractor in writing in a timely manner of the identity of any representatives retained for these purposes.

The inspections and tests may be conducted on the premises of the Contractor or its subcontractor(s), at the point of delivery and/or at the Goods final destination. If conducted on the premises of the Contractor or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data - shall be furnished to the inspectors at no charge to the MMRDA.

Whenever the Contractor is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the MMRDA. The Contractor shall obtain from any relevant third party or manufacturer any necessary permission of consent to

enable the MMRDA or its designated representative to attend the test and/or inspection.

Should any inspected or tested Goods fail to conform to the specifications, the MMRDA may reject the goods and the Contractor shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the MMRDA.

The MMRDA's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at final destination shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the MMRDA or its representative prior to the Goods shipment.

The Contractor shall provide the MMRDA with a report of the results of any such test and /or inspection.

With a view to ensure that claims on insurance companies, if any, are lodged in time, the tenderers and /or the Indian agent shall be responsible for follow up with their principals for ascertaining the dispatch details and informing the same to the MMRDA and he shall also liaise with the MMRDA to ascertain the arrival of the consignment after clearance so that immediately thereafter in his presence the consignment could be opened and the insurance claim be lodged, if required, without any loss of time. Any delay on the part of the tenderer/ Indian Agent would be viewed seriously and he shall be directly responsible for any loss sustained by the MMRDA on the event of the delay.

Calibration certificate is to be submitted for testing tools and equipment's wherever required must be submitted after supply.

#### **Spare Parts**

The Contractor shall be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Contractor:

Such spare parts as the MMRDA may elect to purchase from the Contractor, providing that this election shall not relieve the Contractor of any warranty obligations under the Contract; and In the event of termination of production of the spare parts:

Advance notification to the MMRDA of the pending termination, in sufficient time to permit the MMRDA to procure needed requirements; and

Following such termination, furnishing at no cost to the MMRDA, the blueprints, drawings and specifications of the spare parts, if requested.

The Contractor shall provide the list of consumable or non-consumable spare parts/accessories/optional items clearly indication whether or not covered under free warranty.

#### **Warranty**

The Contractor warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

The Contractor further warrants that the Goods shall be free from defects arising from any act or omission of the Contractor or arising from design, materials, and workmanship, under normal use in the conditions prevailing in India.

Unless otherwise specified in the bid document, the warranty shall remain valid for **3 Years** after the Goods, or any portion thereof as the case may be, have been accepted at the final

destination and after commissioning indicated in the bid document. Warranty shall commence after testing & commissioning is completed.

The MMRDA shall give notice to the Contractor stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The MMRDA shall afford all reasonable opportunity for the Contractor to inspect such defects.

Upon receipt of such notice, the Contractor shall, within a reasonable period of time, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the MMRDA.

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

Goods requiring warranty replacements must be replaced on free of cost basis to the MMRDA.

## **Chapter - III**

# **Model Contract Agreement**

## **Chapter – III Model Contract Agreement**

### **FORM OF CONTRACT AGREEMENT**

(On Stamp Paper of INR 100/-)

AGREEMENT FOR (Name of Work).

Article of Agreement made at this \_\_\_\_ day of month Two Thousand \_\_\_\_\_ between Mumbai Metropolitan Regional Development Authority (MMRDA), having its office at C – 14 & 15, E-Block, MMRDA Building, Bandra- Kurla Complex, Bandra (East), Mumbai – 400051.

(Hereinafter called the 'MMRDA' of the One part and.... Whose Registered office is situated at (hereinafter called the 'Contractor/Tenderer') of the Other Part.

WHEREAS:

The MMRDA being desirous of obtaining Works/Services mentioned, enumerated or referred to in the Bid Document/Tender Document comprising of Instruction to Bidders, Conditions of Contract, Scope of Work, Specifications, and other documents constituting the 'Tender' and acceptance thereof, copy hereto annexed all of which are designed to form part of this Contract and are included in the term 'CONTRACT' wherever herein used

AND WHEREAS:

The MMRDA accepted the Bid /Tender of the Contractor/Bidder for the provisions and the performance of the said Works/ Services at the rates stated in the Pricing Document. Financial Bid and subject to the conditions of Contract.

AND WHEREAS:

The Contractor/Tenderer has deposited with the Employer a Security deposit in the form of Bank Guarantee equal to the sum of Rs. \_\_\_\_\_/-(Rupees\_\_\_\_\_ In words \_\_\_\_\_ only) for the total contract value of Rs. \_\_\_\_\_/- (Rupees in Words\_\_\_\_\_)

Now this agreement witnesses and it is hereby agreed by and between the parties and declared as follows:

1. The documents which form part of the Contract will be the Instruction to Bidders, Conditions of Contract, Specifications, and other documents, constituting a Tender and acceptance thereof. It is further agreed that the "Acceptance Letter"/ Letter of Award of Contract vide No \_\_\_\_\_, dated \_\_\_\_\_ and Agreement for tender no. \_\_\_\_\_ for a Contract period of \_\_\_\_\_ commencing \_\_\_\_\_ shall constitute part and parcel of the Contract between the parties, and a signed copy of the same are attached hereto.

2. . The total cost of the works / services are Rs. ..../- (Rupees ..... ) (inclusive of GST). The Contract period is 06 Months commencing from .....
3. In consideration of the payments to be made to the Contractor for the performance of the Works/Services, the Contractor shall and will duly perform the Works/ Services on or before the dates mentioned in the schedule attached to the Tender documents and perform all such acts and things in the Contract mentioned or described or which are to be implied there from or may be reasonably necessary for the completion of the said Works/Services at the times and the manner and subject to the terms and conditions or stipulations mentioned in the Contract.
4. In consideration of the due performance of the said Works/ Services, the MMRDA does hereby agree with the Contractor/Bidder that the MMRDA will pay to the Contractor, the respective amount for the Works/ Services actually done by him at the schedule rates quoted and such other sums as may become payable to the Contractor / Bidder under the provisions of the Contract, such payment to be made at such time and in such manner as provided for in the Contract Agreement.
5. In consideration of the due performance of the said Works/ Services, the 'Contractor / Bidder' does hereby agree to pay to the MMRDA the sum as may be due to the MMRDA for the works/services if rendered by the MMRDA to the Contractor / Bidder and such other sum or sums as may become payable to the MMRDA towards loss, damage to the MMRDA's equipment, materials, plant & machinery, including those hired to the Contractor/Bidder, if any set forth in the said Conditions of Contract, such payments to be made at such time and in such manner as provided in the Contract.
6. All disputes arising out of or in any way connected with this Contract Agreement shall be deemed to have arisen in Mumbai and only the courts in Mumbai shall have jurisdiction to determine the same.
7. The several parts of this Contract have been read me/us and fully understood by me/us.

In witness whereas the parties have executed these presents in duplicate the day and year first mentioned above.

FOR AND ON BEHALF OF  
(**AUTHORITY**)

FOR AND ON BEHALF OF  
(**CONTRACTOR**)

Chief Operating Officer  
Monorail-PIU,  
MMRDA

(**Name of Contractor**)  
Designation  
Company Name-

WITNESS: -

i).....  
ii).....

WITNESS:-

I).....  
ii).....

## **Chapter–IV**

# **PERFORMA, UNDERTAKINGS & ANNEXURES**



**(Format -I)**

**Declaration**

The terms and conditions given in the Bid Document are read, understood and hereby accepted unconditionally and shall be complied with. I/We agree to abide by the Terms and Conditions contained in this section of Bid Document and which shall form part of contract conditions and provisions. I/We hereby unconditionally accept(s) these Terms and Conditions of MMRDA's Bid documents in its entirety for the \_\_\_\_\_ (Name of Work). It is certified that I/we have not stipulated any condition(s) in our bid offer. In case any condition(s) are found in our tender offer, the same shall be treated as withdrawn. I undertake to use only the best materials be fitting the specifications and methodology proposed to be employed and duly approved by the Engineer, MMRDA.

**Signature of tenderer firm authorized Signatory**

**Name:**..... **On behalf of:**.....  
**Telephone:**..... **Fax:**.....  
**Email:**.....,..... **Firms Stamp:**.....

## Format II

### **[TO BE SUBMITTED WITH ELIGIBILITY CRITERIA (ENVELOPE“2”)]**

To,  
COO,  
Monorail PIU,MMRDA,  
Bandra Kurla Complex,  
Bandra (E), Mumbai 4000051

**Sub:** (Name of Work)

**Sir,**

In compliance with the bid requirement for the above mentioned work:

1. I/We undertake that, neither our firm nor any of our firm's Partners nor any of our Directors have been blacklisted or any case is pending or any complaint regarding irregularities is pending, in India or abroad, by any global international body like World Bank/International Monetary Fund/ World Health Organization, etc. or any Indian State/Central Governments Departments or Public Sector Undertaking of India.
2. I/We undertake that, our firm possesses the required tools, plants, skilled manpower, etc. required for execution of work as per scope of the bid. I/We also undertake that no part of the scope of work shall be sublet or outsourced to any third party without written consent from MMRDA.
3. I/We undertake that, all the material to be supplied by us will be new sourced from the OEM & not repaired or refurbished.
4. I/We undertake that, our firm or its Partners or its Directors or Sole Proprietor do not have any outstanding dues payable to the MMRDA.
5. I/We undertake that, the complete responsibility to carry out the works and their completion as per scope of the bid, shall be of our firm only.
6. I/We undertake that, our firm or our subsidiary firm or our parent firm has not submitted alternate or partial bid(s).

**Dated:**

**Signature of the authorized signatory Name:** \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Stamp: \_\_\_\_\_

**Format III**  
**PROFORMA FOR DECLARATION REGARDING ORIGINAL EQUIPMENT MANUFACTURER**  
**(OEM) TENDERER**

To,  
COO,  
Monorail PIU,MMRDA,  
Bandra Kurla Complex,  
Bandra (E), Mumbai 4000051

**Sub:** (Name of work)

**Dear Sir,**

I/We, \_\_\_\_\_ (Manufacturer Name with

Address) who are established and reputed manufacturer of \_\_\_\_\_ having factory at  
(Address)\_\_\_\_\_.

I/We are participating in the as OEM.

I/We confirm that the quoted equipment have not been declared end of life as of date of this bid, and we shall supply our products as per published tender specifications and bid offer.

Thanking you,

Yours faithfully,

**Dated:**

**Signature of the authorized signatory of OEM**

Name:\_\_\_\_\_

Telephone:\_\_\_\_\_

Fax:\_\_\_\_\_

E-mail:\_\_\_\_\_

Stamp:\_\_\_\_\_

**Format IV**  
**Affidavit (on Rs.500/- Stamp Paper)**

**Date:**

I.....age.....address.....(Authorized signatory to sign the contract), hereby submit, vide this affidavit in truth, that I am the owner of the contracting firm...../ authorized signatory and I am submitting the documents in envelope no.1 for the purpose of scrutiny of the contract. I hereby agree to the conditions mentioned below:-

I am liable for action under Indian Penal Code for submission of any false / fraudulent paper / information submitted in envelope no.1.

I am liable for action under Indian Penal Code if during contract period and defect liability period, any false information, false bill of purchases supporting proof of purchase, proof of testing submitted by my staff, subletting company or by myself, I will be liable for action under Indian Penal Code.

I am liable for action under Indian Penal Code if any papers are found false / fraudulent during contract period and even after the completion of contract (finalization of final bill).

**(Signature of contractor)**

**(Seal of company)**

**Format V**  
**SOLVENCY CERTIFICATE FORMAT**

(On the letterhead of Bank as per Annexure - 1)

(To be dated within 3 months of last date of submission of tender)

This is to certify that Shri. / M/s. .... has / have been maintaining an S.B. / current account with us since last ..... years.

From his / her dealing with us we have found him as follows: To the best of our knowledge and information belief he is / they are solvent to the extent of Rs. .... ( Rupees.....Only)

This certificate is issued at the specific request of the customer M/s .....

Authorised Signatory

Date:

Seal:

**Format VI**  
**MODEL FORM OF BANK GUARANTEE BOND TOWARDS PERFORMANCE SECURITY**  
**DEPOSIT**

(On Stamp Paper of INR 100/- from Nationalized Bank & Operable in Mumbai or Mumbai only)

To,  
Chief Operating Officer,  
Mumbai Monorail Depot,  
Next to Anik Bus Depot,  
Wadala (E), Mumbai – 400 031

In consideration of the Mumbai Metropolitan Regional Development Authority (MMRDA), Authority established under MMRDA Act 1974 and having its registered Office at C – 14 & 15, E-Block , MMRDA Building, Bandra- Kurla Complex, Bandra (East), Mumbai, India – 400 051. (Hereinafter called the 'MMRDA' which expression shall unless repugnant to the subject or context include its successors and assign) having agreed under the terms and conditions of Contract Agreement No./Letter of Intent No. \_\_\_\_\_ dated \_\_\_\_\_ and/or Letter of acceptance \_\_\_\_\_ dated \_\_\_\_\_ made between \_\_\_\_\_

\_\_\_\_\_ (hereinafter called the 'Contractor' which expression shall unless repugnant to the subject or context include his heirs, executors administrators and assigns / (its successors and assign) and MMRDA in consideration with \_\_\_\_ (Name of Work) \_\_\_\_ hereinafter called "the said Contract") to accept a deed of Guarantee as herein provided for INR (Amount in figures & Words) by (Name of the Nationalized Bank, Mumbai / Mumbai Branch) towards Performance Security, for the due fulfillment by the Contractor of the terms and conditions contained in the said contract.

We, (Name & Address of Bank), the Bank constituted and established under the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1979 (hereinafter referred to as the said Bank) and having our Head Office at \_\_\_\_\_, hereby undertake to pay to MMRDA an amount not exceeding INR (Amount in figures & Words) against any loss or damage caused to or suffered or would be caused to or suffered by MMRDA by reasons of any breach by the said Contractor of any of the terms or conditions contained in the said Contract Agreement and to unconditionally pay the amount claimed by MMRDA on demand and without demur to the extent expressed.

We, (Name of Bank) N.A further agree that MMRDA shall be the sole judge of and as to whether the Contractor has committed a breach of any of the terms and conditions of the said Contract and the extent of the loss, damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by MMRDA on account thereof and the decision of MMRDA that the Contractor has committed such breach and as to the amount or amounts of loss, damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by MMRDA from time to time shall be final and binding on us.

We undertake to pay MMRDA any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any court of Tribunal unequivocal, without demur. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Contractor shall have no claim against us for making such payment.

We, \_\_\_\_\_ further agree that the guarantee herein contained shall remain in full force and effect during the Transition period (If applicable) of Contract date of Takeover and new Bank Guarantee for the succeeding Contract Year from date of Takeover is not submitted including that would take from the performance of the said Contract Agreement and that it shall continue to be enforceable till all the dues of MMRDA under or by the said Contract Agreement have been fully paid and its claims satisfied or discharged or till the Chief Operating Officer of Monorail PIU, MMRDA has certified that the terms and conditions of the said Contract Agreement have been fully and properly carried out by the said Contractor and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before \_\_\_\_\_ we shall be discharged from all liability under this guarantee thereafter.

We, \_\_\_\_\_, further agree with MMRDA, that MMRDA shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract Agreement or to extend the time of performance by the said Contractor from time to time or to postpone for any time any of the powers exercisable by MMRDA against the said Contractor and to forbear or enforce any of the terms and conditions relating to the said Contract Agreement and we shall not be relieved from our liability by reasons of any such variation, or extension being granted the said Contractor or for any forbearance act or omission on the part of MMRDA or any indulgence by MMRDA to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provisions have effect of so relieving us.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor. The Bank Guarantee shall be payable at Mumbai. Further, the Bank guarantee is issued under SFMS mode. Copy of the SFMS confirmation is attached along with this document.

This guarantee is valid till \_\_\_\_\_ unless a suitable action to enforce the claim under this guarantee is made within six months from \_\_\_\_\_ all your rights under this guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there under.

We, \_\_\_\_\_ (name of Bank) lastly undertake not to revoke this guarantee during the currency except with the previous consent of MMRDA in writing.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

FOR & ON BEHALF OF BANK

The above guarantee is accepted

For and on behalf of MMRDA (Name & Designation)

Date:

**Note:**

1. As per RBI guidelines, BG should be issued by the issuing bank through SFMS mode. For the purpose, the bank details in respect of MMRDA for opening BG through SFMS mode are as follows –  
Bank Name: Bank of Maharashtra  
Branch: Kalanagar, Bandra (East)  
A/c No. 60259778998  
IFSC code: MAHB0000164
2. Bank Guarantee should be submitted along with SFMS confirmation from Bank.
3. Confirmation letter to be submitted along with original B.G.

### Format VI

Details of orders for the quoted item executed should be furnished in the following format.

(Copy of PO to be enclosed)

Sr. No.	Full address of Client	Order Number and Date	Descriptions of Orders	Qty.	Value of Order	Date of Delivery	Delivery Location

Date:

Place:

Signature of the tenderer:

:



### Format VII

The particulars of the successfully completed similar works during last 3 years ending last day of month previous to the one in which applications are invited:

Sr. No.	Order No. & date	Brief Description of similar works carried out	Contract Value	Month & Year of the works		Name & detailed addresses Telephone No. of clients	Client's satisfactory completion certificate	
				Comme nced on	Compl eted on		No.	Dated
1	2	3	4	5	6	7	8	9

Date:

Place:

Signature of the tenderer:

### Format VIII

The details of key personnel involved in administration and execution of the subject work till completion:

Sr. No.	Name in full	Designation	Qualification	Experience

Date:

Place:

Signature of the tenderer:

### Format IX

The litigation history (Including arbitrations consulations & mediations) in which the Tenderer is involved:-

Sr. No.	With other party(ies)	With the Port(s)in India	Cause of dispute	Amount	Remark (s) showing present Status.

Date:

Place:

Signature of the tenderer:

## **Annexure – I**

### **MONORAIL PIU Wadala**

Mumbai Monorail, Administrative Building,  
Wadala Monorail Depot,  
Pratiksha Nagar, Wadala (E),  
Mumbai- 400 037

No: F&A/MONO PIU/282/2020-21

Date: 29<sup>th</sup> September 2020

### **CIRCULAR**

**Subject:** Acceptance of Bank Guarantee:

**Reference:** 1. F&A Div circular dated 06<sup>th</sup> September 2020  
2. F&A Div circular no. F&A/Cash/ 710/2018-19 dated 15<sup>th</sup> June, 2018  
3. Ministry of Finance Department of Financial Services circular no. 7/112/2011-BOA dated 17<sup>th</sup> July, 2012.

With reference to various circulars issued by F&A Div as cited above, following guidelines should be followed while accepting Bank Guarantee from any contractor/vendor/agency providing goods/works etc .

1. The Bank Guarantee should be in accordance with the amount specified in respective Tender
2. The list of Banks for acceptance of Bank Guarantees is stipulated by F&A Div from time to time. The latest such list is issued vide circular number F&A/Cash/710/2018-19 dated 15<sup>th</sup> June, 2018 (Enclosed). The list as well as amendments if any in future should be enclosed with the Tender so as to avoid any ambiguity in this regard.
3. The Bank Guarantee should invariably be payable at Mumbai. The term 'BG should be payable at any branch in Mumbai' should be incorporated in contract conditions.
4. The issuing Bank should mandatorily issue and upload Bank Guarantee in SFMS (Structured Financial Messaging System) Platform. For the purpose, the details of MMRDA Bank account as circulated by F&A Div earlier are reproduced below for easy reference and inclusion in Tender condition.  
Beneficiary Bank: Bank of Maharashtra  
Branch: Bandra East (MHADA Building)  
Account number:- 60259778998  
IFSC Code:- MAHB0000164
5. The issuing Bank should be advised to issue the Message with code IFN 760 COV Bank Guarantee Message as per guidelines issued by GoI in this regard with a copy to Beneficiary Bank.
6. The contractor/vendor/agency can hand over/upload the Bank Guarantee and the Message so as to complete bidding process.
7. Once tender/quotation/award of contract is finalised, and final Bank Guarantee issued in SFMS mode is received from the contractor/vendor/agency etc, a separate confirmation letter with the Printed copy of the Bank Guarantee from the beneficiary bank, i.e. Bank of Maharashtra, Bandra East (on their letterhead) should be obtained. It is only with this confirmation of message, the acceptance of BG can be said to be complete.



No. : F & A /Cash/ 710 / 2018-19

Finance & Accounts Division  
Dt. : 15<sup>th</sup> June, 2018

C I R C U L A R

As per General Financial Rules 2017, Rule 171, Performance Security may be furnished in the form of an Account Payee Demand Draft, Fixed Deposit Receipt from a Commercial bank, Bank Guarantee from a Commercial bank or online payment in an acceptable form safeguarding the purchaser's interest in all respects.

As per Government, GOM / PWD circular No. Sankirna-2017/C.R.121(Part-II)/Building-2 A performance Security is permitted to be accepted in the form of DD/FDR/BG of any Nationalized / Scheduled Bank.

As per Illustrative Check Points for various stages of public procurement by Central Vigilance Commission, Bank Guarantees from Nationalized Banks only should be accepted. Under no circumstances bank guarantees from Co-operative Banks should be accepted.

Further as per RBI Regulations, all Bank Guarantees should be issued by the issuing bank through SFMS mode. For the purpose, the bank details in respect of MMRDA for opening Bank Guarantee through SFMS mode are as follows,

Bank Name :- Bank of Maharashtra

Branch :- Kalanagar, Bandra ( East)

A/c No :- 60259778998

IFSC Code :- MAHB0000164

All Concerned staff should ensure that the Bank Guarantee is issued as per the format given in respective contract conditions. The term **"BG should be payable at any branch in Mumbai"** should also be incorporated in contract conditions. Further , respective division's Accounts staff should obtain confirmation of the Issue of the Bank Guarantee from Mumbai Regional Office of BG issuing bank.

All Chiefs/ HODs are requested to give necessary instructions to the concerned staff to obtain Bank Guarantees in the name of MMRDA as stated above henceforth and obtain the copy of duly confirmed Bank Guarantees from our bank, i.e. Bank of Maharashtra, Bandra East Branch .

Annexure :- List of Banks

Financial Advisor

## **List of Banks**

### **Nationalized Banks**

State Bank of India	Allahabad Bank
Andhra Bank	Bank of Baroda
Bank of India	Bank of Maharashtra
Canara Bank	Central Bank of India
Corporation Bank	Indian Bank
Indian Oversea Bank	Oriental Bank of Commerce
Punjab National Bank	Punjab & Sind Bank
Syndicate Bank	United Bank of India
Union Bank of India	UCO Bank

### **Scheduled Commercial Banks**

HDFC Bank	DCB Bank Ltd
IndusInd Bank	ICICI Bank
Yes Bank	Kotak Mahindra Bank

## **Chapter-V**

### **Schedule 'B'**

## **CHAPTER V- SCHEDULE 'B'**

**Name of Work:** Design, manufacture, testing and commissioning of Main Auxiliary Converter (APS) Units for Mumbai Monorail.

Sr. No.	Item Description	Item Code	Quantity (In Nos.)	Unit Rate (In Rs.)	GST @ _____% per unit (In Rs.)	Total Amount per unit (In Rs.)	Total Amount for 32 Nos. (incl. GST) (In Rs.)
1	Main Auxiliary Power Converter (APS ) Units		32				

(Rupees:\_\_\_\_\_).

**Note:**

- i) The above unit price is in Indian Rupees inclusive of all taxes and duties, etc at Wadala Monorail Depot or stations as directed by EIC.
- ii) The contract price shall remain firm for entire contract duration without any escalation on any account including exchange fluctuation risk.



## Chapter – VI

# Detailed Technical Specifications

## A. Introduction:

1. The Auxiliary Power System is a critical sub system that supports the functionality of the train by delivering power to all applicable systems. The General Auxiliary Inverter and Main DC/DC Converter, CPU & Battery Charger are placed together in the same enclosure and known as Main auxiliary Converter (APS). In this configuration, the components function independently and deliver sufficient amount of power. Here, Block diagram of auxiliary power System as shown below:

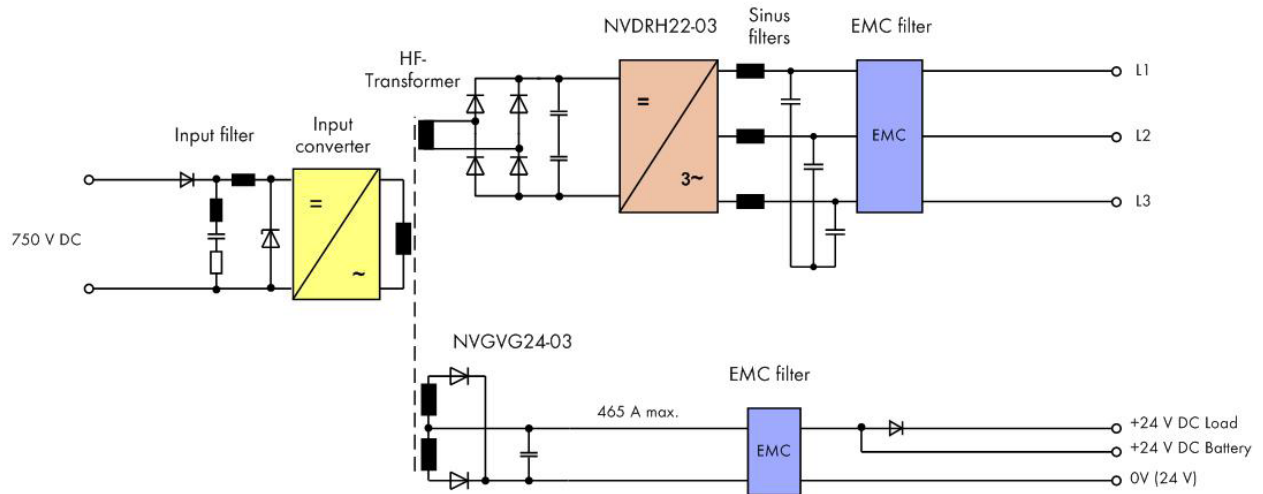
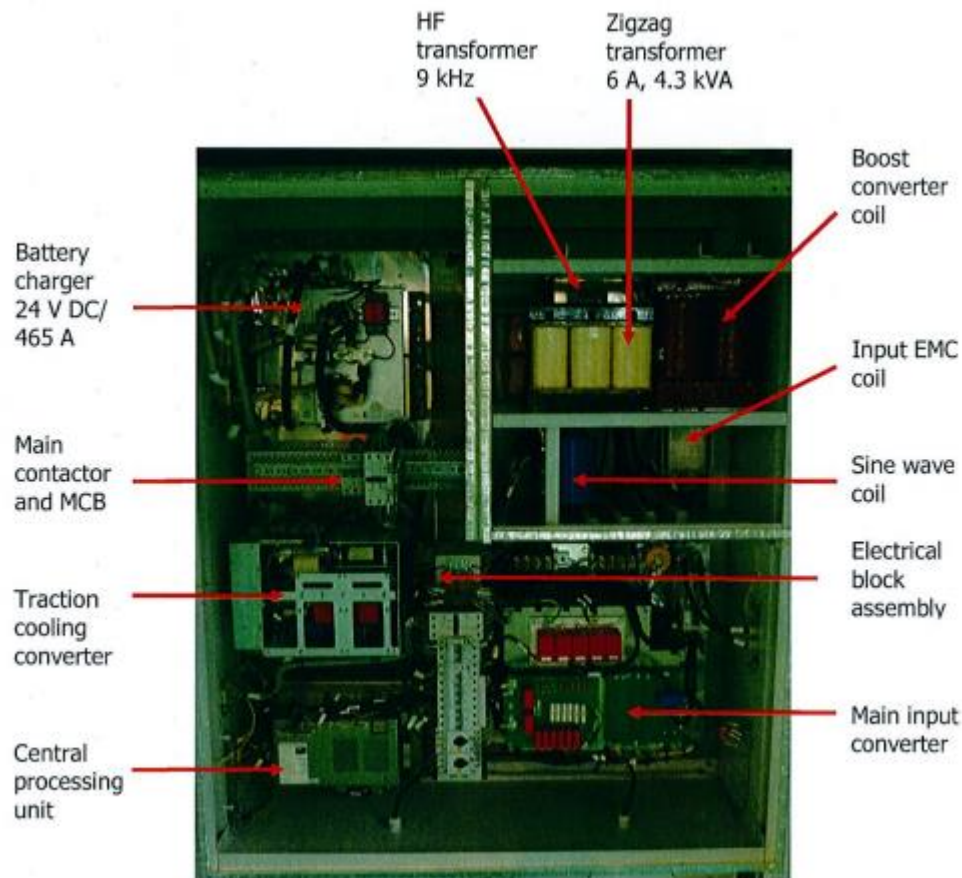


Fig No. 1

2. The Main Auxiliary Converter (APS) is used to provide AC loads with necessary fixed frequency 3 x 415 VAC, 50 Hz and to provide 24 VDC to the DC loads as well as to the battery.
3. The General Auxiliary Inverter provides a 415 VAC supply to the Water Pumps, Radiator Fan, 240 VAC Outlet Supply and Air Compressor onboard the monorail vehicle. The supply is a CVCF static output, controlled with contactors integrated into the unit.
4. Each vehicle is equipped with a dedicated General Auxiliary Inverter. The RST consist of four (4) coupled vehicles, two (2) end vehicle and two (2) intermediate vehicles. Each end and intermediate vehicle form a married pair when describing the Auxiliary System arrangement.
5. Following are the main parts of the General Auxiliary converter (APS)



**Fig No. 2**

**a. Main DC/Dc converter:**

Main DC/DC Converter outputs located in each vehicle are connected together for each married pair. This forms the backbone of the 24 VDC Low Voltage Bus Systems. The main DC/DC Converter has been designed for parallel operation. No further decoupling devices such as diodes are necessary. The converter is designed using the latest technology such as soft-switching topology and medium frequency transformers to keep the weight of the unit as low as possible.

**b. 3- Phase Inverter:**

The 3-phase inverter generates a controlled, 3-phase AC voltage of constant amplitude and frequency out of the DC link. The inverter is equipped with a sine wave filter and delivers a high quality AC output voltage to the connected loads. A neutral line brought out and grounded within the system is also generated. With the Z-transformer the neutral line becomes load tolerant. Only end car 3-phase inverters are provided with the z-transformers to supply the 240 VAC 50 Hz loads. The design approach using state-of-the-art IGBT technology has resulted in an extremely overload-proof power inverter unit. The high pulse

frequency reduces weight and installation size of the integrated sine wave filter to a minimum.

**d. Battery Charger:**

Each car is equipped with a dedicated Main DC/DC Converter and Battery Charger. The RST consist of four coupled vehicles, two end vehicles and two intermediate vehicles. Each end and intermediate vehicle form a married pair when describing the auxiliary System arrangement.

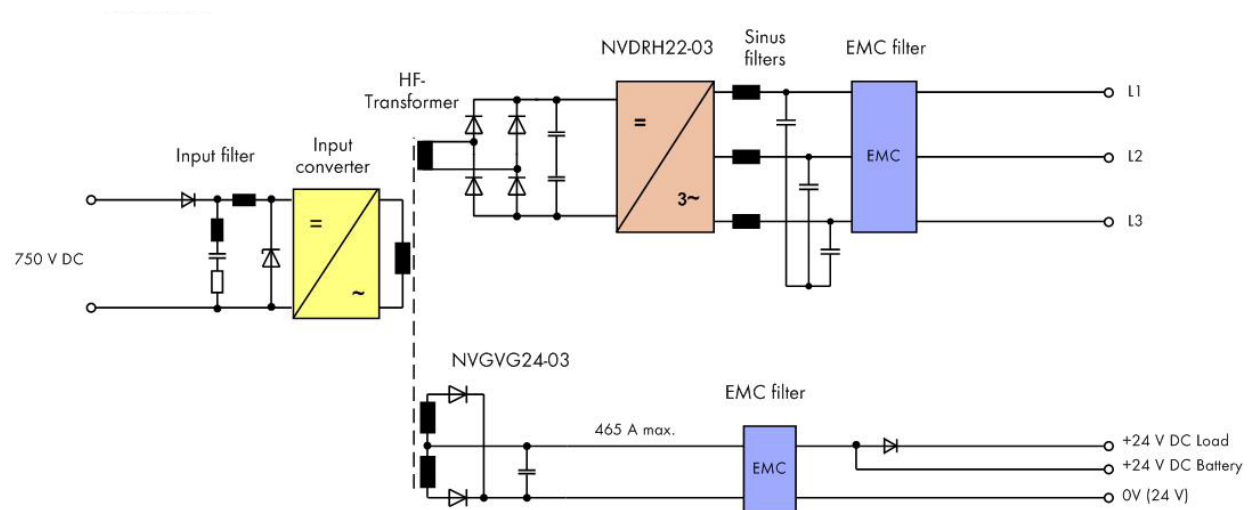
In case of failure of the Main DC/DC Converter and Battery Charger in one car of married-pair configuration the Main DC/DC Converter and Battery Charger of the adjacent vehicle is designed to take over the loads, providing a redundant 24 VDC supply for each married pair.

**e. CPU:**

CPU is the heart of Main auxiliary converter (APS). CPU controls all above mentioned part of APS. It takes input from VMS system and gives commands & takes feedback from other parts of APS. It communicates the status of each part through device net to VMS system.

**B. Technical Specification:**

**1. Block diagram :**



2. **Input Voltage** : 750 VDC ( 400 to 950 V)

3. **Output Voltage** : 3 Phase, 415 Volts AC  $\pm 10\%$ , 50 Hz  $\pm 3\%$ , 13 KVA.( It should be capable to withstand 25% higher load for 2 hours )

: 24 V DC (16 to 30 V), 13 KW (For DC distribution system)

: 24 Vdc (upto 16 to 30 Vdc), 28 A, 0.728 kW (Actually feeding V float = 26V) for 24V Battery ( At nominal input).

: Single Phase, 230 Volt,  $\pm 10\%$ , 50 Hz  $\pm 3\%$ .

4. **Tolerances** : Charging current tolerance  
: Ripple < 2%
5. **Supply voltage Electronics** : 24 V DC
6. **Pulse frequency input converter** : 9 kHz
7. **Transformer transmission ratio** :  $n_1:n_2:n_3:n_4 = 22:1:1:24$  (  $n_1$ = primary)
8. **Ambient temperature** : -25 dec C to + 45 dec C
9. **Dimensions** : 1210mm \* 1090 mm \*305 mm
10. **Weight** : approx = 94 kg
11. **Test voltage** : 750 VDC Input to ground  
: 3.6 kV AC, 1 min (Initial test)  
: 2.9 kV AC, (for retest)  
: 415 V AC traction cooling inverter  
: outputs L1/L2/L3 to PE\*  
: 1.8 kV DC, 1 min (Initial test)  
: 1.4 kV DC, 1 min ( for retest)  
: 24 VDC battery charger output 24 V DC to PE  
: 0.59kV DC, 1 min (initial test)  
: 0.48 kV DC (for retest)

**12. Battery Charger :**

- a. Nominal Voltage : 24VDC
- b. Nominal Current : 465 Amp
- c. Test Voltage : 420 VAC

**13. 3 phase Inverter :**

- a. Nominal voltage : 3\*415 VAC
- b. Nominal current : 32 Amp
- c. Auxiliary supply : 24 VDC
- d. Test Voltage : 1.8 kV DC

**14. Converter :**

- a. Nominal Voltage : 3\*400 Volt
- b. Exit voltage : 800 VDC
- c. Nominal current : 75/22 A
- d. Auxiliary supply : 110 Vdc
- e. Test Voltage: 1.9 KV AC.

**15. Part List of Auxiliary Converter as follow :**

- a. Selector switch actuator 2 positions for flush mounting
- b. Switching element, snap-action, 2NO
- c. Miniature circuit breaker, 2 Pole, 10 KA, C curve, 10 A
- d. Round inlet cone RH25M for AC centrifugal fan (nozzle)
- e. AC centrifugal fan (Single inlet impeller with backward curved blades)

- f. Miniature circuit breaker, 3-pole, 10 kA, C curve, 50 A
- g. Miniature circuit breaker, 3 –pole , 10kA, C Curve , 6 A
- h. Contactor, 30 KW/400 V, 24 VDC operated, 3 pole, 65 A
- i. Miniature circuit breaker, 3-pole, 10 kA, C Curve, 20 A
- j. Contactor, 11kW/400 V, 24 VDC operated, 3 pole, 25 A
- k. Miniature circuit breaker, 3-pole, 10 kA, C Curve, 80 A
- l. Miniature circuit breaker, 3-pole, 10 kA, C Curve, 63 A
- m. APS main input converter
- n. APS traction cooling inverter
- o. APS Battery charger 24 V DC, 465 A
- p. APS Central processing unit
- q. Sine wave coil
- r. Boost converter coil
- s. Input EMC Coil
- t. HF transformer 9 kHz
- u. Zigzag transformer 6 A, 4.3 KVA

**16. 4 Nos of laptops :**

Dedicated Graphic Memory Capacity	4 GB
Processor Name	Core i7
Processor Generation	10 <sup>th</sup> Gen
RAM	16 GB
HDD Capacity	1 TB
Graphic Processor	NVIDIA Geforce GTX 1650
OS Architecture	64 bit
Operating System	Windows 10 Home
System Architecture	64 bit
Note: Out of the 4 laptops, 2 laptops must have touchscreen operating facility.	