

Madhya Pradesh Metro Rail Corporation Limited (MPMRCL)

(A Joint Venture of Government of India and Government of Madhya Pradesh)

CIN: U75100MP2015SGC034434

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Clarifications – 02

No.: 0008/MPMRCL/2022

Date: 05.01.2022

With reference to Tender Notification No.: 1427/MPMRCL/2021/Package BH&IN-02, Date: 02.11.2021, regarding “Design, Manufacture, Supply, Installation, Testing, Commissioning and Training of Standard Gauge Passenger Rolling Stock Cars (with 15 Years Comprehensive Maintenance) – 81 Cars for Bhopal and 75 Cars for Indore, including Signalling & Train Control and Telecommunication Systems (with 7 Years Comprehensive Maintenance)” for Bhopal Metro Rail Project and Indore Metro Rail Project, the Clarifications to the queries raised by the Tenderers in pursuant to clause 3.3 of Volume I – ITT, are as follows:

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
1	Volume I, Part 1: NIT, Tender Notification	General (6 of 239)	Madhya Pradesh Metro Rail Corporation Limited (MPMRCL) (A Joint Venture of Government of India and Government of	Will there be a Separate order for Main Execution and AMC Order?	There will be a single Contract. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Madhya Pradesh) “Design, Manufacture, Supply, Installation, Testing, Commissioning and Training of Standard Gauge Passenger Rolling Stock Cars (with 15 Years Comprehensive Maintenance) – 81 Cars for Bhopal and 75 Cars for Indore, including Signalling & Train Control and Telecommunication Systems (with 7 Years Comprehensive Maintenance)” for Bhopal Metro Rail Project and Indore Metro Rail Project		
2	Volume I, Part 1: NIT, Tender Notification	General (6 of 239)	Madhya Pradesh Metro Rail Corporation Limited (MPMRCL) (A Joint Venture of Government of India and Government of Madhya Pradesh) “Design, Manufacture, Supply, Installation, Testing, Commissioning and Training of	- We understand that there would be a Separate contract for Rolling Stock/ Signalling & Telecommunication and Comprehensive Maintenance, Kindly Confirm.	There will be a single Contract. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Standard Gauge Passenger Rolling Stock Cars (with 15 Years Comprehensive Maintenance) – 81 Cars for Bhopal and 75 Cars for Indore, including Signalling & Train Control and Telecommunication Systems (with 7 Years Comprehensive Maintenance)” for Bhopal Metro Rail Project and Indore Metro Rail Project		
3	Volume I, Part 1: NIT	1.1.1 and ITT 2.1.1 (7 of 239)	-	<p>Regarding S&T included in the scope of supply of subject tender:</p> <p>Due to limited available supplier for S&T, above clubbed tender, would be advantageous to few OEMs only, who have both rolling stocks (RS) and S&T solution available with them.</p> <p>For other rolling stock supplier, even if the subcontracting clause for S&T would be permitted, the</p>	<p>The Tender Conditions shall prevail.</p> <p>However, refer Corrigendum – 3 being issued separately for allowing Specialist Subcontractor with respect to S&T.</p>

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				<p>offer price put together for RS and S&T would not be competitive for us.</p> <p>Therefore, we would once again request you to kindly float separate tender for S&T and Rolling stocks as done by various other metro authorities in India to maximize participation and cost competitiveness.</p>	
4	Volume I, Part 1: NIT	1.2, Table, 5th row (8 of 239)	Payment of Tender Fee/ Cost of Tender Document is to be made only by RTGS, NEFT or IMPS. No other mode of payment will be accepted. The detail of bank account of MPMRCL is mentioned in para 1.10 of NIT. The Tenderers are required to upload scanned copies of transaction of payment (clearly indicating tender number i.e., BH&IN-02 in the remarks or description column) of Tender Document cost/ Tender Fee at	Since the Foreign bidder which may not have office and Bank Account in India, cannot make payment by RTGS, NEFT or IMPS as this mode of payment is applicable for Indian transection. Also not being an Indian company, they do not possess GST registration no. After getting the order foreign company will register a Project Office and open bank account in India and will apply for GST	<p>The Tender Conditions shall prevail.</p> <p>However, Corrigendum – 3 is being issued separately; with respect to GST registration number for foreign parties.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>the time of online bid submission.</p> <p>(Copy of GST registration no. to be provided along with Tender document cost/tender fee)</p>	<p>registration.</p> <p>As such direct payment of tender cost through SWIFT from foreign country should be permitted and condition for submission GST registration no. with Tender document cost/tender fee may be waived.</p> <p>Pl consider and confirm.</p>	
5	Volume I, Part 1: NIT	1.2, 7th row (8 of 239)	<p>Time & date of submission of queries through eProcurement portal only:</p> <p>Start: 11:00 hrs. on 03.11.2021</p> <p>End: 18:00 hrs on 23.11.2021</p>	<p>We are rolling stock manufacturer and are looking for S&T and Telecommunication equipment manufacturer for participation in the tender. We have submitted queries for Rolling Stock only. Question for S&T and Telecommunication preparation will take some time. The last date for submission of queries therefore kindly be extended by a month or so.</p>	<p>The Tender Conditions shall prevail.</p> <p>Also; refer Volume I, Part 1: ITT, Sub-Clause 3.3.2. "Queries/clarifications from tenderers after due date and time shall not be acknowledged."</p> <p>However, the Employer endeavours to clarify all the substantial queries.</p>

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6	Volume I, Part 1: NIT	1.2, Table, 8th row (8 of 239)	Pre-Bid meeting	In order to properly read and appreciate the tender documents and in view of the inputs from the scheduled pre bid meeting, we request you to please allow another round of queries/clarifications to be submitted after Pre-Bid Meeting.	The Tender Conditions shall prevail.
7	Volume I, Part 1: NIT	1.2, Table, 10th row (8 of 239)	Time & Date of submission of Tender online. Start: 11:00 hrs. on 21.12.2021 End: 16:00 hrs. on 28.12.2021	"End: 16:00 hrs. on 28. 12. 2021" is very short time, we ask to extend for 3 months.	Corrigendum – 1 issued separately.
8	Volume I, Part 1: NIT	1.2, Table, 10th row (8 of 239)	Time & Date of submission of Tender online. Start: 11:00 hrs. on 21.12.2021 End: 16:00 hrs. on 28.12.2021	"End: 16:00 hrs. on 28. 12. 2021" is very short time, we ask to extend for 3 months.	Corrigendum – 1 issued separately.
9	Volume I, Part 1: NIT	1.2, 10th row (8 of 239)	Time & Date of Submission of Tender online End: 16:00 hours on 28.12.2021	As you would appreciate, preparing a complex bid such as this involving multiple product lines of Rolling Stock, Signalling and Telecom together with	Corrigendum – 1 issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>Maintenance is extremely time consuming and requires coordination and collaboration across multiple entities based in different countries. Considering the above, we would request you to grant an extension of at-least 6-8 weeks from the current bid submission deadline of 28th December. This would enable us to prepare and submit a competitive and compliant offer.</p>	
10	Volume I, Part 1: NIT	1.2, Table, 10th row (8 of 239)	<p>Time & date of submission of Tender online Start: 11:00 hrs. on 21.12.2021 End: 16:00 hrs. on 28.12.2021</p>	<p>We earnestly request you to extend the deadline for submission to 23.02.2022. Please be informed that the average duration to put together a metro bid for signalling and telecommunication systems is 4 to 6 months.</p> <p>Please appreciate the fact that as per the tender, the date for</p>	Corrigendum – 1 issued separately.

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				<p>issue of responses to pre-bid queries is 14th December 2021 and it is essential that sufficient time is allowed post receipt of clarifications to our queries to submit a responsive techno-commercial offer. Since this is design-built contract substantial time is required to put up a technical proposal together in line with functional requirements. Also, the scope includes supply of rolling stock, signalling, telecommunication systems and DLCMP for which extensive collaboration with various internal as well as external stakeholders will be required. Moreover, being a combined package of Signalling & Rolling Stock detailed interface assessment is crucial and massive work which will lead to delay in compilation of bid.</p>	

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				We would also like to highlight those European countries will be on vacation for Christmas, hence we will be unable to receive support from our consortium partners and foreign vendors. This will also hamper the mandatory approvals from our headquarters to submit the bid.	
11	Volume I, Part 1: NIT	1.2, Table, 10th row (8 of 239)	Time & Date of submission of Tender online. Start: 11:00 hrs. on 21.12.2021 End: 16:00 hrs. on 28.12.2021	We earnestly request you to extend the deadline for submission of bid documents further to 28th February 2022. Please be informed that the average duration to put together a metro bid for signalling and telecommunication systems is 4 to 6 months.	Corrigendum – 1 issued separately.
12	Volume I, Part 2: ITT	2.2, 1st paragraph	This is an “International Competitive Bidding” e-tender and all proprietorship firms,	- We understand that Separate Billing and Payment release to consortium partners is	Corrigendum – 3 is being issued separately.

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		(14 of 239)	partnership firms, companies, corporations, consortia or joint ventures who are involved in execution of this type of work and those who fulfil the financial soundness and work experience criteria and other requirements laid down in Eligibility cum Qualification Criteria and/or in this document are eligible to participate. Tenders are open to nationals of all countries.	applicable.	
13	Volume I, Part 2: ITT	2.3.1, 2nd paragraph, last line (15 of 239)	If the documents are in foreign language the translation of the same in English shall be authenticated by Indian Embassy or High Commission.	For foreign companies almost all documents/ printed material will be in foreign language and will be voluminous. The translation duly notarised may be considered sufficient as authentication by Indian Embassy or High Commission takes lot of time.	In case of foreign companies, English translations (if any) of documents confirming authority to sign on behalf of the Tenderer; like Power of Attorney(s) and Board Resolution/Commercial Register shall be authenticated by Indian Embassy or High Commission. Otherwise, notarised English translations may be considered.

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					The Tender Conditions shall prevail.
14	Volume I, Part 2: ITT	4.2.2, (o) (23 of 239)	Appendix – 13 to Letter of Tender – The tenderer may submit minor deviations in this appendix and a confirmation that price of every such minor deviation has been given in the Financial Bid. Minor deviation may be in the Employer’s requirements or in any other tender requirement which do not alter the basic functionality of the work or part thereof. If there is no such minor deviation, then the tenderer must write “NIL” in this appendix. Tenderer to note that such minor deviations may or may not be accepted by the Employer and the tenderer shall not have any right to claim on this account. The offer in Pricing Document shall be given without considering any	Please clarify that bidder can seek minor clarifications on all the volumes of tender documents.	Refer Volume I, Part 2: ITT, Sub-Clause 3.3 for clarification on Tender Documents. Regarding minor deviations Volume I, Part 2: ITT, Sub-Clauses 4.2.2 (o), 4.15.2, 4.16.1, 6.5.6 are self-explanatory. The Tender Conditions shall prevail.

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			deviation in tender conditions. Tenderer to see note 1 of Appendix – 13 of LOT.		
15	Volume I, Part 2: ITT	4.2.3, (c) (25 of 239)	Proposal for providers of guarantees and warranties	Please provide format and list of guarantees & warranties for which proposal for providers is to be given.	Refer Volume I, Part 2: ITT, Attachment - 1.1D and 1.2G for the form and Employer's Requirements [Volume III & IV] for required guarantees and warranties. The Tender Conditions shall prevail.
16	Volume I, Part 2: ITT	4.2.4, last two lines (25 of 239)	The Contractor shall arrange for the remittance of the refund to the Employer. If the Contractor fails to remit such amounts to the Employer, the same shall be recovered from amounts due for payment to the Contractor.	The Contractor shall arrange for the remittance of the refund to the Employer. If the Contractor fails to remit such amounts to the Employer (pl add 'after refund from the concerned authority'), the same shall be recovered from amounts due for payment to the Contractor.	The Tender Conditions shall prevail.

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17	Volume I, Part 2: ITT	4.2.6.1, 1st sentence (26 of 239)	The Tenderer shall be solely responsible to coordinate and facilitate for the concessional duty benefits under Chapter 98.01 of Custom Tariff Act for project Imports.	As a project owner, we request MPMRCL to clarify whether Bhopal-Indore Metro qualifies for concessional duty benefits under chapter 98.01 of custom Tariff Act for project Imports or not. Please clarify.	Refer Volume I, Part 2: ITT, Sub-Clauses 4.2.4, 4.2.5 and 4.2.6 holistically, specifically 4.2.6.2 for applicability of taxes, duties, cess etc. The Employer is likely to be eligible for Project Import Benefits. After award of Contract, the Contractor need to process for Project Import Benefits and the Employer will facilitate the Contractor for obtaining sponsoring/ recommendation letter(s) for getting themselves registered for availing Project Import Benefits. The Tender Conditions shall prevail.
18	Volume I, Part 2: ITT	4.4.3 (27 of 239)	In case of Joint Venture/ Consortium, the JV/ Consortium member based on whose experience and strength, the tenderer has qualified for this	If the consortium comprises of an Indian company and its foreign sister company belonging to the common ultimate parent, then the Indian	All the members shall be jointly and severally liable. The Tender Conditions shall prevail in this regard.

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			tender, shall be responsible for overall quality of manufacture, testing, commissioning and DNMP.	member should be responsible for overall quality of manufacture, testing, commissioning and DNMP. The members of the Consortium would be jointly and severally liable as per the provisions of the Consortium Agreement.	
19	Volume I, Part 2: ITT	4.17.1, 1st sentence (30 of 239)	The Tenderer may offer their prices in Indian Rupees, USD and / or in Euro only.	As followed in other metro rail tenders, we request MPMRCL to allow the bidders using Japanese Yen (JPY) as well. Please consider.	The Tender Conditions shall prevail.
20	Volume I, Part 2: ITT	4.19.1 (31 of 239)	The Tenderer shall submit scanned copy of EMD / Tender Security Declaration in the form given in Annexure – 3 of Instructions to Tenderers with their Tender through online submission.	We do not see tender security bank guarantee requirement in the tender. Only Tender Security Declaration is sufficient. Kindly confirm our understanding.	The Tender Security Declaration is sufficient. The Tender Conditions shall prevail.
21	Volume I, Part 2: ITT	6.5.5.2,	Minimum Local Content for “Class-I Local Supplier”:	Please clarify that if foreign company sent their staff to India	Salary/ professional fees paid in Indian Rupees to India-based

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		1st paragraph (38 of 239)	<p>a. The minimum local content for Rolling Stock shall be 60% (Sixty percent).</p> <p>b. The minimum local content for Signalling shall be 50% (Fifty percent).</p> <p>c. The minimum local content for Telecom works shall be 50% (Fifty percent).</p>	for the manufacturing, the salaries can also be considered as the local content?	<p>foreign employees will be treated as local content, if they are ordinarily resident in India for a longer period (6 months or more). However, salary/ professional fees paid to foreign professionals coming to India on short-term basis, or payments made in foreign currency, will not be treated as local content.</p> <p>The Tender Conditions shall prevail.</p>
22	Volume I, Part 2: ITT	6.5.5.2, 2nd paragraph (39 of 239)	However, a supplier of the product; which is being manufactured in India under a license from a foreign manufacturer who holds intellectual property rights and where there is a technology collaboration agreement/ transfer of technology agreement for indigenous manufacture of a	As the product is being manufactured in India, such suppliers should still be in a position to comply with the local content requirement. Accordingly, the minimum local content requirement should not be waived off for such suppliers in line with Make in India guidelines of Govt. of India.	The Tender Conditions shall prevail.

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			product developed abroad with clear phasing of increase in local content, shall be exempted from meeting above stipulated minimum local content, subject to submission of documentary evidences and shall be considered as "Local Suppliers" for the purpose of Purchase Preference.	Accordingly, we request that this clause should either be deleted OR such suppliers should not be considered as "Local Suppliers" for the purpose of Purchase Preference.	
23	Volume I, Part 2: ITT, Annexure - 1	Attachment - 1.1D & 1.2G (95 of 239)	Form for Schedule of Guarantee	Please confirm that both attachments are same and contain the same data.	Both the attachments are same; but for RS and S&T separately. The Tender Conditions shall prevail.
24	Volume I, Part 2: ITT, Annexure - 1	Attachment - 1.1D (95 of 239)	[The Tenderer shall include in the table below, the identification of each Performance/ Specific Guarantee required in Volume III Employer's Requirement and Volume IV, Technical Specifications stated by the	PI identify each Performance/ Specific Guarantee required to be included in the table which are to be confirmed by the bidder	Refer Volume I, Part 2: ITT, Attachment - 1.1D and 1.2G for the form and Employer's Requirements [Volume III & IV] for required guarantees and warranties.

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			Employer.]		The Tender Conditions shall prevail.
25	Volume I, Part 2: ITT, Annexure - 1	Attachment - 1.1G (128 of 239)	[The Tenderer shall include in the table below, the identification of each Performance/ Specific Guarantee required in Volume III Employer's Requirement and Volume IV, Technical Specifications stated by the Employer.]	PI identify each Performance/ Specific Guarantee required to be included in the table which are to be confirmed by the bidder	Refer Volume I, Part 2: ITT, Attachment - 1.1D and 1.2G for the form and Employer's Requirements [Volume III & IV] for required guarantees and warranties. The Tender Conditions shall prevail.
26	Volume I, Part 2: ITT, Annexure - 10	Table 10.2, Item No. 5 & 8 (150 of 239)	-	As per Appendix A13 of Volume IV Part 2, the site localization of accessories viz. computers and workstations and servers are recommended. However as per Annexure 10 to ITT Table 10.2 sr.no. 5 & 8, the items have to be procured locally only. These two clauses are contradictory and therefore we request you to remove sr. no. 5 & 8 from Table	In case of mismatch, MoHUA guidelines shall prevail. The Tenderer/ Contractor are encouraged for localisation from local suppliers. The Tender Conditions shall prevail.

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				10.2.	
27	Volume I, Part 2: ITT, Annexure - 10	Table 10.3 (151 of 239)	Table 10.3: List of Items/ Components for Telecommunication	Please appreciate the fact that for item for FOTS, IPBX & VTS, very few local experienced suppliers are available. Also, as per Annexure 12 to ITT these suppliers have to meet the experience requirement which we will not be able to achieve with emerging Indian vendors. Therefore, we request you to remove these systems from local content requirement.	The Tender Conditions shall prevail. However, corrigendum – 3 is being issued separately; with respect to Annexure - 10 to ITT, Table 10.3.
28	Volume I, Part 2: ITT, Annexure - 10	Table 10.3 (152 of 239)	Table 10.3: List of Items/ Components for Telecommunication	The items specified in this list is not proven system and also it will create monopoly of vendor. So, it is recommended to remove this list and maintain the MHOU guideline.	The Tender Conditions shall prevail.
29	Volume I, Part 2: ITT, Annexure - 11	- (153 of 239)	Annexure – 11 to ITT: Guarantee for Safe Custody	This Safe custody guarantee is an additional requirement compared to other tenders and	Corrigendum – 3 is being issued separately.

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				adds up to cost. We request MPMRCL to delete the requirement.	
30	Volume I, Part 2: ITT, Annexure - 11	- (153 of 239)	Annexure – 11 to ITT: Guarantee for Safe Custody	<p>1. The purpose of safe custody Bank Guarantee is not clear. The payment made by the customer is against milestone achieved. Even for the design, customer has received some tangible assets before making the payment.</p> <p>2. In respect of supplies, the ownership of the goods will be transferred to purchaser at the time of dispatch and billing will be made accordingly. Hence the goods, which are available to customer has their guarantee against the payment made which is part of the total cost.</p> <p>3. Furnishing 95% value of the payment as Bank Guarantee by the contractor will involve a huge</p>	Corrigendum – 3 is being issued separately.

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				burden on the contractor and such Bank Guarantee may not be possible to be provided. No contract in India on Metro projects has such a stipulation till date and this should be deleted. Please confirm.	
31	Volume I, Part 2: ITT, Annexure - 12	4 (158 of 239)	4 In the case of a Tenderer who offers to supply and install major items of supply under the Contract that the Tenderer did not manufacture or otherwise produce, the Tenderer shall provide the manufacturer's authorization, using Form MAN (as per Annexure 1 to ITT: Technical Proposal) showing that the Tenderer has been duly authorized by the manufacturer or producer of the related plant and equipment or component to supply and install that item in the Employer's country. The Tenderer is responsible for	Since it is permitted to provide names of multiple sub-vendors for each item, manufacturer's authorization using Form MAN may not be insisted in the Bid. When sub-vendor is selected and approved, Form MAN will be submitted. Kindly confirm	The Tender Conditions shall prevail. However, Corrigendum – 3 is being issued separately, with respect to Form SUB.

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			ensuring that the manufacturer or producer complies with the requirements of tender conditions and meets the minimum criteria listed above for that item.		
32	Volume I, Part 3: EQC	10.2.1, (a) (163 of 239)	Manufacture of minimum 78 number of Cars (Metro, LRT, Suburban EMUs, Train Sets)	<p>In view of our loco experience, we would request, kindly add locomotive in the experience criteria and amend the clause as below: -</p> <p>“Manufacture of minimum 78 number of Cars (Metro, LRT, Suburban EMUs, Train Sets) or Electric Locomotives</p> <p>“Accordingly, changes may kindly be incorporated at other relevant clauses in the tender wherever applicable.</p> <p>It would help BHEL gets qualified and participate as LEAD BIDDER, whereas the Designer can be Consortium partner or Subcontractor.</p>	The Tender Conditions shall prevail.

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33	Volume I, Part 3: EQC	10.2.1, (vii) (166 of 239)	For executed works, the value of work done shall be updated to the Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above) price level assuming 5% inflation for Indian Rupees per year (or part thereof) and 2% for foreign currency portions per year (or part thereof). The exchange rate of foreign currency shall be applicable 28 days before the last date of online Tender submission.	The basis (say FBIL rate, xe.com etc.) from which the exchange rate of foreign currency to be followed is not mentioned in the tender document. Kindly provide.	Corrigendum – 3 is being issued separately.
34	Volume I, Part 3: EQC	10.2.1 Notes: (v), 10.2.2 Notes: (iv), 10.3.1 Notes: (vi), 10.4.1 Notes: (vii) (166 of 239)	In case the work is executed for a private client the following shall be submitted: copy of the work order(s), bill of quantities, details of payments received, T.D.S. certificates for all payments received and copy of the final/last bill paid.	We understand this clause is applicable for supplies made to private client in India and such documents are not necessary for private clients in foreign country. PI confirm that our understanding is correct.	Corrigendum – 3 is being issued separately.
35	Volume I, Part	10.2.1 Notes:	In case the work is executed for a	Please note that due to non-	Corrigendum – 3 is being issued

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	3: EQC	(v), 10.2.2 Notes: (iv), 10.3.1 Notes: (vi), 10.4.1 Notes: (vii) (166 of 239)	private client the following shall be submitted: copy of the work order(s), bill of quantities, details of payments received, T.D.S. certificates for all payments received and copy of the final/last bill paid.	disclosure agreements with the clients, it is not possible to provide all these details. Request you to remove this clause. Our request is in line with other metro tenders including Pune, Bangalore and Agra-Kanpur.	separately.
36	Volume I, Part 3: EQC	10.2.1 Notes: (v), 10.2.2 Notes: (iv), 10.3.1 Notes: (vi), 10.4.1 Notes: (vii) (166 of 239)	v. In case the work is executed for a private client the following shall be submitted: copy of the work order(s), bill of quantities, details of payments received, T.D.S. certificates for all payments received and copy of the final/last bill paid.	Please note that due to non-disclosure agreements with the clients, it is not possible to provide all these details. Request you to remove this clause. Our request is in line with other metro tenders including Pune, Bangalore and Agra-Kanpur.	Corrigendum – 3 is being issued separately.
37	Volume I, Part 3: EQC	10.2.1 Notes: (v), 10.2.2 Notes: (iv),	In case the work is executed for a private client the following shall be submitted: copy of the work order(s), bill of quantities, details	Please note that due to non-disclosure agreements with the clients, it is not possible to provide all these details.	Corrigendum – 3 is being issued separately.

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		10.3.1 Notes: (vi), 10.4.1 Notes: (vii) (166 of 239)	of payments received, T.D.S. certificates for all payments received and copy of the final/last bill paid.	Request you to remove this clause. Our request is in line with other metro tenders including Pune, Bangalore and Agra-Kanpur.	
38	Volume I, Part 3: EQC	10.2.2, Notes: (iv) (167 of 239)	iv. In case the work is executed for a private client the following shall be submitted: copy of the work order(s), bill of quantities, details of payments received, T.D.S. certificates for all payments received and copy of the final/last bill paid.	It is difficult to prepare all the requested documents because the information is confidential. We ask to delete this sentence.	Corrigendum – 3 is being issued separately.
39	Volume I, Part 3: EQC	10.2.2, Notes: (iv) (167 of 239)	iv. In case the work is executed for a private client the following shall be submitted: copy of the work order(s), bill of quantities, details of payments received, T.D.S. certificates for all payments received and copy of the final/last bill paid.	It is difficult to prepare all the requested documents because the information is confidential. We ask to delete this sentence.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
40	Volume I, Part 3: EQC	10.3 (167 of 239)	Work experience for Signalling and Train Control	From the work experience requirement for Signalling & Train Control supplier, it appears that he has to be a JV/ Consortium partner. Since there are very limited parties, who can meet the work experience for signalling & train control, this condition is restricting the participation by tenderers who are mainly Rolling Stock manufacturers. Two Rolling Stock manufacturers namely Alstom & SIEMENS are also manufacturing Signalling & Train Control System. They will not participate with other bidders. For Propulsion System and Telecommunication System, the tender permits that the suppliers can be a sub-contractor and support more than one tenderers. It is requested to consider allowing signalling and	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				train control party also to be associated with tenderer as a sub-contractor rather than a JV/Consortium partner. This will allow more Rolling Stock manufacturers to participate in the tender and the bidding will be more competitive.	
41	Volume I, Part 3: EQC	10.3 (167 of 239)	Clause No.10.3 - Work experience for Signalling and Train Control	Work experience requirement given in the Table is not clear. Requirement specified for concerned partner as "must have executed similar work" ** from one contract of minimum INR 180 Crore for criteria under a, b, or c with footnote and asterisk mark for foreign partner/entity is confusing in view of Note-I. This may please be clarified.	* [single asterisk] shall be applicable for "Foreign Partner/ Entity". ** [double asterisk] shall be applicable for "Similar Work". *** [triple asterisk] shall be applicable for "Concerned Partner". The Tender Conditions shall prevail.
42	Volume I, Part 3: EQC	10.3 (167 of 239)	Work Experience for Signalling & Train Control	You are requested to insert additional note under article clause 10.3.2, after Note 2,	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>The Tenderer (Single Entity or JV/ Consortium) or proposed subcontractor must meet these criteria of (a) or (b) or (c) and (d). The Signalling Contractor shall be either the Tenderer (Single Entity or Concerned Partner of the JV/ Consortium, as the case may be) or proposed subcontractor. The overall responsibility for integrating the Signalling & Train Control system with other Sub-Systems including Telecommunication, Rolling Stock, Track, Traction, Power Supply, Platform Screen Door etc will vest with the Signalling Contractor (Single Entity or Concerned Partner of the JV/ Consortium or proposed subcontractor, as the case may be) who should have necessary expertise for the same.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>“Concerned Partner” criteria shall not be applicable, in case of proposed subcontractor. A consent letter/MOU from the proposed Signalling subcontractor shall be submitted by the Tenderer stating that they will work with the Tenderer, in case the work is awarded to the Tenderer, failing which the bid shall be treated as non-responsive.</p> <p>The above amendment is requested in line with the practice following for similar contracts by UPMRCL for Agra Kanpur Metro, whereby Signalling Contractor was allowed to work as subcontractor to RS, though on exclusive basis. Secondly, in terms of % SOW, whereas Signalling is merely ~33% of overall contract,</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				the Signalling contractor has to take joint and several liability for entire contract if forced to become JV/Consortium partner.	
43	Volume I, Part 3: EQC	10.3 (167 of 239)	10.3 Work Experience for Signalling & Train Control	Since Signalling scope of work is likely to be indicatively 1/5th of the project value, we would request allowing the signalling supplier to be a subcontractor to the Rolling Stock supplier. It would be difficult for a signalling supplier to participate in consortium and take joint and several responsibilities of the complete project scope where their scope of work is about 20% only.	Corrigendum – 3 is being issued separately.
44	Volume I, Part 3: EQC	10.3.1 (167 of 239)	The tenderers will be qualified only if they satisfy the minimum eligibility criteria (a) or (b) or (c), and (d) as given below within the past 7 (seven) years ending on the	Signalling and Telecommunication Contractor should be allowed to join the main bidder as Sub-Contractor for the following reasons: 1. The value of signalling work is	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above).</p>	<p>only 30% of the total contract. Hence, by signing the JV agreement, the Signalling Contractor has to be responsible for 100% of the contract value in case of any default by the rolling stock contractor.</p> <p>2. There are very limited number of signalling contractors. Further, some of the signalling contractors are rolling stock manufacturers themselves. There is hardly any company meeting the local content condition with whom the JV/ Consortium can be made.</p> <p>3. By including signalling and telecommunication as part of the rolling stock contract, the integration of the rolling stock with Signalling and Telecommunication has been made the responsibility of rolling stock which in any case, is</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>always the case because the rolling stock manufacturer always does coordination with other related sub-system contractors.</p> <p>4. Propulsion system, which is the heart of the rolling stock contract, if allowed to be sourced from a sub-contractor then similar condition should be made or Signalling part also to Rolling Stock Contractor.</p> <p>In view of above, signalling contractor should be allowed to be a sub-contract or as has been allowed in other metro projects in India. Please confirm.</p>	
45	Volume I, Part 3: EQC	10.3.1, (d) (168 of 239)	d. Integration of Signalling and Train Control System including major subsystems (Interlocking, ATP, ATS and Radio), with other subsystems (Telecommunication systems, Rolling stock, Track,	<p>Kindly consider the below modification:</p> <p>d. Integration of Signalling and Train Control System including major subsystems (Interlocking, ATP, ATS and Radio), with other</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Traction & Power Supply, Platform screen door, etc) in at least one similar work, out of the work(s) submitted in support of above criteria (a) or (b) or (c)	<p>subsystems (Telecommunication systems, Rolling stock, Track, Traction & Power Supply, Platform screen door, etc) in at least one similar work, out of the work(s) submitted in support of above criteria (a) or (b) or (c)</p> <p>The integration experience of the supplier should not be ascertained based on the value of works - the skill and competence required is the same irrespective of the magnitude of the project.</p>	
46	Volume I, Part 3: EQC	10.3.1, (d) (168 of 239)	d. Integration of Signalling and Train Control System including major subsystems (Interlocking, ATP, ATS and Radio), with other subsystems (Telecommunication systems, Rolling stock, Track, Traction & Power Supply,	<p>Kindly consider the below modification:</p> <p>d. Integration of Signalling and Train Control System including major subsystems (Interlocking, ATP, ATS and Radio), with other subsystems</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Platform screen door, etc) in at least one similar work, out of the work(s) submitted in support of above criteria (a) or (b) or (c)	<p>(Telecommunication systems, Rolling stock, Track, Traction & Power Supply, Platform screen door, etc) in at least one similar work, out of the work(s) submitted in support of above criteria (a) or (b) or (c)</p> <p>The integration experience of the supplier should not be ascertained based on the value of works - the skill and competence required is the same irrespective of the magnitude of the project.</p>	
47	Volume I, Part 3: EQC	10.3.1, (d) (168 of 239)	d. Integration of Signalling and Train Control System including major subsystems (Interlocking, ATP, ATS and Radio), with other subsystems (Telecommunication systems, Rolling stock, Track, Traction & Power Supply, Platform screen door, etc) in at	Kindly remove 'Power Supply' as no integration of Signalling and Train Control System is anticipated with the Power Supply system.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			least one similar work, out of the work(s) submitted in support of above criteria (a) or (b) or (c)		
48	Volume I, Part 3: EQC	10.3.1 Notes: (vi) (169 of 239)	In case the work is executed for a private client the following shall be submitted: copy of the work order(s), bill of quantities, details of payments received, T.D.S. certificates for all payments received and copy of the final/last bill paid.	Please note that due to non-disclosure agreements with the clients, it is not possible to provide all these details. Request you to remove this clause. Our request is in line with other metro tenders including Pune, Bangalore and Agra-Kanpur.	Corrigendum – 3 is being issued separately.
49	Volume I, Part 3: EQC	10.3.2, (b) (170 of 239)	at least one 10 Route km of UTO/DTO, which have been commissioned and proven for at least one year with satisfactory operation by any of the group company under same parent company, in Mass Rapid Transit System (which includes Metro Rail and/or High-Speed Rail).	Group companies may have the same ultimate parent but the immediate parent may be different. We would request you to modify this clause as follows: " By any of the group company under same ultimate parent company....."	"Parent Company" stated is inclusive, which covers ultimate parent company as well. However, the relationship with the concerned group company must be established through "Structure, Details of Ownership & Control of the Tenderer" under Appendix - 6A of LOT. The concerned group company shall form part of the JV/ Consortium.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					The Tender Conditions shall prevail.
50	Volume I, Part 3: EQC	10.4.1 (171 of 239)	10.4.1 The tenderers will be qualified only if they satisfy the minimum eligibility criteria (a) or (b) or (c), and (d) as given below within the past 7 (seven) years ending on the Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above).	<p>We request that references of the past 10 years from the Credential Cut-Off Date should be permitted. Accordingly, we request the following modification:</p> <p>The tenderers will be qualified only if they satisfy the minimum eligibility criteria (a) or (b) or (c), and (d) as given below within the past 7 (seven) 15 (fifteen) years ending on the Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above).</p>	Corrigendum – 3 is being issued separately.
51	Volume I, Part 3: EQC	10.4.1, Notes: (i) (171 of 239)	** “Similar Work” for these criteria shall mean Design, Supply, Installation, Testing and Commissioning of	Similar Telecom works as defined in the EQC are generally executed as a part of a single contract together with Signalling	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Telecommunication Systems in Mass Rapid Transit System (which includes Metro Rail and/or High-Speed Rail).	system in metro projects globally. In such cases, the customer provides a combined value of Signalling & Telecom without providing the breakup between Signalling and Telecom. We therefore request that in cases where the bidder has executed the Telecom works together with signalling and separate breakup of telecom is not available, 40% of the total value of the Contract should be considered for meeting the Similar Works value requirement for Telecom	
52	Volume I, Part 3: EQC	10.4.1 (171 of 239)	10.4.1 The tenderers will be qualified only if they satisfy the minimum eligibility criteria (a) or (b) or (c), and (d) as given below within the past 7 (seven) years ending on the Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above).	We request that references of the past 13 years from the Credential Cut-Off Date should be permitted. We further request that for Telecom sister company references should also be permitted on the same lines as already permitted for UTO/DTO	Corrigendum – 3 is being issued separately, for period and JV/ Consortium within Specialist Subcontractor. The Tender Conditions shall prevail, with respect to group/

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>in Clause 10.3.2 b of the eligibility criteria. Accordingly, we request the following modifications:</p> <p>The tenderers will be qualified only if they or any of their group/sister companies satisfy the minimum eligibility criteria (a) or (b) or (c), and (d) as given below within the past 7 (seven) 13 (thirteen) years ending on the Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above).</p>	sister companies.
53	Volume I, Part 3: EQC	10.4.1, Note: (i) (172 of 239)	** "Similar Work" for these criteria shall mean Design, Supply, Installation, Testing and Commissioning of Telecommunication Systems in Mass Rapid Transit System (which includes Metro Rail and/or High-Speed Rail). This Telecommunication Systems must comprise at least following	We would like to highlight that the Gigabit Ethernet Network is the new technology therefore it's difficult to provide credentials for the same. Please remove highlighted text in line with recent telecommunication tenders.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			sub-systems: (a) Radio system (TETRA), (b) Fiber optic transmission system (FOTS) based on Gigabit Ethernet (GE) network, (c) Passenger Information Display System (PIDS), (d) Public Address System (PAS), and	Alternatively, you could replace the highlighted text it with: (b) Fiber optic transmission system (FOTS) - Optical fibre-based backbone system,	
54	Volume I, Part 3: EQC	10.4.1, Note: (i) (172 of 239)	** "Similar Work" for these criteria shall mean Design, Supply, Installation, Testing and Commissioning of Telecommunication Systems in Mass Rapid Transit System (which includes Metro Rail and/or High-Speed Rail). This Telecommunication Systems must comprise at least following sub-systems: (a) Radio system (TETRA), (b) Fiber optic transmission	** "Similar Work" for these criteria shall mean Design, Supply, Installation, Testing and Commissioning of Telecommunication Systems in Mass Rapid Transit System (which includes Metro Rail and/or High-Speed Rail / Railways) as a prime contractor, joint venture member, management contractor or subcontractor. This Telecommunication Systems must comprise at least following sub-systems:	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			system (FOTS) based on Gigabit Ethernet (GE) network, (c) Passenger Information Display System (PIDS), (d) Public Address System (PAS), and (e) Three (3) out of the following ten (10) sub-systems: •Time Distribution System •Telephone system •Emergency help point system •Closed Circuit Television system (CCTV) •Voice Recording Systems •Uninterrupted Power Supply •Video Transmission System •Fault Reporting System •Access Control and Intrusion Detection System •Office Automation and IT	(a) Radio system - TETRA/LTE/VHF, (b) Fiber optic transmission system (FOTS) and (c) Three (3) out of the following ten (10) sub-systems: •Time Distribution System (Master Clock System) •Telephone system •Emergency help point system •Closed Circuit Television system (CCTV) •Voice Recording Systems •Uninterrupted Power Supply •Video Transmission System •Fault Reporting System •Access Control and Intrusion Detection System •Office Automation and IT	
55	Volume I, Part	10.4.1, Note:	The Tenderer (Single Entity or	As per Note iii of EQC criteria,	In case these criteria being met by

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	3: EQC	(iii) (173 of 239)	JV/ Consortium) or proposed subcontractor must meet these criteria of (a) or (b) or (c) and (d). The Telecom System Integrator shall be either the Tenderer (Single Entity or Concerned Partner of the JV/ Consortium, as the case may be) or proposed subcontractor. Individual telecom sub-systems (supply portion) may be sublet but the overall responsibility for the systems including the system and software integration of all the telecom sub-systems will vest with the tenderer (Single Entity or Concerned Partner of the JV/ Consortium or proposed subcontractor, as the case may be) who should have necessary expertise for the same. "Concerned Partner" criteria shall not be applicable, in case of proposed subcontractor. A consent letter/MOU from the	the proposed subcontractor has to meet criteria of (a) or (b) or (c) and (d). However, in the same clause it is mentioned that "Concerned Partner" criteria shall not be applicable, in case of proposed subcontractor. These clauses are contradictory. Therefore, request you to clarify in case of the proposed subcontractor does subcontractor has to have the experience specified in (a) or (b) or (c) and (d).	a proposed subcontractor; the requirements for "Concerned Partner" shall become not applicable, as the proposed subcontractor will not be a partner of the JV/ Consortium. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			proposed subcontractor shall be submitted by the Tenderer stating that they will work with the Tenderer, in case the work is awarded to the Tenderer, failing which the bid shall be treated as non-responsive.		
56	Volume I, Part 3: EQC	10.4.1, Note: (iii) (173 of 239)	The Tenderer (Single Entity or JV/ Consortium) or proposed subcontractor must meet these criteria of (a) or (b) or (c) and (d). The Telecom System Integrator shall be either the Tenderer (Single Entity or Concerned Partner of the JV/ Consortium, as the case may be) or proposed subcontractor. Individual telecom sub-systems (supply portion) may be sublet but the overall responsibility for the systems including the system and software integration of all the telecom sub-systems will vest with the tenderer (Single Entity or	As per Note iii of EQC criteria, it is allowed to subcontract the telecom portion of work. However as per the sr. no. 17 of PC, 50% of the Telecommunication part cannot be subcontracted. Therefore, we request you to remove the "Telecommunication" from sr. no. 17 of PC.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Concerned Partner of the JV/ Consortium or proposed subcontractor, as the case may be) who should have necessary expertise for the same. "Concerned Partner" criteria shall not be applicable, in case of proposed subcontractor. A consent letter/MOU from the proposed subcontractor shall be submitted by the Tenderer stating that they will work with the Tenderer, in case the work is awarded to the Tenderer, failing which the bid shall be treated as non-responsive.</p>		
57	Volume I, Part 3: EQC	10.5.1 Notes: (i), 10.6.1 Notes: (i) & (v) (174 of 239)	<p>The financial data in the prescribed format of Appendix – 18 and 19 of LOT shall be endorsed / signed in original and stamped by a Chartered Accountant along with the CA's membership number.</p>	<p>We understand that these requirements are applicable for Indian companies in India. In foreign countries Chartered Accountants are not prevalent. As such endorsement / signature and stamped by a Chartered Accountant along with</p>	<p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>membership number is not possible in foreign country. PI confirm that these formats can be certified by other accountant firms available in their country without membership number. Please clarify.</p>	
58	Volume I, Part 3: EQC	10.5.1; Notes: (ii) and 10.6.1; Notes: (ii) (175 of 239)	<p>In case of JV/ Consortium the credentials of all the member(s)/ partners(s) having a minimum of 15% participation each in JV/ Consortium shall be required to be submitted by the Tenderer and shall be considered for evaluation.</p>	<p>Please note that 15% of a project of potential value of 2145 crores (combined budget of RST, SIG and Telecom) for Signalling and telecommunication suppliers is a lot. Our understanding is that this requirement is only for Rolling Stock suppliers.</p> <p>For Signalling and Telecommunications participation requirement, we would propose stating the 15% requirement based on scope of work specific to signalling scope and telecommunication scope</p>	<p>These Notes (ii) each of EQC 10.5.1 and 10.6.1 are applicable to financial criteria only.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				and not the complete project. This would also be essential to meet local content requirement in case the credential is coming from foreign partner.	
59	Volume I, Part 3: EQC	10.5.1, Notes: (iii) (174 of 239)	<p>Liquidity = WC + C – (2 * EC)</p> <p>Letter(s) (as per proforma given in Annexure – 6 of ITT) from Scheduled Bank(s) in India (meaning a bank which has been included in the Second Schedule of Reserve Bank of India Act, 1934, with subsequent amendments if any; including Scheduled Commercial Foreign Banks with branch in India), excluding Cooperative Banks, should clearly substantiate the amount of lines of credit, overdraft facilities and other financial means, as on the Credential Cut-Off Date</p>	<p>We refer to the below point raised in LOT-1 of our queries</p> <p>"As Bank Reference Letters provide liquidity specifically for the project, we request that in case WC - 2*EC is negative, only Bank Reference Letter should be considered for the purpose of evaluating Liquidity. Moreover, in this tender foreign partners may form a Consortium with Indian companies. As the foreign partner would not have lines of credit available with Scheduled Banks in India, we request that letters from Foreign Banks should also be accepted.</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>Accordingly, we request the following modification:</p> <p>Letter(s) (as per proforma given in Annexure – 6 of ITT) from Foreign Banks in case of Foreign Consortium Members or Scheduled Bank(s) in India (meaning a bank which has been included in the Second Schedule of Reserve Bank of India Act, 1934, with subsequent amendments if any; including Scheduled Commercial Foreign Banks with branch in India), excluding Cooperative Banks"</p> <p>Pursuant to the above we would like to share clauses on bank reference letters from recent tenders:</p> <p>1) UPMRCL Kanpur-Agra KNPAGRS-01 tender: a banker's reference (in English)</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>should be provided from the applicant's or company's principal bank in its country of incorporation or registration. Such reference should indicate the financial standing of the applicant and access to lines of credit of other financial resources.</p> <p>2) DMRC RS-17 tender: The Bidder shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the cash flow requirements estimated as INR 936 million for the subject Contract net of the Bidder's other commitments. This can be seen from the balance sheets and/or from the banking reference. Net current</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>assets {(Current assets + loans & advances) – (current liabilities + provision)} or documents including banking reference, should show that the Bidder has access to or has available liquid assets, lines of credit and other financial means to meet cash flow INR 913 million for this contract, net of Bidder’s commitments for other Contracts.</p> <p>3) GMRC Surat Metro RS: This can be seen from the balance sheets and/or from the banking reference. Net current assets {(Current assets + loans & advances) – (current liabilities + provision)} or documents including banking reference, should show that the Bidder has access to or has available liquid assets, lines of credit and other financial means to meet cash</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>flow INR 635 million for this contract, net of Bidder's commitments for other Contracts. In case the Net Current Assets (as seen from the Balance Sheets) are negative, only the Banking references will be considered. Otherwise, the aggregate of the Net Current Assets and submitted Banking references will be considered for working out the Liquidity.</p>	
60	Volume I, Part 3: EQC	10.5.1, Notes: (iii) (175 of 239)	<p>Liquidity = WC + C – (2 * EC)</p> <p>Letter(s) (as per proforma given in Annexure – 6 of ITT) from Scheduled Bank(s) in India (meaning a bank which has been included in the Second Schedule of Reserve Bank of India Act, 1934, with subsequent amendments if any; including Scheduled Commercial Foreign</p>	<p>As Bank Reference Letters provide liquidity specifically for the project, we request that in case WC - 2*EC is negative, only Bank Reference Letter should be considered for the purpose of evaluating Liquidity.</p> <p>Moreover, in this tender foreign partners may form a Consortium with Indian companies. As the</p>	<p>Refer "C = all available credits including lines of credit, overdraft facilities and other financial means". The Tender conditions shall prevail in this regard.</p> <p>However, Corrigendum – 3 is being issued separately with respect to letters from foreign banks for foreign parties.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Banks with branch in India), excluding Cooperative Banks, should clearly substantiate the amount of lines of credit, overdraft facilities and other financial means, as on the Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above).	foreign partner would not have lines of credit available with Scheduled Banks in India, we request that letters from Foreign Banks should also be accepted. Accordingly, we request the following modification: Letter(s) (as per proforma given in Annexure – 6 of ITT) from Foreign Banks in case of Foreign Consortium Members or Scheduled Bank(s) in India (meaning a bank which has been included in the Second Schedule of Reserve Bank of India Act, 1934, with subsequent amendments if any; including Scheduled Commercial Foreign Banks with branch in India), excluding Cooperative Banks,	
61	Volume I, Part 3: EQC	10.6, Notes: (iv)	The value of existing commitments for on-going works	As per the Available Bid Capacity Formula, the value of	Confirmed.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
		(176 of 239)	during the period 50 months period with effect from the next day of the Credential Cut-Off Date (as confirmed in EQC para 8.1.6 above) has to be submitted by the tenderer in Appendix – 19 of LOT.	'A' is maximum of value of RS/Sig/Telecom works. However, for calculating B the value of existing commitments is used in accordance with Appendix -19. Therefore, we understand that in Appendix-19 also only similar existing commitments (i.e., RS/Sig/Telecom contracts) are to be provided. Please confirm.	The Tender Conditions shall prevail.
62	Volume I, Part 4: LOT, LOT	Notes: (c) (180 of 239)	* Note: c. an authorized representative of each member must sign the tender.	At various other places in the tender document, it is specified that an authorized representative of lead member must sign the tender. The tender signing requirement may please be clarified.	The Tender Conditions shall prevail.
63	Volume I, Part 4: LOT, Appendix - 16C	- (210 of 239)	Role in Contract (Individual or prime/ lead Member of JV/ Consortium)	Not all projects have the concept of a lead member (even if executed in a consortium). Also, please note that even in case of	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>a consortium, the members are Jointly and Severally liable for the entire scope of work. Therefore, we would request you to determine and evaluate eligibility of an entity / member of consortium on basis of value of scope of work, as is the case in all mass-transit signalling bids in the last decade (DMRC, Mumbai, Bangalore, Chennai, etc).</p> <p>Also, kindly update the relevant forms too e.g., LETTER OF TENDER (LOT) Appendix – 16C Work Experience (CATC/CBTC) Role in Contract (Individual or prime/ lead Member of JV/ Consortium).</p>	
64	Volume I, Part 4: LOT, Appendix - 19	Notes: (ii) (221 of 239)	The financial data in above prescribed format shall be certified by Chartered Accountant	Financial data of the table does not fall under purview of Statutory Auditor and cannot be	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			/ Statutory Auditor in original under his signature & stamp & membership number.	certified by them. This format may be considered to be self-certified by the company. PI confirm that self-certification is acceptable.	
65	Volume I, Part 4: LOT, Appendix - 32	- (239 of 239)	We hereby propose following equivalent indices for foreign currency component(s) of "Defect Liability and Comprehensive Maintenance Period", with respect to GC/ PC Sub-Clause 13.7 [Adjustments for Changes in Cost].	Please consider to include indices applicable for INR to Foreign Currency also.	The Tender Conditions shall prevail.
66	Volume II, GC	1.6, 2nd paragraph (19 of 244)	Clause No.1.6 – Contract agreement (2nd paragraph) If the contract comprises a JV, the authorized representative of each member of the JV shall sign the contract agreement.	As the tender document as per ITB conditions shall be signed by the authorized representative of lead bidder, the contract agreement also may be permitted to be signed by only the authorized representative of lead bidder rather than by each member of the JV/ Consortium.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
67	Volume II, GC	1.10, 2nd paragraph (21 of 244)	The Contractor shall be deemed (by signing the Contract Agreement) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents and such other design documents, including making and using modifications of them.	Please confirm that such license is transferable only in case of termination of contract in case of default and not in any other case.	The Tender Conditions shall prevail.
68	Volume II, GC	2.4 (26 of 244)	If the Contractor: a. receives an instruction to execute a Variation with a price greater than ten percent (10%) of the Accepted Contract Amount, or the accumulated total of Variations exceeds thirty percent (30%) of the Accepted Contract Amount; b. does not receive payment in accordance with Sub-Clause 14.7 [Payment]; or	1. Kindly define the percentages specific to Rolling stock, signalling and telecommunication scopes. 2. Kindly define the escalation mechanism for price for quantity variation post ROD. 3. Kindly define the upper limit (as a percentage of contract value) beyond which the	1. Refer Volume II, PC, Part B: Special Provisions, PC 2.4, this Sub-Clause shall not apply. 2. The Tender conditions shall prevail. 3. Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>c. becomes aware of a material change in the Employer's financial arrangements of which the Contractor has not received a Notice under this Sub-Clause</p> <p>the Contractor may request and the Employer shall, within 28 days after receiving this request, provide reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the part of the Contract Price remaining to be paid at that time (as estimated by the Engineer).</p>	<p>contractor is not bound by the contractual BOQ prices. This is a common practice in tenders with the limit defined at 25%.</p> <p>It is impossible to maintain the same prices beyond the ROD of the first section and / or beyond a certain limit of the variation in works from the contractor.</p>	
69	Volume II, GC	GC 4.16 and PC 14.1 (46 of 244)	<p>GC 4.16</p> <p>The Contractor shall:</p> <p>c. be responsible for customs clearance, permits, fees and charges related to the import, transport and handling of all Goods, including all obligations</p>	<p>- We understand that the Project Import Benefit under 98.01 is applicable for this work. In case of supplies in the scope of foreign partner in a JV/Consortium, Normally the supplies are imported in the name of employer (IEC of</p>	<p>In case of offshore supplies and services:</p> <ol style="list-style-type: none"> 1. The IEC of employer may be used. 2. In case of off-shore services, the Reverse Charge Mechanism for GST will be applied by the

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>necessary for their delivery to the Site; and PC 14.1</p> <p>The Contractor shall be solely responsible to obtain the concessional duty benefits (if any) under Chapter 98.01 of Custom Tariff Act for project Imports. After award of the Contract, the Employer at the written request of a Contractor shall facilitate for obtaining sponsoring/ recommendation letter from the Ministry of Urban Development (MoUD) for getting themselves</p> <p>registered for availing Project Import benefits. However, the responsibility to avail the concessional benefits under Project Import or otherwise as extended in accordance with the law of the land shall solely rest with the Contractor. The</p>	<p>Employer will be used for import) and employer will be the importer on record. Please confirm.</p> <p>-We understand that in case of offshore supplies & services -</p> <p>1.The IEC of employer will be used and import will be in the name of employer.</p> <p>2.In case of off-shore services, the Reverse Charge Mechanism GST will be paid by employer directly.</p>	<p>Employer.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Contractor shall pass on such benefits to the Employer.		
70	Volume II, GC	GC 4.16 and PC 14.1 (46 of 244)	<p>GC 4.16</p> <p>The Contractor shall:</p> <p>c. be responsible for customs clearance, permits, fees and charges related to the import, transport and handling of all Goods, including all obligations necessary for their delivery to the Site; and</p> <p>PC 14.1</p> <p>The Contractor shall be solely responsible to obtain the concessional duty benefits (if any) under Chapter 98.01 of Custom Tariff Act for project Imports. After award of the Contract, the Employer at the written request of a Contractor shall facilitate for obtaining sponsoring/ recommendation letter from the Ministry of Urban</p>	<p>We understand that the Project Import Benefit under 98.01 is applicable for this work. In case of supplies in the scope of foreign partner in a JV/Consortium, Normally the supplies are imported in the name of employer (IEC of Employer will be used for import) and employer will be the importer on record. Please confirm.</p> <p>-We understand that in case of offshore supplies & services -</p> <p>1.The IEC of employer will be used and import will be in the name of employer.</p> <p>2.In case of off-shore services, the Reverse Charge Mechanism GST will be paid by employer</p>	<p>In case of offshore supplies and services:</p> <p>1. The IEC of employer may be used.</p> <p>2. In case of off-shore services, the Reverse Charge Mechanism for GST will be applied by the Employer.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Development (MoUD) for getting themselves registered for availing Project Import benefits. However, the responsibility to avail the concessional benefits under Project Import or otherwise as extended in accordance with the law of the land shall solely rest with the Contractor. The Contractor shall pass on such benefits to the Employer.	directly.	
71	Volume II, GC	GC 6.4 (55 of 244)	The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment (including wages and working hours), health, safety, welfare, immigration and emigration, and shall allow them all their legal rights. The Contractor shall require the Contractor's Personnel to obey all applicable	We understand that BOCW cess @1% will be applicable only on the Service portion in the project, Kindly confirm.	The prevailing BOCWW Cess of 1% (one percent) will be applicable on the Contract Price of entire Contract. Also, refer Corrigendum – 3 being issued separately, with respect to Change in Law.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Laws, including those concerning health and safety at work.		
72	Volume II, GC	GC 6.4 (55 of 244)	The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment (including wages and working hours), health, safety, welfare, immigration and emigration, and shall allow them all their legal rights. The Contractor shall require the Contractor's Personnel to obey all applicable Laws, including those concerning health and safety at work.	We understand that BOCW cess @1% will be applicable only on the Service portion in the project, Kindly confirm.	The prevailing BOCWW Cess of 1% (one percent) will be applicable on the Contract Price of entire Contract. Also, refer Corrigendum – 3 being issued separately, with respect to Change in Law.
73	Volume II, GC	7.4, 4th paragraph (59 of 244)	The Engineer may, under Clause 13 [Variations and Adjustments], vary the location or timing or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show	- We understand cost of any additional Test not mentioned in contract shall be borne by the employer.	The Sub-Clause is self-explanatory. The tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			that the tested Plant, Materials or workmanship is not in accordance with the Contract, the Cost and any delay incurred in carrying out this Variation shall be borne by the Contractor.		
74	Volume II, GC	8.5 (64 of 244)	The Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to Extension of Time if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over the Works and Sections] is or will be delayed by any of the following causes: a. a Variation (except that there shall be no requirement to comply with Sub-Clause 20.2 [Claims For Payment and/or EOT]); b. a cause of delay giving an entitlement to EOT under a Sub-Clause of these Conditions; c. exceptionally adverse climatic	- We suggest to consider any delay due to Site readiness or right of way which is under employers' scope shall be entitled to EOT with Compensation. PC 4.15 GCC Access route - Request you to re-instate the GCC clause 4.15 to include EOT and Cost for non-suitability or non-availability of an access route arises as a result of changes to that access route by the Employer or a third party	The Tender Conditions shall prevail. Also; refer Corrigendum – 3 being issued separately with respect to compensation on account of few Costs only.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>conditions, which for the purpose of these Conditions shall mean adverse climatic conditions at the Site which are Unforeseeable having regard to climatic data made available by the Employer under Sub-Clause 2.5 [Site Data and Items of Reference] and/or climatic data published in the Country for the geographical location of the Site;</p> <p>d. Unforeseeable shortages in the availability of personnel or Goods (or Employer-Supplied Materials, if any) caused by epidemic or governmental actions; or</p> <p>e. any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.</p> <p>PC 4.15 GCC Access route</p>		

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75	Volume II, GC	8.5 (64 of 244)	<p>The Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to Extension of Time if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over the Works and Sections] is or will be delayed by any of the following causes:</p> <p>a. a Variation (except that there shall be no requirement to comply with Sub-Clause 20.2 [Claims For Payment and/or EOT]);</p> <p>b. a cause of delay giving an entitlement to EOT under a Sub-Clause of these Conditions;</p> <p>c. exceptionally adverse climatic conditions, which for the purpose of these Conditions shall mean adverse climatic conditions at the Site which are Unforeseeable having regard to climatic data made available by the Employer under Sub-Clause 2.5 [Site Data</p>	<p>We suggest to consider any delay due to Site readiness or right of way which is under employers' scope shall be entitled to EOT with Compensation.</p> <p>PC 4.15 GCC Access route - Request you to re-instate the GCC clause 4.15 to include EOT and Cost for non-suitability or non-availability of an access route arises as a result of changes to that access route by the Employer or a third party</p>	<p>The Tender Conditions shall prevail.</p> <p>Also; refer Corrigendum – 3 being issued separately with respect to compensation on account of few Costs only.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>and Items of Reference] and/or climatic data published in the Country for the geographical location of the Site;</p> <p>d. Unforeseeable shortages in the availability of personnel or Goods (or Employer-Supplied Materials, if any) caused by epidemic or governmental actions; or</p> <p>e. any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.</p> <p>PC 4.15 GCC Access route</p>		
76	Volume II, GC	8.9 and 8.10 (66 of 244)	8.9 - The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works, which instruction shall state the date and cause of the suspension. During such	<ul style="list-style-type: none"> - Prior Suspension, Employer should notify and engage the contractor and Suspension should be mutual discussed & agreed upon. - If such suspension is due to 	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>suspension, the Contractor shall protect, store and secure such part or all of the Works (as the case may be) against any deterioration, loss or damage. To the extent that the cause of such suspension is the responsibility of the Contractor, Sub-Clauses 8.10 [Consequences of Employer's Suspension], 8.11 [Payment for Plant and Materials after Employer's Suspension] and 8.12 [Prolonged Suspension] shall not apply.</p> <p>8.10 - If the Contractor suffers delay and/or incurs Cost from complying with an Engineer's instruction under Sub-Clause 8.9 [Employer's Suspension] and/ or from resuming the work under Sub-Clause 8.13 [Resumption of Work], the Contractor shall be entitled subject to Sub-Clause</p>	<p>employer, responsibility to protect, store and secure any such part of works against deterioration, loss or damage shall be with employer.</p> <p>- Contractor shall be entitled to EOT with compensation in accordance with Sub-Clause 8.9 [Employer's Suspension].</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>20.2 [Claims For Payment and/or EOT] to EOT and/or payment of such Cost Plus Profit. The Contractor shall not be entitled to EOT, or to payment of the Cost incurred, in making good:</p> <p>a. the consequences of the Contractor's faulty or defective design, workmanship, Plant or Materials; and/or</p> <p>b. any deterioration, loss or damage caused by the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.9 [Employer's Suspension].</p>		
77	Volume II, GC	8.9 and 8.10 (66 of 244)	8.9 - The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works, which instruction shall state the date and cause of the suspension. During such suspension, the Contractor shall	<p>Prior Suspension, Employer should notify and engage the contractor and Suspension should be mutual discussed & agreed upon.</p> <p>If such suspension is due to employer, responsibility to</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>protect, store and secure such part or all of the Works (as the case may be) against any deterioration, loss or damage. To the extent that the cause of such suspension is the responsibility of the Contractor, Sub-Clauses 8.10 [Consequences of Employer's Suspension], 8.11 [Payment for Plant and Materials after Employer's Suspension] and 8.12 [Prolonged Suspension] shall not apply.</p> <p>8.10 - If the Contractor suffers delay and/or incurs Cost from complying with an Engineer's instruction under Sub-Clause 8.9 [Employer's Suspension] and/ or from resuming the work under Sub-Clause 8.13 [Resumption of Work], the Contractor shall be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or</p>	<p>protect, store and secure any such part of works against deterioration, loss or damage shall be with employer.</p> <p>Contractor shall be entitled to EOT with compensation in accordance with Sub-Clause 8.9 [Employer's Suspension].</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>EOT] to EOT and/or payment of such Cost Plus Profit. The Contractor shall not be entitled to EOT, or to payment of the Cost incurred, in making good:</p> <p>a. the consequences of the Contractor's faulty or defective design, workmanship, Plant or Materials; and/or</p> <p>b. any deterioration, loss or damage caused by the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.9 [Employer's Suspension].</p>		
78	Volume II, GC	11.5, last paragraph (76 of 244)	When the Employer gives consent (which consent shall not relieve the Contractor from any obligation or responsibility under this Clause), the Contractor may remove from the Site such items of Plant as are defective or damaged. As a condition of this	<p>- Cls 11.5 - request for deletion</p> <p>- Request for inclusion of this Clause, Defect, Faults & damage to any material, working, or overall performance of any plant, material due to fault of employer will not be in</p>	<p>The Tender Conditions shall prevail.</p> <p>Refer Corrigendum – 3 being issued separately for Defect Liability Period.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>consent, the Employer may require the Contractor to increase the amount of the Performance Security by the full replacement cost of the defective or damaged Plant.</p>	<p>contractors' scope and cost of any replacement, additional work, Testing, Manhours etc incurred by the contractor to repair or replace such work shall be paid in full Cost + Profit with no addition in number of days in DNP period but EOT with compensation shall be allowed during the execution of work.</p> <p>- We understand that CMC will start on completion of contract and DNP is included in the same period</p>	
79	Volume II, GC	11.5, last paragraph (76 of 244)	<p>When the Employer gives consent (which consent shall not relieve the Contractor from any obligation or responsibility under this Clause), the Contractor may remove from the Site such items of Plant as are defective or damaged. As a condition of this</p>	<p>Cls 11.5 - request for deletion</p> <p>Request for inclusion of this Clause, Defect, Faults & damage to any material, working, or overall performance of any plant, material due to fault of employer will not be in</p>	<p>The Tender Conditions shall prevail.</p> <p>Refer Corrigendum – 3 being issued separately for Defect Liability Period.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>consent, the Employer may require the Contractor to increase the amount of the Performance Security by the full replacement cost of the defective or damaged Plant.</p>	<p>contractors' scope and cost of any replacement, additional work, Testing, Manhours etc incurred by the contractor to repair or replace such work shall be paid in full Cost + Profit with no addition in number of days in DNP period but EOT with compensation shall be allowed during the execution of work.</p> <p>We understand that CMC will start on completion of contract and DNP is included in the same period</p>	
80	Volume II, GC	11.1 (78 of 244)	<p>Unfulfilled Obligations After the issue of the Performance Certificate, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of</p>	<p>- Contractor should not be liable for any defect or fault on account of Employers fault during execution or DNP period and also should not be liable for any defect or fault after DNP period.</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>unperformed obligations, the Contract shall be deemed to remain in force.</p> <p>However, in relation to Plant, the Contractor shall not be liable for any defects or damage occurring more than two years after expiry of the DNP for the Plant except if prohibited by law or in any case of fraud, gross negligence, deliberate default or reckless misconduct.</p>		
81	Volume II, GC	11.1 (78 of 244)	<p>Unfulfilled Obligations</p> <p>After the issue of the Performance Certificate, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.</p>	Contractor should not be liable for any defect or fault on account of Employers fault during execution or DNP period and also should not be liable for any defect or fault after DNP period.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			However, in relation to Plant, the Contractor shall not be liable for any defects or damage occurring more than two years after expiry of the DNP for the Plant except if prohibited by law or in any case of fraud, gross negligence, deliberate default or reckless misconduct.		
82	Volume II, GC	13 (81 of 244)	Variations and Adjustments	Please include price variation for labour, cables, etc. as is seen in tenders commonly (as per mechanism defined by IEEMA).	The Tender Conditions shall prevail.
83	Volume II, GC	13 (81 of 244)	Variations and Adjustments	<ul style="list-style-type: none"> - Please include contractors right to propose for variation if any, during execution or in the period EOT with mutual consent. - Please confirm as when variation (and escalation) is allowed in the contract in % above or below the contract price, as is common practice in metro tenders. 	<p>Refer Volume II, GC, Sub-Clause 13.2 for Value Engineering.</p> <p>Refer Volume VI, Pricing Document, Sub-Clause 2.7, with respect to consideration of variations.</p> <p>The Tender Conditions shall</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					prevail.
84	Volume II, GC	13 (81 of 244)	Variations and Adjustments	<p>Please include contractors right to propose for variation if any, during execution or in the period EOT with mutual consent.</p> <p>Please confirm as when variation (and escalation) is allowed in the contract in % above or below the contract price, as is common practice in metro tenders.</p>	<p>Refer Volume II, GC, Sub-Clause 13.2 for Value Engineering.</p> <p>Refer Volume VI, Pricing Document, Sub-Clause 2.7, with respect to consideration of variations.</p> <p>The Tender Conditions shall prevail.</p>
85	Volume II, GC	13.6 (86 of 244)	Adjustments for Changes in Laws	<p>We understand that any change in Tax, Custom or any other indirect tax will be treated as Change in existing law or modification in exiting law and the same will be to the employer's account.</p>	<p>Corrigendum – 3 is being issued separately.</p>
86	Volume II, GC & PC	14 (87 of 244)	Contract Price and Payment	<p>Request Employer to permit separate invoicing and separate payment to the members of a</p>	<p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Consortium based price schedule breakup during submission	
87	Volume II, PC, Part A: Contract Data	Serial No. 2 (147 of 244)	<p>15 Years for Rolling Stock and 7 Years for Signalling & Train Control and Telecommunication Systems (i.e., separately for Bhopal Metro Rail Project System and Indore Metro Rail Project System).</p> <p>This period shall apply to each Rolling Stock Trainset separately and to each stretch of Signalling & Train Control and Telecommunication Systems separately; and shall commence from Taking-Over.</p>	<p>As per this clause, we understand that the duration of DLCMP is 15 years for each train and 7 years for each Signalling & Telecom section from the date of its Taking Over, so the cumulative duration of DLCMP would be more than 15 years and 7 years for Rolling Stock and Signalling & Telecom sections separately.</p> <p>However, the BoQ/Pricing document requires the bidder to provide year-wise DLCMP prices for only 15 years for Rolling Stock and 7 years for Signalling & Telecom respectively. Accordingly, we would request MPMRCL to align</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>the BoQ/Pricing Document with the provisions of this clause.</p> <p>Please also confirm that there is no separate DLP for this tender.</p>	
88	Volume II, PC, Part A: Contract Data	Serial No. 2 (147 of 244)	<p>15 Years for Rolling Stock and 7 Years for Signalling & Train Control and Telecommunication Systems (i.e., separately for Bhopal Metro Rail Project System and Indore Metro Rail Project System).</p> <p>This period shall apply to each Rolling Stock Trainset separately and to each stretch of Signalling & Train Control and Telecommunication Systems separately; and shall commence from Taking-Over.</p>	<p>We understand that DLCMP period starts from ROD of first train and ends 15 years after that. With this, there is a potential issue with priced schedule as it is designed to quote 15years for each trainset (~17.3 years).</p> <p>We propose to amend Priced Schedule to show actual project value linked to the planning in TT sheet highlighting that the estimated "value of DLCMP". Attached file to show the working for estimated value.</p>	<p>Refer Corrigendum – 3 being issued separately with respect to DLCMP commencement and end: "This period of 15 Years for Rolling Stock shall commence from Revenue Operations of first Train-set and shall end on completion of 15 Years, subject to extension of period if any in accordance with Conditions of Contract Sub-Clause 13.3.1."</p> <p>Understanding is correct and the Contract Price shall be deemed inclusive.</p> <p>The Tender Conditions shall prevail in this regard.</p>
89	Volume II, PC,	Serial No. 13	Limitation of Liability: One	We request that there should be	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	Part A: Contract Data	(148 of 244)	hundred percent (100%) of the Contract Price.	<p>separate Limitation of Liability for the supply portion and the respective DNMP portion. Accordingly, we request the following modification:</p> <p>1) Supply portion: 100% of the Contract Price for Section BHRS + Section INRS + Section BHST + Section INST. Duration from the Commencement Date till the Taking Over of the respective sections</p> <p>2) DNMP for RS: 100% of the Contract Price for Section BHRSDLCMP + INRSDLCMP during the duration of the DNMP for RS</p> <p>3) DNMP for S&T: 100% of the Contract Price for Section BHSTDLCMP+INSTDLCMP during the duration of DNMP for RS</p>	separately.
90	Volume II, PC,	Serial No. 16,	The Performance Security shall	The scope of the contact is a	Refer Volume II, Conditions of

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	Part A: Contract Data	1st paragraph (148 of 244)	be: (i) three percent (3%) of the Contract Price; or (ii) ten percent (10%) of the aggregate portion of the Contract Price for DLCMP only (i.e., respective Sections "RSDLCMP" for Rolling Stock and "STDLCMP" for Signalling & Train Control and Telecommunication Systems); whichever is higher.	combination of Rolling Stock, Signalling and maintenance of respective scopes with different tenure It is therefore important that separate Performance Bond to cover the supply and maintenance scope separately. It is also requested to have clear release mechanism of such separate bonds to contractor as allowed in other contracts of similar nature.	Contract, Sub-Clause 4.2 for the Performance Security amount, validity, enforceability and return. The Tender Conditions shall prevail.
91	Volume II, PC, Part A: Contract Data	Serial No. 16 (148 of 244)	Performance Security The Performance Security shall remain valid and enforceable at least six (6) months longer than the anticipated expiry date of Defect Liability Period or Defect Liability and Comprehensive Maintenance Period (as	Please confirm validity of PBG whether till DNP or CMP? We request you for keeping PBG at 3% only	The Tender Conditions shall prevail, with respect to amount of the Performance Security. However, Corrigendum – 3 is being issued separately for its validity.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>applicable).</p> <p>Page 149 Cls 16 Contract Data The Performance Security shall be:</p> <p>(i) three percent (3%) of the Contract Price; or</p> <p>(ii) ten percent (10%) of the aggregate portion of the Contract Price for DLCMP only (i.e., respective Sections “RSDLCMP” for Rolling Stock and “STDLCMP” for Signalling & Train Control and Telecommunication Systems); whichever is higher.</p>		
92	Volume II, PC, Part A: Contract Data	Serial No. 16 (148 of 244)	<p>Performance Security</p> <p>The Performance Security shall remain valid and enforceable at least six (6) months longer than the anticipated expiry date of Defect Liability Period or Defect Liability and Comprehensive Maintenance Period (as</p>	<p>- Please confirm validity of PBG whether till DNP or CMP?</p> <p>- We request you for keeping PBG at 3% only</p>	<p>The Tender Conditions shall prevail, with respect to amount of the Performance Security.</p> <p>However, Corrigendum – 3 is being issued separately for its validity.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			applicable). Page 149 Cls 16 Contract Data The Performance Security shall be: (i) three percent (3%) of the Contract Price; or (ii) ten percent (10%) of the aggregate portion of the Contract Price for DLCMP only (i.e., respective Sections "RSDLCMP" for Rolling Stock and "STDLCMP" for Signalling & Train Control and Telecommunication Systems); whichever is higher.		
93	Volume II, PC, Part A: Contract Data	Serial No. 17 (149 of 244)	The Contractor under no circumstances shall sublet the entire Works. No more than fifty percent (50%) of the Accepted Contract Amount individually for Rolling Stock and Signalling & Train Control and Telecommunication shall be	This clause is new to metro rolling stock tenders and infeasible. Please delete.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			subcontracted.		
94	Volume II, PC, Part A: Contract Data	Serial No. 17 (149 of 244)	Sl. No.17 Sub-Contractors GC Sub-clause 4.4 (a) The contractor under no circumstances shall sublet the entire works. No more than Fifty percent (50%) of the expected contract amount individually for Rolling Stock and Signalling and Train Control and Telecommunication shall be sub-contracted.	As per the tender condition, telecommunication works can be sub-contracted. That means 100% of telecommunication works will be sub-contracted. Similarly, in the case of signalling and train control if sub-contracting is permitted, 100% of signalling and train control works may be sub-contracted. The sub-contracting requirement may please be clarified.	Corrigendum – 3 is being issued separately.
95	Volume II, GC, Part A: Contract Data	Serial No. 26 (150 of 244)	(A) Advance Payment for Rolling Stock: Fifteen percent (15%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and design, payable in the currencies and proportions of the Accepted Contract Amount. The Advance Payment shall be	Request Employer to provide definition of "Mobilisation" to avoid delay in release of 1st advance. Or We request employer to revise the clause in line with other contracts to have 1st mobilisation release-based commencement date &	The Contractor shall be considered for mobilisation start by satisfying all the following: (1) Receipt of an unconditional acceptance of Letter of Acceptance, by the Employer. (2) Receipt of acceptable Performance Security.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>paid in two equal instalments, as mentioned below.</p> <p>i. The first instalment of ten percent (10%) shall be paid upon start of mobilisation. It shall be paid against an Advance Payment Certificate, under Sub-Clause 14.2.2.</p> <p>ii. Upon satisfactory utilisation of first instalment, the second instalment of five percent (5%) shall be paid after the Engineer's approval of the Detailed Baseline Programme (GC Sub-clause 8.3). The Contractor shall submit utilisation statement supported or endorsed by certified Chartered Accountant under their seal and stamp. It shall be paid against an Advance Payment Certificate, under Sub-Clause 14.2.2.</p>	<p>submission of required Bank guarantees (ABG, PBG)</p>	<p>The Tender Conditions shall prevail.</p>
96	Volume II, PC, Part A:	Serial No. 26, (A) and (B)	(A) Advance Payment for Rolling Stock:	Request you for interest free Advance of 15% in instalments	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	Contract Data	(150 of 244)	<p>Fifteen percent (15%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and design, payable in the currencies and proportions of the Accepted Contract Amount.</p> <p>(B) Advance Payment for Signalling & Train Control and Telecommunication Systems:</p> <p>Five percent (5%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and design, payable in the currencies and proportions of the Accepted Contract Amount.</p>	of 10% & 5% for Signalling & Train control system.	
97	Volume II, PC, Part A: Contract Data	Serial No. 26, (A) and (B) (150 of 244)	<p>(A) Advance Payment for Rolling Stock:</p> <p>Fifteen percent (15%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and</p>	Request you for interest free Advance of 15% in instalments of 10% & 5% for Signalling & Train control system.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			design, payable in the currencies and proportions of the Accepted Contract Amount. (B) Advance Payment for Signalling & Train Control and Telecommunication Systems: Five percent (5%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and design, payable in the currencies and proportions of the Accepted Contract Amount.		
98	Volume II, PC, Part A: Contract Data	Serial No. 26 (150 of 244)	Fifteen percent (15%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and design, payable in the currencies and proportions of the Accepted Contract Amount.	We request the Employer to provide mobilisation advance of or DLCMP due to initial investment (special tools, Maintenance management system, mobilisation staff etc) required at the start of the maintenance phase.	The Tender Conditions shall prevail.
99	Volume II, PC, Part A:	Serial No. 26,	(B) Advance Payment for Signalling & Train Control and	We request you to also provide 5% mobilisation advance for the	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	Contract Data	last column, (B) (151 of 244)	Telecommunication Systems:	amount corresponding to DLCMP before the commencement of the DLCMP period.	prevail.
100	Volume II, PC, Part A: Contract Data	Serial No. 26, last column, (B) (151 of 244)	(B) Advance Payment for Signalling & Train Control and Telecommunication Systems:	We request you to also provide 5% mobilisation advance for the amount corresponding to DLCMP before the commencement of the DLCMP period.	The Tender Conditions shall prevail.
101	Volume II, PC, Part A: Contract Data	Serial No. 26, (B) (151 of 244)	Five percent (5%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and design, payable in the currencies and proportions of the Accepted Contract Amount. The Advance Payment shall be paid in two equal instalments, as mentioned below. i. The first instalment of two and half percent (2.5%) shall be paid upon start of mobilisation. It shall be paid against an	We Request employer to increase the advance payment to 15% of accepted contract amount in line with Rolling stock scope in line with other past tenders (e.g., Kanpur-Agra) wherever we have common Rolling stock & Signalling opportunities. To align with above, we request to increase 1st instalment to 10% & 2nd instalment to 5% of Accepted Contract Amount	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Advance Payment Certificate, under SubClause 14.2.2. ii. Upon satisfactory utilisation of first instalment, the second instalment of two and half percent (2.5%) shall be paid after the Engineer's approval of the Detailed Baseline Programme (GC Sub-clause 8.3). The Contractor shall submit utilisation statement supported or endorsed by certified Chartered Accountant under their seal and stamp. It shall be paid against an Advance Payment Certificate, under Sub-Clause 14.2.2.</p>		
102	Volume II, PC, Part A: Contract Data	Serial No. 26, (B) (151 of 244)	<p>Advance Payment for Signalling & Train Control and Telecommunication Systems: Five percent (5%) of the respective Accepted Contract Amount (excluding amount of DLCMP), for mobilisation and design, payable in the currencies and proportions of the Accepted</p>	<p>Kindly provide for minimum 10% mobilisation and design advance payment as is common practice in all Signalling & Train Control and Telecommunication Systems tenders. Please be informed that some tenders have provided for 20% advance payment too (e.g., Pune Metro,</p>	<p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Contract Amount.	Nagpur Metro, etc).	
103	Volume II, PC, Part A: Contract Data	Serial No. 30 (152 of 244)	Percentage of Retention Five percent (5%) from each Interim Payment Certificate (IPC)	Considering the current difficult situation, we request for removal of Retention clause from the tender against submission of retention bank guarantee.	The Tender Conditions shall prevail.
104	Volume II, PC, Part A: Contract Data	Serial No. 30 (152 of 244)	Percentage of Retention Five percent (5%) from each Interim Payment Certificate (IPC)	Considering the current difficult situation, we request for removal of Retention clause from the tender against submission of retention bank guarantee.	The Tender Conditions shall prevail.
105	Volume II, PC, Part A: Contract Data	Serial No. 33 (152 of 244)	Minimum Amount of Interim Payment Certificates - One percent (1%) of the Accepted Contract Amount in the currency(ies) and proportions of the Accepted Contract Amount.	Since the value of the Interim Payment Certificate for many milestones during the Design & DLP Phase would be lower than 1% of the Accepted Contract Amount, we request the Employer to modify the clause as below: "Minimum Amount of Interim Payment Certificates - One percent (1%) of the Accepted	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Contract Amount of the respective Section in the currency(ies) and proportions of the Accepted Contract Amount of the respective Section except during the Design phase & DLP phase"	
106	Volume II, PC, Part A: Contract Data	Serial No. 35 (153 of 244)	<p>Period of Interim Payment</p> <p>For eighty percent (80%) of the amount certified in each IPC: within Forty-two (42) days and</p> <p>For balance twenty percent (20%) of the amount certified in each IPC: within fifty-six (56) days.</p> <p>However next interim payment shall be made only after one hundred percent (100%) of the preceding amount of IPC has been paid.</p>	In our view, there is no need to freeze subsequent IPA payments, if a particular IPA is not paid. This will create avoidable hardships to the contractor even after completion of corresponding work. Also, this clause is new to metro RS tenders. Request to delete.	Corrigendum – 3 is being issued separately.
107	Volume II, PC, Part A: Contract Data	Serial No. 35 (153 of 244)	<p>Period of Interim Payment</p> <p>For eighty percent (80%) of the amount certified in each IPC:</p>	Request Employer to modify the clause as below: For eighty percent (80%) of the	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			within Forty-two (42) days and For balance twenty percent (20%) of the amount certified in each IPC: within fifty-six (56) days. However next interim payment shall be made only after one hundred percent (100%) of the preceding amount of IPC has been paid.	amount certified in each IPC: within Forty-two (28) days and For balance twenty percent (20%) of the amount certified in each IPC: within forty-two (42) days. However next interim payment shall be made only after one hundred percent (100%) of the preceding amount of IPC has been paid.	
108	Volume II, PC, Part A: Contract Data	Serial No. 36 (153 of 244)	Period of Final Payment Ninety (90) days	We request you to modify the period of Final Payment as above Fifty Six (56) days	The Tender Conditions shall prevail.
109	Volume II, PC, Part A: Contract Data	Serial No. 42 (153 of 244)	List of risks which shall not be excluded from the insurance arising from Exceptional Events	As a general insurance policy, no insurance company covers the exceptional events mentioned in Cls 18.1 Point a), b) and e) except terrorism. Hence request an amendment	Corrigendum – 3 is being issued separately.
110	Volume II, PC, Part A:	Serial No. 42	List of risks which shall not be excluded from the insurance	As a general insurance policy, no insurance company covers	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	Contract Data	(153 of 244)	arising from Exceptional Events	the exceptional events mentioned in Cls 18.1 Point a), b) and e) except terrorism. Hence request an amendment	
111	Volume II, PC, Part A: Contract Data	Serial No. 43 (153 of 244)	Insurance to be provided by the Contractor for the Works: One hundred and fifteen percent (115%) of the Contract Price.	Request Employer to modify the clause as below: One hundred percent (100%) of the Accepted Contract Amount.	The Tender Conditions shall prevail.
112	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.1A, RSKDBH6.1 (157 of 244)	Manufacture, dispatch, delivery and receipt in Depot of Prototype Train set: RSKDBH6.1 - 74 weeks RSKDIN6.1 - 74 weeks	Request you to kindly consider delivery of prototype train in 35 months/150 weeks in place of 74 weeks mentioned in the tender. Since, it would be new design for our existing Technology partner, followed by Technology Transfer to BHEL, we envisage this quantum of lead time.	The Tender Conditions shall prevail.
113	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.1A, 1.1B	Manufacture, dispatch, delivery and receipt in Depot of Prototype Train set:	It is very short delivery time; we ask to extend the delivery time for 13 weeks.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
		(157 of 244)	RSKDBH6.1 - 74 weeks RSKDIN6.1 - 74 weeks		
114	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.1A, RSKDBH6, RSKDBH7, RSKDBH8 (157 of 244)	RSKDBH6: Manufacture and Delivery of Prototype Train set of 3-car (Train Set Number 1) RSKDBH7: Manufacture, Dispatch, Delivery and Receipt in Depot (for 26 trainsets of 3-car each) as given below: RSKDBH8: Depot testing and commissioning, Integrated Testing & Commissioning on mainline and Service Trials including road learning on section etc. in GoA-2 (ATP and ATO) (for 27 train sets of 3-car each) as given below:	In line with the contractual timelines in earlier metro rail tenders in India, we request MPMRCL to kindly modify the key dates as follows (additional 12 weeks):	The Tender Conditions shall prevail.
115	Volume II, PC, Part A: Contract Data	Annexure - 1, RSKDBH6.1	Key date RSKDBH 6.1. Manufacture, dispatch, delivery and receipt in depot of prototype	It is felt that the delay damages for this milestone are on the higher side. It is requested to	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
		(157 of 244)	train sets, Delay damages payable due to failure to complete (per calendar day): DD0.25 i.e. 0.25% of the sum total of amounts apportioned/ priced to the milestone.	reduce the value of delay damages to 0.1% in line with the earlier key dates relating to design activities.	
116	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.1A, 1.1B (157 of 244)	Manufacture, dispatch, delivery and receipt in Depot of Prototype Train set: RSKDBH6.1 - 74 weeks RSKDIN6.1 - 74 weeks	It is very short delivery time; we ask to extend the delivery time for 13 weeks.	The Tender Conditions shall prevail.
117	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.1B, RSKDIN6, RSKDIN7, RSKDIN8 (162 of 244)	RSKDIN6: Manufacture and Delivery of Prototype Train set of 3-car (Train Set Number 1) RSKDIN7: Manufacture, Dispatch, Delivery and Receipt in Depot (for 24 trainsets of 3-car each) as given below: RSKDIN8: Depot testing and	In line with the contractual timelines in earlier metro rail tenders in India, we request MPMRCL to kindly modify the key dates as follows (additional 12 weeks):	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			commissioning, Integrated Testing & Commissioning on mainline and Service Trials including road learning on section etc. in GoA-2 (ATP and ATO) (for 25 train sets of 3-car each) as given below:		
118	Volume II, PC, Part A: Contract Data	Annexure - 1, Notes on Key Dates: 11 (165 of 244)	Delay Damages levied will not be refunded even if the other key dates or overall completion date is adhered to.	As only the overall completion date will impact the revenue service, we request that this clause be modified as follows: Delay Damages levied will not be refunded even if the other key dates or overall completion date is adhered to.	Corrigendum – 3 is being issued separately.
119	Volume II, PC, Part A: Contract Data	Annexure - 1, Note: 11 (165 of 244)	Note No.11 of notes of key dates. Delay/ damages levied will not be refunded even if the other key dates or overall completion dates is adhered to.	Key dates include major as well as minor activities. Minor delay in minor activities may not affect the completion major activities in any way. It is therefore, requested that delay/ damages levied may be refunded if the other key activity dates or overall	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				completion dates is adhered to.	
120	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2A, STKDBH04 (166 of 244)	STKDBH04 Complete Final Design of Signalling & Train Control system (including agreed interface details) - 45 weeks	Kindly change this to a realistic 52 weeks as 45 weeks is not feasible.	The Tender Conditions shall prevail.
121	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2A, STKDBH08 (167 of 244)	STKDBH08 Complete manufacturing, FAT and delivery to site of all Signalling & Train Control and Telecommunication equipment for installation in Depot for Bhopal Line Revenue Service - 59 weeks	Kindly change this to a realistic 67 weeks as 59 weeks is not feasible.	The Tender Conditions shall prevail.
122	Volume II, PC, Part A: Contract Data	Appendix - 1, Table 1.2A and 1.2B (167 of 244)	STKDBH08 and STKDIN09 Complete manufacturing, FAT and delivery to site of all Signalling & Train Control and Telecommunication equipment for installation in Depot for Bhopal Line Revenue Service - completion of works 59 Weeks	Requesting to modify the 59 weeks to 89 Weeks, as material delivery will be in staggered manner and it will continue during installation phase. As it has been done for RS on board equipment delivery	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			from NTP		
123	Volume II, PC, Part A: Contract Data	Appendix - 1, Table 1.2A and 1.2B (167 of 244)	STKDBH09 and STKDIN10 Complete manufacturing, FAT and delivery to site of all Signalling & Train Control and Telecommunication equipment for installation on mainline. completion of works 67 Weeks from NTP	Requesting to modify the 67 weeks to 149 Weeks, as material delivery will be in staggered manner for Red Line, Balance Purple Line and it will continue during installation phase. As it has been done for RS on board equipment delivery	The Tender Conditions shall prevail.
124	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2A, STKDBH11.1 (169 of 244)	STKDBH11.1 Installation, Testing and Commissioning and Revenue Service Depot, Purple Line Priority Corridor (AIIMS to Subhash Nagar) - 75 weeks	Kindly change this to a realistic 90 weeks as 75 weeks is not feasible.	The Tender Conditions shall prevail.
125	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2A, STKDBH12 (169 of 244)	STKDBH12: Complete installation and site acceptance tests (including interface testing with OCC/DCC) of Signalling and Telecommunication equipment's	Depot, Purple Line Priority Corridor (AIIMS to Subhash Nagar) - time to complete give is 81 weeks. But, the final Access of Depot BH-06 is provided at	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			for:	83rd Weeks. The access dates are not in correlation with Key Dates.	
126	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2A, STKDBH12 (169 of 244)	STKDBH12: Complete installation and site acceptance tests (including interface testing with OCC/DCC) of Signalling and Telecommunication equipment's for:	Redline - time to complete give is 99 weeks. But, the final Access of Depot BH-05 is provided at 114 Weeks. The access dates are not in correlation with Key Dates	Corrigendum – 3 is being issued separately.
127	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2A, STKDBH12 (169 of 244)	STKDBH12: Complete installation and site acceptance tests (including interface testing with OCC/DCC) of Signalling and Telecommunication equipment's for:	Depot, Purple Line Priority Corridor (AIIMS to Subhash Nagar) - time to complete give is 81 weeks. But, the final Access of Depot BH-06 is provided at 83rd Weeks. The access date are not in correlation with Key Dates.	Corrigendum – 3 is being issued separately.
128	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2A, STKDBH12 (169 of 244)	STKDBH12: Complete installation and site acceptance tests (including interface testing with OCC/DCC) of Signalling and	Redline - time to complete give is 99 weeks. But, the final Access of Depot BH-05 is provided at 114 Weeks.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Telecommunication equipment's for:	The access date are not in correlation with Key Dates	
129	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN04 (172 of 244)	STKDIN04 Complete Final Design of Signalling & Train Control system (including agreed interface details) - 45 weeks	Kindly change this to a realistic 52 weeks as 45 weeks is not feasible.	The Tender Conditions shall prevail.
130	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN08 (173 of 244)	STKDIN08 Complete manufacturing, FAT and delivery to site of all Signalling & Train Control and Telecommunication equipment for installation in Depot for Indore Line Revenue Service - 59 weeks	Kindly change this to a realistic 67 weeks as 59 weeks is not feasible.	The Tender Conditions shall prevail.
131	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN11.1 (175 of 244)	STKDIN11.1 Depot, Yellow Line Priority Corridor (Gandhi Nagar to Mumtaz Bag) - 75 weeks	Kindly change this to a realistic 90 weeks as 75 weeks is not feasible.	The Tender Conditions shall prevail.
132	Volume II, PC, Part A:	Annexure - 1, Table 1.2B,	STKDIN12: Complete installation and site acceptance tests	Depot, Yellow Line Priority Corridor (Gandhi Nagar to	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	Contract Data	STKDIN12 (175 of 244)	(including interface testing with OCC/DCC) of Signalling and Telecommunication equipment's for:	Mumtaz Bag) - time to complete give is 81 weeks. But, the final Access of Depot IN-07 is provided at 91 Weeks. The access date are not in correlation with Key Dates	
133	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN12 (175 of 244)	STKDIN12: Complete installation and site acceptance tests (including interface testing with OCC/DCC) of Signalling and Telecommunication equipment's for:	Yellow Line Corridor (Mumtaz Bag to Railway Station) - time to complete give is 99 weeks. But, the final Access of Depot IN-02, 03 & 04 is provided at 104 Weeks. The access date are not in correlation with Key Dates.	Corrigendum – 3 is being issued separately.
134	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN12 (175 of 244)	STKDIN12: Complete installation and site acceptance tests (including interface testing with OCC/DCC) of Signalling and Telecommunication equipment's for:	Depot, Yellow Line Priority Corridor (Gandhi Nagar to Mumtaz Bag) - time to complete give is 81 weeks. But, the final Access of Depot IN-07 is provided at 91 Weeks. The access date are not in correlation with Key Dates.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
135	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN12 (175 of 244)	STKDIN12: Complete installation and site acceptance tests (including interface testing with OCC/DCC) of Signalling and Telecommunication equipment's for:	Yellow Line Corridor (Mumtaz Bag to Railway Station) - time to complete give is 99 weeks. But, the final Access of Depot IN-02, 03 & 04 is provided at 104 Weeks. The access date are not in correlation with Key Dates.	Corrigendum – 3 is being issued separately.
136	Volume II, PC, Part A: Contract Data	Annexure - 1, Notes: 11 (176 of 244)	Delay Damages levied will not be refunded even if the other key dates or overall completion date is adhered to.	Kindly consider the following in line with other metro tenders: If the final Key Date as per the agreed program is achieved for the Revenue Operation Key Date of a section in time, the LD imposed earlier for that section may be waived.	Corrigendum – 3 is being issued separately.
137	Volume II, PC, Part A: Contract Data	Annexure - 1, Notes: 11 (176 of 244)	Delay Damages levied will not be refunded even if the other key dates or overall completion date is adhered to.	Kindly consider the following in line with other metro tenders: If the final Key Date as per the agreed program is achieved for the Revenue Operation Key Date of a section in time, the LD	Corrigendum – 3 is being issued separately.

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				imposed earlier for that section may be waived.	
138	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN17 (177 of 244)	STKDIN17: Completion of all contract responsibilities including: Testing, commissioning and Integrated testing & commissioning of other Rolling stocks and Completion of the period of Supervision of Maintenance during Revenue Operation and issue of the performance certificate in accordance with GCC.	Time to complete given in RFP is 218 weeks. But, the STKDIN10.13 Train Set Number 24 and 25 completion is on given in RFP is 224 Weeks. Which is after the STKDIN17.	Corrigendum – 3 is being issued separately.
139	Volume II, PC, Part A: Contract Data	Annexure - 1, Table 1.2B, STKDIN17 (177 of 244)	STKDIN17: Completion of all contract responsibilities including: Testing, commissioning and Integrated testing & commissioning of other Rolling stocks and Completion of the period of Supervision of Maintenance during Revenue Operation and issue of the performance certificate in	Time to complete given in RFP is 218 weeks. But, the STKDIN10.13 Train Set Number 24 and 25 completion is on given in RFP is 224 Weeks. Which is after the STKDIN17.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			accordance with GCC.		
140	Volume II, PC, Part B: Special Provisions	PC 1.17 (190 of 244)	Employer's Right to Inspect	As the details requested in this clause are commercially and financially sensitive and subject to various Confidentiality/Non-Disclosure Agreements, such details cannot be furnished. Accordingly, we request that the original GC clause be reinstated in line with FIDIC Yellow Book	The Tender Conditions shall prevail.
141	Volume II, PC, Part B: Special Provisions	PC 2.1, 3rd paragraph (191 of 244)	If the Contractor suffers delay as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall be entitled to only a reasonable extension of time and no monetary claims whatsoever shall be paid or entertained on this account.	As the Contractor would incur costs due to delay or failure by the Employer in providing site access which cannot be anticipated in advance, we request that cost compensation should be provided in such a case. Accordingly, we request the following modification: If the Contractor suffers delay as a result of a failure by the Employer to give any such right	Corrigendum – 3 is being issued separately, for Cost compensation on account of few Costs only.

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				or possession within such time, the Contractor shall be entitled to only a reasonable extension of time and cost compensation . no monetary claims whatsoever shall be paid or entertained on this account.	
142	Volume II, PC, Part B: Special Provisions	PC 2.1 (191 of 244)	Right of Access to the Site	We request you to reinstate GC clause 2.1 and provide EOT with cost compensation for delay due to Right of access to site on account of employer.	Corrigendum – 3 is being issued separately, for Cost compensation on account of few Costs only.
143	Volume II, PC, Part B: Special Provisions	PC 2.1 (191 of 244)	Right of Access to the Site	We request you to reinstate GC clause 2.1 and provide EOT with cost compensation for delay due to Right of access to site on account of employer.	Corrigendum – 3 is being issued separately, for Cost compensation on account of few Costs only.
144	Volume II, PC, Part B: Special Provisions	PC 2.4 (192 of 244)	Employer's financial arrangement- deleted in PC	Kindly reinstate the GC 2.4 clause	The Tender Conditions shall prevail.
145	Volume II, PC,	PC 4.6	If the Contractor suffers delay	The Contractor should not be	The Contractor need to interface

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	Part B: Special Provisions	(196 of 244)	and/or incurs Cost as a result of an instruction under this Sub-Clause, to the extent (if any) that co-operation, allowance of opportunities and coordination was though unforeseeable having regard to that specified in the Employer's Requirements, the Contractor shall not be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to EOT and/ or payment of such Cost Plus Profit.	held responsible for any delays and costs for reasons not attributable to it. Accordingly, we request the following modification: "If the Contractor suffers delay and/or incurs Cost as a result of an instruction under this Sub-Clause, to the extent (if any) that co-operation, allowance of opportunities and coordination was though unforeseeable having regard to that specified in the Employer's Requirements, the Contractor shall not be entitled subject to Sub-Clause 20.2 [Claims For Payment and/or EOT] to EOT and/ or payment of such Cost Plus Profit"	with other designated contractors and stakeholders. The Tender Conditions shall prevail.
146	Volume II, PC, Part B: Special Provisions	PC 4.7 (197 of 244)	Setting Out Sub-Clauses 4.7.2 and 4.7.3 are deleted.	With Reference to PC 4.7 - We request you to Reinstate GC clause 4.7 and provide us the	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				EOT with cost + profit	
147	Volume II, PC, Part B: Special Provisions	PC 4.12 (198 of 244)	Unforeseeable Physical Conditions	If the Contractor suffers delays and/or incurs costs during these physical conditions, the Contractor should be entitled to extension of time and payment of such cost as per Clause 20.2 of the General Conditions	The Tender Conditions shall prevail.
148	Volume II, PC, Part B: Special Provisions	PC 4.12 (198 of 244)	Replace entire Sub-Clauses 4.12 with the following: In this Sub-Clause, "physical conditions" means natural physical conditions and physical obstructions (natural or man-made) and pollutants, which the Contractor encounters at the Site during execution of the Works, including sub-surface and hydrological conditions but excluding climatic conditions at the Site and the effects of those climatic conditions The Employer makes no	With Reference to PC 4.2 - We request you to Reinstate GC clause 4.2 and provide us the EOT with cost + profit	The Tender Conditions shall prevail.

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			<p>representations or warranties of any type regarding the physical conditions at the Site. Any information provided by the Employer to the Contractor regarding the physical conditions at the Site shall be interpreted and verified by the Contractor.</p> <p>The Contractor bears the entire risk of any and all physical conditions at the Site. The Contractor represents and warrants to the Employer that it has fully assessed all possible physical conditions and has priced and allowed for their risks, if any, in the Accepted Contract Amount.</p> <p>If the Contractor encounters physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as possible. This notice</p>		

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			<p>shall describe the physical conditions, so that these can be inspected by the Engineer, and shall confirm the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, until such time proper and reasonable measures as are appropriate for the physical conditions. The Contractor shall if so required comply with any instructions issued by the Employer or the Engineer.</p>		
149	Volume II, PC, Part B: Special Provisions	PC 4.13 (198 of 244)	<p>The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which may be required for the purposes of the Works, including those for access to the Site.</p> <p>Any tax(es) and lease rent if applicable for the land provided by the Employer outside the construction ROW (except</p>	<p>All kinds of Right to Access must be in Employers Scope, Contractor shall notify Employer for any temporary, special or additional work pertaining to right of way in the beginning or during the execution of contract.</p>	<p>The Contractor need to interface with other designated contractors and stakeholders.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>logistics area) shall be recovered from the Contractor.</p> <p>The Contractor shall also obtain, at the Contractor's risk and cost, any additional facilities outside the Site which may be required for the purposes of the Works.</p>		
150	Volume II, PC, Part B: Special Provisions	PC 4.13 (198 of 244)	<p>The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which may be required for the purposes of the Works, including those for access to the Site.</p> <p>Any tax(es) and lease rent if applicable for the land provided by the Employer outside the construction ROW (except logistics area) shall be recovered from the Contractor.</p> <p>The Contractor shall also obtain, at the Contractor's risk and cost, any additional facilities outside the Site which may be required for</p>	<p>All kinds of Right to Access must be in Employers Scope, Contractor shall notify Employer for any temporary, special or additional work pertaining to right of way in the beginning or during the execution of contract.</p>	<p>The Contractor need to interface with other designated contractors and stakeholders.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			the purposes of the Works.		
151	Volume II, PC, Part B: Special Provisions	PC 4.23 (201 of 244)	“If the Contractor suffers delay and/or incurs Cost from complying with the Engineer’s instructions, the Contractor shall not be entitled to EOT and/or payment of such Cost.”	With Reference to PC 4.23 - We request you to Reinstate GC clause 4.23 and provide us the EOT with cost + profit	Corrigendum – 3 is being issued separately.
152	Volume II, PC, Part B: Special Provisions	PC 8.5, 1st paragraph (209 of 244)	The Contractor shall be entitled subject to Sub-Clause 20.2 [Claims for Payment and/or EOT] to Extension of Time if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over the Works and Sections] is or will be delayed by any of the following causes: (a) a Variation (except that there shall be no requirement to comply with Sub-Clause 20.2 [Claims For Payment and/or EOT]); (b) a cause of delay giving an entitlement to EOT under a Sub-	The Contractor can face delays for reasons not attributable to the Contractor in the achievement of Key Dates other than those for Taking Over. In such as situation, the Contractor would be liable for LDs even though the Taking Over is being achieved on time. We would therefore request the following modification in this clause: The Contractor shall be entitled subject to Sub-Clause 20.2 [Claims for Payment and/or EOT] to Extension of Time if and	Refer Volume II, GC/ PC, Clauses/ Sub-Clauses 8.2, 8.8 to be read in conjunction with 8.5. The Tender Conditions shall prevail.

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			Clause of these Conditions.	to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over the Works and Sections] or achievement of any of the Key Dates is or will be delayed by any of the following causes	
153	Volume II, PC, Part B: Special Provisions	PC 8.6 (211 of 244)	Delays Caused by Authorities	Request you to provide us EOT with Cost + Profit	The Tender Conditions shall prevail.
154	Volume II, PC, Part B: Special Provisions	PC 10.3 (213 of 244)	Interference with tests on completion- deleted in PC	Kindly reinstate the GC 10.3 clause	The Tender Conditions shall prevail.
155	Volume II, PC, Part B: Special Provisions	PC 13.7, 13.7.1 (217 of 244)	Schedule of cost indexation for Rolling Stock 'Manufacture, Dispatch and Delivery':	Request Employer to permit Contractor to have option to submit "firm price contract" for RS.	The Tender Conditions shall prevail.
156	Volume II, PC, Part B: Special Provisions	PC 13.7.1 (217 of 244)	Schedule of cost indexation for Rolling Stock 'Manufacture, Dispatch and Delivery':	We request to include price adjustment formula for DLCMP period as well linked to CPI and WPI to address the	Refer Volume II, PC, Part B: Special Provisions, PC 13.7.3. The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				unpredictability of long-term pricing.	prevail.
157	Volume II, PC, Part B: Special Provisions	PC 13.7.2 (218 of 244)	Schedule of cost indexation for Signalling & Train Control and Telecommunication 'Manufacture, Dispatch and Delivery': No schedule of cost indexation is included and adjustment due to changes in cost(s) for "Signalling & Train Control and Telecommunication" shall not be applicable.	Considering volatility of commodity market and the long duration of project, we request for inclusion of price variation as per acceptable indices for signalling & telecom in line with the following formula $P_n = 0.20 + \{0.40 \times (L_n/L_0)\} + \{0.40 \times (C_n / C_0)\}$	The Tender Conditions shall prevail.
158	Volume II, PC, Part B: Special Provisions	PC 13.7.3 (219 of 244)	13.7.3 Schedule of cost indexation during "Defect Liability and Comprehensive Maintenance Period" for Rolling Stock, Signalling & Train Control and Telecommunication:	As per 13.7.2, no schedule of cost indexation will be applicable for "Signalling & Train Control and Telecommunication" scope. Kindly include cost indexation for "Signalling & Train Control and Telecommunication" as well.	The Tender Conditions shall prevail.

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159	Volume II, PC, Part B: Special Provisions	PC 13.7.3 (219 of 244)	Formula for adjustment for change in cost: $P_n = 0.20 + \{0.40 \times (L_n/L_0)\} + \{0.40 \times (C_n/C_0)\}$	As 20% fixed is not aligned with the cost structure of maintenance contract, Request customer to change the adjustment formula for DLCMP as below: $P_n = 0.10 + \{0.45 \times (L_n/L_0)\} + \{0.45 \times (C_n/C_0)\}$	The Tender Conditions shall prevail.
160	Volume II, PC, Part B: Special Provisions	PC 14.1 (219 of 244)	The Contract Price	We understand that the said project is a works contract, which attracts service GST @12%	Currently Yes. However, the Contract Price is exclusive of GST. The Tender Conditions shall prevail.
161	Volume II, PC, Part B: Special Provisions	PC 14.1 (219 of 244)	The Contract Price	We understand that the said project is a works contract, which attracts service GST @12%	Currently Yes. However, the Contract Price is exclusive of GST. The Tender Conditions shall prevail.
162	Volume II, PC, Part B: Special	PC 14.1	The Contract Price	We have following understanding for inclusion or	Refer Volume II, PC, Part B:

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	Provisions	(219 of 244)		<p>exclusion of taxes & duties.</p> <p>1. Contract price will exclude Basic Customs Duty, Cess and Surcharge (as applicable) for imports by contractor & sub-contractor.</p> <p>2. Employer to reimburse the Customs Duty for imports by contractor and sub-contractor along-with applicable GST to Contractor.</p> <p>3. GST is excluded from contract price and same will be reimbursed against the Contractor's Invoice for Design, Manufacture, Supply, Installation, Testing, Commissioning and Training of Standard Gauge Passenger Rolling Stock Cars (with 15 Years Comprehensive Maintenance) – 81 Cars for Bhopal and 75 Cars for Indore, including Signalling & Train</p>	<p>Special Provisions, PC 14.1.</p> <p>1. The Contract Price will exclude Custom Duty, Cess and Surcharge (as applicable) for imports by the Contractor and/or subcontractors, subject to compliance with the Customs Act of India.</p> <p>2. Refer 2nd paragraph of PC 14.1, Custom Duty for imports by the Contractor and/ or subcontractors will be reimbursable, subject to compliance with the Customs Act of India and applicable taxes to the Contractor against Contractor's Invoice.</p> <p>3. GST excluded and shall be reimbursed against the Contractor's Invoice.</p> <p>4. As the JV/ Consortium member and JV/ Consortium being jointly and severally liable, the GST will be reimbursed as per contract.</p> <p>5. In case of offshore supplies and services: The IEC of employer may</p>

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				<p>Control and Telecommunication Systems (with 7 Years Comprehensive Maintenance)” for Bhopal Metro Rail Project and Indore Metro Rail Project</p> <p>4. In case if the scope of one of the consortium members is not Rolling Stock Supply or works contract then output GST applicable to goods, component, spares or services (as per scope of consortium member) as applicable to HS Code / Service Accounting Code is excluded will be reimbursed by the Employer as per HS Code / Service Accounting Code.</p> <p>5. In case of offshore supplies by foreign consortium member –</p> <p>(a) Employer will be importer on records and employer’s IEC will be used for customs clearance.</p> <p>(b) The Customs Duty, Cess, Surcharge & GST paid on such</p>	<p>be used and the Customs Duty, Cess, Surcharge & GST paid on such imports (in the name of Employer) will be reimbursed.</p> <p>6. In case of off-shore services from foreign consortium member, the Reverse Charge Mechanism for GST will be applied by the Employer. The liability to pay tax by the recipient of the supply of goods or services or both instead of the supplier of such goods or services or both under section 9(3) or 9(4) of CGST Act or under section 5(3) or 5(4) of IGST Act.</p> <p>7. The Employer shall facilitate for obtaining sponsoring/ recommendation letter from the MoHUA for getting the Contractor or their subcontractors registered for availing Project Import benefits.</p> <p>The Tender Conditions shall prevail.</p>

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				<p>imports (in the name of Employer) will be reimbursed by the employer to contractor.</p> <p>6. In case of offshore services by foreign consortium member, GST under reverse charge for imports of such services will be born and paid by employer.</p> <p>7. Employer will provide necessary documents for availing concessional duty benefits under Chapter 98.01 of Customs Tariff Act in the name of contractors and sub-contractors for the imports by contractor and sub-contractors under project imports.</p>	
163	Volume II, PC, Part B: Special Provisions	PC 14.1, last paragraph (220 of 244)	III 1.2 - Indigenization – In case manufacture is undertaken in the facilities of a local partner, Quality control (total) and testing at works shall be the responsibility of the	We understand that as per the provisions of this Clause 1.2 of ERGS, the bidder is permitted to tie-up with a local partner to undertake the manufacturing of Rolling Stock at its facilities in	Refer Volume III, ERGS Sub-Clause 1.2, the local partner may be a subcontractor. An MoU to this effect is to be submitted with the Tender.

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			<p>member of consortium based on whose credentials the bidder has qualified for this bid. For the manufacture of the cars in the facilities of a local partner (holding/subsidiary/sister firm of the bidder or suitable Indian reputed manufacturer), in addition to the details submitted in the bid, the contractor shall submit proposal for approval by Employer within 6 months of award of contract.</p> <p>II 14.1 - After award of the Contract, the Employer at the written request of a Contractor shall facilitate for obtaining sponsoring/ recommendation letter from the Ministry of Urban Development (MoUD) for getting themselves registered for availing Project Import benefits. However, the responsibility to avail the</p>	<p>India. The bidder would meet the eligibility criteria of the tender on its own. However, such a local partner is not required to be a member of the Consortium at the bidder level and can be proposed as a subcontractor to undertake the manufacturing of Rolling Stock. An MoU to this effect would be submitted with the bid. Please confirm our understanding.</p> <p>In such a case, we request Employer to confirm that Employer will provide necessary documents for availing concessional duty benefits under Chapter 98.01 of Customs Tariff Act in the name such local partner for the imports by the local partner to avail Project Import Benefits in accordance with PC Clause 14.1.</p>	<p>After award of Contract, the Contractor need to process for Project Import Benefits and the Employer will facilitate the Contractor for obtaining sponsoring/ recommendation letter(s) for getting themselves (including their subcontractors) registered for availing Project Import Benefits.</p> <p>The Tender Conditions shall prevail.</p>

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			<p>concessional benefits under Project Import or otherwise as extended in accordance with the law of the land shall solely rest with the Contractor. The Contractor shall pass on such benefits to the Employer.</p>		
164	Volume II, PC, Part B: Special Provisions	PC 14.2.3, last 2nd paragraph (221 of 244)	<p>“If the Employer does not receive repayment of the balance outstanding advance payment before the due date, in case of delay in the progress and completion of Work, as a result of which it is not possible to recover the advance payments and interest thereon, then the Employer shall be entitled to receive financing charges on the outstanding advance payment amount unpaid during the period of delay. These financing charges shall be calculated at the annual rate of three percent (3%) above “State Bank of India’s Marginal</p>	<p>Request Employer to modify the clause as below:</p> <p>“If the Employer does not receive repayment of the balance outstanding advance payment before the due date, in case of delay in the progress and completion of Work, as a result of which it is not possible to recover the advance payments and interest thereon, then the Employer shall be entitled to receive financing charges on the outstanding advance payment amount unpaid during the period</p>	<p>Refer PC 14.2.3 (b), EOT under Sub-Clause 8.5 will also be considered for recovery of the advances.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Cost of fund-based Lending Rate (MCLR)” applicable for the tenure of 01 year, prevailing on the due date</p>	<p>of delay. These financing charges shall be calculated at the annual rate of three percent (3%) above “State Bank of India’s Marginal Cost of fund-based Lending Rate (MCLR)” applicable for the tenure of 01 year, prevailing on the due date</p> <p>We request that if delay is not result of contractor's fault, above clause should not be applicable</p>	
165	Volume II, PC, Part B: Special Provisions	PC 14.4, 2nd paragraph (221 of 244)	<p>...the Contractor shall be entitled for such payment(s) only after the Employer has received Safe Custody Bank Guarantee(s). The aggregate amount of such Safe Custody Bank Guarantee(s) shall be equivalent to ninety-five percent (95%) of such instalment(s) (and/or milestone(s)), in the same currencies and proportions.</p>	<p>We request Employer to remove requirement of SCBG. This provision is not present in any of the RS & signalling tenders of any other metro corporation in India.</p> <p>Further there are already PBG & Retention clause in contract to safeguard the Employer. Moreover, payment is always after delivery & inspection of</p>	Corrigendum – 3 is being issued separately.

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				material at site so requirement of such high value SCBG would increase the cost of project. Alternatively, we request you to accept Indemnity Bond in lieu of SCBG which is a prevalent practice in other metro tenders.	
166	Volume II, PC, Part B: Special Provisions	PC 14.8 (222 of 244)	If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall not be entitled to receive any financing charges.	With Reference to PC 14.8 - We request you to Reinstate GC clause 14.8 and provide financing charges against delayed payment.	The Tender Conditions shall prevail.
167	Volume II, PC, Part B: Special Provisions	PC 14.9 (223 of 244)	The Contractor may, at his option, replace the Retention Money with an unconditional bank guarantee from a Scheduled Bank in India (meaning a bank which is included in the Second Schedule of Reserve Bank of India Act, 1934, and includes Scheduled Commercial Foreign Banks with an Indian branch), excluding Cooperative Banks, payable in	Request Employer to modify the clause as below: "The Contractor may, at his option, replace the Retention Money with an unconditional bank guarantee from a Scheduled Bank in India (meaning a bank which is included in the Second Schedule of Reserve Bank of India Act, 1934, and includes Scheduled	The Tender Conditions shall prevail.

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			<p>Bhopal/ Mumbai/ New Delhi, in the form acceptable to the Employer (generally similar to the Performance Security) at the following stages:</p> <p>i. after the cumulative amount of Retention Money reaches to half the equivalent value of five (5%) of the Accepted Contract Amount; and</p> <p>ii. after the issue of the Taking-Over Certificate for the Works (or last Section as the case may be).</p>	<p>Commercial Foreign Banks with an Indian branch), excluding Cooperative Banks, payable in Bhopal/ Mumbai/ New Delhi, in the form acceptable to the Employer (generally similar to the Performance Security)" from 1st Interim Payment Certificate itself.</p>	
168	Volume II, PC, Part B: Special Provisions	PC 15.2.4 and GC 15.4 (a) and (b) (224 of 244)	<p>GCC 15.4 (second para) - "After termination.....under Sub-Clause 15.2</p> <p>(a) additional cost of execution of works.....;</p> <p>(b) any loss or damage suffered by Employer</p> <p>PC - Add following at end of Sub-</p>	<p>PC amends Clause 15.2.4 clarifies that after termination only Performance Security shall be forfeited and the balance work shall be executed independently without risk and cost of failed contractor. However, GCC in another Clause 15.4 mentions that failed contractor will have to pay</p>	<p>Refer Volume II, GC, Sub-Clause 15.2, opening paragraph: "Termination of the Contract under this Clause shall not prejudice any other rights of the Employer under the Contract or otherwise." Accordingly, the Employer shall be entitled for rights under sub-clause 15.4 also.</p>

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			<p>Clause 15.2.4: On termination of the Contract due to the Contractor's default the Performance Security shall be forfeited by encashing the bank guarantee and the balance work shall be executed independently without risk and cost of the failed Contractor.</p>	<p>additional cost of execution of works to Employer</p> <p>Both clause references are different with opposite meaning.</p> <p>Hence, please include reference of Clause 15.4 in PC so that ambiguity is removed.</p>	<p>"without risk and cost of the failed Contractor" stated in PC 15.2.4, intends with respect to the obligations of the other contractor(s) of balance Works, subject to the Employer's rights under 15.4.</p> <p>The Tender Conditions shall prevail.</p>
169	Volume II, PC, Part B: Special Provisions	PC 16.1 (224 of 244)	<p>Suspension by Contractor</p> <p>Replace Sub-Clause 16.1 (b) with following: [Not Used]</p>	<p>With Ref to Cls PC 16.1, We Understand that GC 16.1 is applicable and if not, we would request you to reinstate the GC cls 16.1</p>	<p>The Tender Conditions shall prevail.</p>
170	Volume II, PC, Part B: Special Provisions	PC 18.5 (225 of 244)	<p>Optional Termination: Replace Sub-Clause 18.5 (d) and (e) “(d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items</p>	<p>Kindly reinstate the original clause</p>	<p>The Tender Conditions shall prevail.</p>

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			<p>to the Contractor's place of business in the Contractor's country (or to any other destination(s) at no greater cost); and</p> <p>(e) the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.”</p> <p>with</p> <p>“(d) [Not Used]; and</p> <p>(e) [Not Used].”</p>		
171	Volume II, GC & PC	- (244 of 244)	BOCW	<p>We request employer to clarify the BOCW applicability & deduction during execution from employer, based other metro cooperation, below are normally followed:</p> <p>1) BOCW is not applicable on Rolling stock Pricing schedule (being Main scope is Movable property - BOCW is not</p>	<p>The prevailing BOCWW Cess of 1% (one percent) will be applicable on the Contract Price of entire Contract.</p> <p>Also, refer Corrigendum – 3 being issued separately, with respect to Change in Law.</p>

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				<p>applicable)</p> <p>2) BOCW will be applicable on Testing & Commissioning of Signalling and Telecom Pricing Schedule in line with the provisions of other metro tenders.</p> <p>3) BOCW is not applicable on maintenance scope of RS, SIG & Telecom as no Building & Construction work (BOCW) activities performed during maintenance of trains & system.</p> <p>Please confirm the assumption so that cost can be factored accordingly.</p>	
172	Volume III, ERGS, Part 1: ERGS-RS	1.1.5, last two sentences (11 of 397)	The Contractor shall ensure that major overhaul (except mid-life refurbishment related activities) of all the systems of Rolling Stock have been performed at least once during the contract period. The details of minor and major	To include the overhaul of all trains, we would need to prepone some overhauls which would increase the cost of the overall project as one more iteration of overhaul will be included in duration of the life of	Corrigendum – 3 is being issued separately, with respect to extension of DLCMP.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>overhaul of all the system and sub system of the Rolling stock shall be submitted in technical bid.</p>	<p>the asset i.e., 35 years which otherwise could have been pushed out. Please find below proposals:</p> <p>Proposal 1: Provide an option for extension of duration for 2 years and remove the requirement of inclusion of overhaul of each system for all trainsets. In this case, if any overhaul is missed in the base 15 years, it would still be covered by exercising the option without impacting the maintenance plan. Similar to the clause below:</p> <p>Proposal 2: Amend the requirement to ensure overhaul of all systems for at least 2 trains plus allow bidder to decide maintenance strategy (Overhaul by contractor/OEM) for systems other than some critical systems like bogie, traction motor.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Proposal 3: Increase the duration of base project from 15 to 17.5 years and remove the requirement of inclusion of overhaul of each system for all trainsets.	
173	Volume III, ERGS, Part 1: ERGS-RS	1.2.1, 1st paragraph (12 of 397)	For manufacturing of cars, following mandatory conditions has to be fulfilled by bidder: i Minimum 75% of the tendered quantity of cars shall be manufactured indigenously with progressively increased indigenous content. ii For manufacture of these 75% cars, the contractor may either establish independent manufacturing facility in India or partner with a suitable Indian reputed manufacturer.	Please kindly clarify that the scope of Minimum 75% manufacturing indigenously, it includes carbody manufacture, bogie manufacture and final assembly, Or final assembly without carbody manufacturing and bogie manufacturing can also be considered manufacturing indigenously.	Corrigendum – 3 is being issued separately.
174	Volume III,	1.2.2,	In case of any deviation on above,	What is the meaning of "20% of	Option (B) will be applicable.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERGS, Part 1: ERGS-RS	8th paragraph (14 of 397)	the Employer at his sole discretion on representation by the Contractor giving detailed reasons for not achieving indigenisation as per above may accord approval for waiver subject to the condition that in case of non or partial accomplishment of indigenisation of any item(s) listed in Table 1.1 (except Consumables) for specified number of cars noted above, the contractor shall remit the cost of 20% of shortfall items (non-indegenised) to MPMRCL. For consumables the contractor shall remit cost of equivalent spares to MPMRCL.	<p>shortfall items"?</p> <p>We want to clarify which is true below (A) or (B), please show us which is you are considering.</p> <p>(A) Quantity of Traction Motor which couldn't achieve indigenisation.</p> <p>For example, if we couldn't achieve indigenisation 1 Traction Motor, "20% of shortfall items" means the 20% price of 1 Traction Motor only.</p> <p>(B) Total quantity of the Traction Motor</p> <p>For example, if we couldn't achieve indigenisation 1 Traction Motor, "20% of shortfall items" means the 20% price of total quantity of Traction Motor.</p>	Also, refer Corrigendum being issued separately, with respect to percentage.
175	Volume III, ERGS, Part 1: ERGS-RS	1.2.2, 8th paragraph (14 of 397)	In case of any deviation on above, the Employer at his sole discretion on representation by the Contractor giving detailed	<p>What is the meaning of "20% of shortfall items"?</p> <p>We want to clarify which is true below (A) or (B), please show us</p>	<p>Option (B) will be applicable.</p> <p>Also, refer Corrigendum – 3 being</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>reasons for not achieving indigenisation as per above may accord approval for waiver subject to the condition that in case of non or partial accomplishment of indigenisation of any item(s) listed in Table 1.1 (except Consumables) for specified number of cars noted above, the contractor shall remit the cost of 20% of shortfall items (non-indigenised) to MPMRCL. For consumables the contractor shall remit cost of equivalent spares to MPMRCL.</p>	<p>which is you are considering. (A) Quantity of Traction Motor which couldn't achieve indigenisation. For example, if we couldn't achieve indigenisation 1 Traction Motor, "20% of shortfall items" means the 20% price of 1 Traction Motor only. (B) Total quantity of the Traction Motor For example, if we couldn't achieve indigenisation 1 Traction Motor, "20% of shortfall items" means the 20% price of total quantity of Traction Motor.</p>	<p>issued separately, with respect to percentage.</p>
176	Volume III, ERGS, Part 1: ERGS-RS and Part 2: ERGS-ST	ERGS-RS 2.3 and ERGSST 1.14 (21 of 397)	RS 2.3: Key Staff ST 1.14: Key Staff	We see there is requirement of separate resources for key personnel for Rolling stock (Clause 2.3 Vol 3 ERGS RS) and S&T (Clause 1.14 Vol 3 ERGS S&T) in RFP. We request customer to reassess the	From S&T the requirement of SHE Manager is being deleted. Corrigendum – 3 is being issued separately in this regard.

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				requirement as some positions can be same, for example SHE manager.	
177	Volume III, ERGS, Part 1: ERGS-RS	9.2 (58 of 397)	Project Management Information System (PMIS) 9.2.1 The Contractor shall ensure data, metadata and information formats are compatible with formats required for PMIS reporting in accordance with Employer's Requirements.	Please clarify the following: - i) Whether a software tool should be procured by the contractor and the same has to be interfaced with MPMRCL's software tool? ii) In case of a software tool for PMIS has to be procured by the RS contractor, should there be access to MPMRCL team? If so, what should be the quantity of licenses should be provided to MPMRCL. Kindly provide the details of licenses as requested above.	There are 3 software which will be procured for the project. Out of which, PMIS & ERP will be procured by MPMRCL. Asset Management System will be procured by the Contractor. Contractor need to ensure required interfacing of Rolling Stock and Signaling & Telecom related data between these 3 software. Limited access to the software procured by MPMRCL will be provided to the Contractor for the same. The Tender Conditions shall prevail.
178	Volume III, ERGS, Part 1:	11.2.1	Subject to availability and requirement, the Contractor can	Will MPMRCL charge any rent for the space to be provided to	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERGS-RS	(62 of 397)	be provided covered space at nominated Depots (at Bhopal & Indore) for the setting up of Contractor's Site Offices and Stores.	the contractor? If so, how much?	
179	Volume III, ERGS, Part 1: ERGS-RS	11.2.1 (62 of 397)	Subject to availability and requirement, the Contractor can be provided covered space at nominated Depots (at Bhopal & Indore) for the setting up of Contractor's Site Offices and Stores.	Will MPMRCL provide constructed building? Or should contractor construct new building in the provided space? Please clarify	Corrigendum – 3 is being issued separately.
180	Volume III, ERGS, Part 1: ERGS-RS	20 (101 of 397)	Spares	(a) Can the spares supplied as per clauses 20.1 to 20.6, be used by the contractor during DLCMP period? Please clarify. (b) If so, what is the distinctness of these spares vis-à-vis the spares as per clause 20.9. Please clarify.	Chapter 20 is being deleted. Corrigendum – 3 is being issued separately.

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181	Volume III, ERGS, Part 1: ERGS-RS	20.4.1 (103 of 397)	During the Contract period, intermediate overhauling (IOH) of certain number of trains shall also become due. Contractor shall maintain the overhauling kits for these train sets. The price of overhauling kits for these trains shall be included in the Contract. Overhauling kits for all those equipments, systems, sub-systems of trains that will need overhauling during intermediate overhaul of the train will be included in these kits. The Tenderer shall submit the details of such kits in technical offer.	GA spare list not mentioned by employer	Chapter 20 is being deleted. Corrigendum – 3 is being issued separately.
182	Volume III, ERGS, Part 1: ERGS-RS	20.4.2 (103 of 397)	Any item if required as per OEM's documents but not included in the above [1] mentioned list by the Tenderer will be deemed to have been included and shall be supplied as per the provisions of this Contract without any extra financial implication to the	GA spare list not mentioned by employer	Chapter 20 is being deleted. Corrigendum – 3 is being issued separately.

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			Employer.		
183	Volume III, ERGS, Part 1: ERGS-RS	20.5.1, 1st sentence (103 of 397)	The Tenderer shall provide two sets (at each depot) of recommended list of Special Tools, Testing and Diagnostic Equipment separately for preventive and breakdown maintenance, overhauling and diagnostics of various equipment provided in the cars.	We understand that 2 sets, one at each depot, of special tools as required to carry out the maintenance are to be provided. Please clarify if this understanding is correct.	Chapter 20 is being deleted. Corrigendum – 3 is being issued separately.
184	Volume III, ERGS, Part 1: ERGS-RS	20.9.3 (106 of 397)	The Contractor shall generally not be entitled to use any of the Employer's spare parts during the installation, erection and commissioning periods, nor during the defects liability & comprehensive maintenance period.	We understand that UES as per Appendix VIII of ERGS are supposed to be used during DLCMP to carry out maintenance. Hence request customer to delete/amend the clause 20.9.3 as it contradicts the usage of UES for maintenance.	Chapter 20 is being deleted. Corrigendum – 3 is being issued separately.
185	Volume III, ERGS, Part 1: ERGS-RS	20.9.3 (106 of 397)	The Contractor shall generally not be entitled to use any of the Employer's spare parts during the	We understand that UES as per Appendix VIII of ERGS are supposed to be used during	Chapter 20 is being deleted. Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			installation, erection and commissioning periods, nor during the defects liability & comprehensive maintenance period.	DLCMP to carry out maintenance. Hence request customer to delete/amend the clause 20.9.3 as it contradicts the usage of UES for maintenance.	separately.
186	Volume III, ERGS, Part 1: ERGS-RS	24.1, 1st paragraph (113 of 397)	The Contractor shall provide for the use of the Engineer office accommodation, equipment, communication and drawing facilities throughout the course of the Works and for so long a period of time during the defects liability period as the Engineer may require. The office at Bhopal and Indore will be separate and having same facility in each position to be provided. The details of the accommodation and other facilities are as under:	(a) Wo will provide the space for this facility and who bear the cost? (b) Will MPMRCL provide constructed building? Or should the contractor construct new building? Please clarify	Corrigendum – 3 is being issued separately, for sub-clause 11.2.1 of ERGS-RS.
187	Volume III, ERGS, Part 1: ERGS-RS	20.9.3 and 25.6.4 (118 of 397)	20.9.3 - The Contractor shall generally not be entitled to use any of the Employer's spare	As per clause 25.6.4. contractor needs to supply minimum UES as per Appendix VII of ERGS,	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>parts during the installation, erection and commissioning periods, nor during the defects liability & comprehensive maintenance period.</p> <p>&</p> <p>Contractor shall provide a list of the spare parts (including UES), consumables, special tools, special equipment and ordinary tools / equipment which is intended to form the basis of the Spare Parts Stock to be supplied by the Contractor in the technical bid and further develop it during the design stage as per the requirement and satisfaction of the Engineer. However, the list of minimum UES to be maintained by the Contractor has been attached in Appendix VII of this specification.</p>	<p>however clause 20.9.3, indicates that these spares cannot be used for T&C and DLCMP.</p> <p>As this will lead to an additional provision of UES required during DLCMP, hence we request customer to delete clause 20.9.3 or at least exclude UES from clause 20.9.3.</p>	
188	Volume III,	25.6.4	25.6.4 Contractor shall provide a	Request Customer to correct	Corrigendum – 3 is being issued

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	ERGS, Part 1: ERGS-RS	(118 of 397)	list of the spare parts (including UES), consumables, special tools, special equipment and ordinary tools / equipment which is intended to form the basis of the Spare Parts Stock to be supplied by the Contractor in the technical bid and further develop it during the design stage as per the requirement and satisfaction of the Engineer. However, the list of minimum UES to be maintained by the Contractor has been attached in Appendix VII of this specification.	reference to Appendix VIII.	separately.
189	Volume III, ERGS, Part 1: ERGS-RS	25.8.3 (121 of 397)	Any and all Unscheduled Maintenance shall form part of Maintenance Obligations and shall be undertaken by the Contractor. The cost and expense for such Unscheduled Maintenance shall be borne as follows:	(a) If there is accident in mainline operations of the trains, and the contractor has to undertake unscheduled maintenance to set right the defects, how will the contractor be compensated? Who will claim the insurance? Please clarify. (b) Related to the above aspect,	The Employer shall maintain insurances against the risk related to operational obligations only. The Contractor shall be responsible for all the risks. The Tender Conditions shall prevail.

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			(a) (b) (c) (d)	question related to insurance coverage: (i) what is the scope of insurance cover to be taken by the contractor for trains during DLCMP? (ii) What is the scope of insurance cover that MPMRCL would be taking for trains and other project assets during DLCMP period? Please include for clarity purpose.	
190	Volume III, ERGS, Part 1: ERGS-RS	25.8.3 (121 of 397)	Any and all Unscheduled Maintenance shall form part of Maintenance Obligations and shall be undertaken by the Contractor... ..	Please clarify what will be the compensation methodology in case of Accident, vandalism and all exceptional events (other than Force Majeure) as defined in Clause 18 of GC.	Corrigendum – 3 is being issued separately.
191	Volume III, ERGS, Part 1: ERGS-RS	25.8.3, (c) (121 of 397)	(c) Unscheduled Maintenance due to occurrence of a Force Majeure: the cost shall be borne	We could not find compensation methodology for repair activities (If any) due to Force majeure	Corrigendum – 3 is being issued separately.

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			by the Parties in accordance with Clause 18 of the GC and the Train Operation Plan shall be suitably revised to reflect the reduced number of Trainset(s) due to Unscheduled Maintenance for only such time period as may be decided by the MPMRCL.	event in Clause 18 of GC. Request customer to include same in RFP.	
192	Volume III, ERGS, Part 1: ERGS-RS	25.8.4 (121 of 397)	In the event that the Contractor fails to provide maintenance, for repair or rectification of any defect or deficiency in a Train, within the period stipulated in subclause 25.8.3 (b) & (c) above, it shall be deemed to be in breach of this Contract and the Employer shall be entitled to recover Damages, to...	-	Incomplete query
193	Volume III, ERGS, Part 1: ERGS-RS	25.8.4 (121 of 397)	In the event that the Contractor fails to provide maintenance, for repair or rectification of any defect or deficiency in a Train, within the period stipulated in subclause	We understand that time required for repair will be agreed between parties on case to case basis.	Refer ERGS-RS sub-clause 25.8.3 (b). The Tender Conditions shall

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			25.8.3 (b) & (c) above, it shall be deemed to be in breach of this Contract and the Employer shall be entitled to recover Damages, to be calculated and paid for each day of delay until the breach is cured...		prevail.
194	Volume III, ERGS, Part 1: ERGS-RS	25.12.2, 2nd sentence (124 of 397)	Contractor shall be also responsible for the training of Train Operator's, Instructors, Supervisors and MPMRCL's other officers and staff associated with the Trains operational management including but not limited to controllers (herein after referred as Rolling Stock Controllers or RSC), nominated officers and staff deployed by MPMRCL in the Depot for assessment/reconciliation of the Maintenance work etc.	(a) Is this the requirement in addition to cost centre-BHRSCCH & INRSCCH (ERGS-RS, Chapter 15)? Our understanding is that it is a part of cost centre- BHRSCCH & INRSCCH. Please clarify. (b) If this is a separate requirement, please clarify the quantum of training required (in man months or other).	It is part of cost centre BHRSCCH & INRSCCH. The Tender Conditions shall prevail.
195	Volume III, ERGS, Part 1:	25.15, last paragraph	Obsolescence management Even after the contract period till	We request customer to limit the duration of obsolescence	The Tender Conditions shall prevail.

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	ERGS-RS	(126 of 397)	the life of trainset, the Contractor shall inform the MPMRCL at least 1 year in advance, if any equipment, spare, consumables etc. are getting obsolete.	monitoring service till end of DLCMP.	
196	Volume III, ERGS, Part 1: ERGS-RS	Attachment 1 (2) and 25.8.3 (b) (127 of 397)	The Parties agree that the price of the spares for calculation of damage under 25.8.3 shall be determined by applying the percentage specified under Clause 25.6.7 to the Applicable Trainset Price and increasing the amount so arrived at by 30% (thirty per cent) thereof.	We understand the price of spares will be covered by Price adjustment formula. Please confirm our understanding is correct.	Refer ERGS-RS sub-clause 25.6.7. The Tender Conditions shall prevail.
197	Volume III, ERGS, Part 1: ERGS-RS	Attachment 1 (3) (127 of 397)	The Contractor shall maintain an adequate inventory of Payable Spares and shall supply every Payable Spare within a period of 4 (four) hours from the time a notice is delivered by the Employer to the Contractor, at the Maintenance Depot specified therein; provided, however, that	Request customer to define Payable Spares. Also, as there would be certain long lead & high value items which do not form part of regular maintenance spares ex Cab mask, bogie frame etc, 48 hours delivery time is not feasible. Request customer to exclude	Corrigendum – 3 is being issued separately.

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			in case of Payable Spares that were required in quantities of 12 (twelve) units or less during the immediately preceding Year, the period of delivery hereunder shall be 48 (forty eight) hours.	those parts from this obligation & mutually agree the delivery time for those.	
198	Volume III, ERGS, Part 1: ERGS-RS	26.1.6 (133 of 397)	The M&Ps, ordinary tools, special tools, jigs, fixtures, gauges, test benches, T&C equipment, diagnostic equipment, maintenance & overhauling spares, consumables, Unit Exchange Spares (UES) / Emergency spares and deliverables (as mentioned in the end of each chapter of ERTS) as proposed by the Bidder in the technical bid and hence supplied at both the depots shall be sufficient to undertake regular repair, maintenance and overhauling of all equipment of the train sets e.g., bogies, carbody, wheels sets assemblies,	Having complete maintenance (Repair, overhaul) set up inside the depots (Indore and Bhopal) may not be the most practical strategy, hence request customer to allow flexibility to bidder to define the maintenance strategy. A minimum list of facilities can be defined in the bid where customer expects in house capabilities.	Corrigendum – 3 is being issued separately.

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			traction motors etc. in depot.		
199	Volume III, ERGS, Part 1: ERGS-RS	26.1.7 (133 of 397)	Bidder shall also provide, in the bid, the make, model, OEM / Vendor details along with quantities of the propose deliverables as mentioned in the end of each chapter of ERTS, ordinary tools, special tools, jigs, fixtures, gauges, test benches, T&C equipment, diagnostic equipment, maintenance & overhauling spares, consumables and Unit Exchange Spares (UES) / Emergency spares, M&Ps he intends to provide during maintenance for the items.	At Bid stage, a tentative list along with proposed quantities will be provided. Other details like make, model, OEM / Vendor details will be shared during contract phase.	Corrigendum – 3 is being issued separately.
200	Volume III, ERGS, Part 1: ERGS-RS	26.1.6 (133 of 397)	The M&Ps, ordinary tools, special tools, jigs, fixtures, gauges, test benches, T&C equipment, diagnostic equipment, maintenance & overhauling spares, consumables, Unit Exchange Spares (UES) /	We understand that Customer's requirement is to develop overhaul and repair facilities for all systems in both depots. Such requirement is non-viable due to current scenarios with major suppliers as it impacts their	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Emergency spares and deliverables (as mentioned in the end of each chapter of ERTS) as proposed by the Bidder in the technical bid and hence supplied at both the depots shall be sufficient to undertake regular repair, maintenance and overhauling of all equipment of the trainsets e.g., bogies, carbody, wheels sets assemblies, traction motors etc. in depot.</p>	<p>services business. Even if negotiated, suppliers tend to quote very high for tools/know-how.</p> <p>Proposal: As the project is performance driven, contractor should be given the flexibility to decide maintenance strategy (Overhaul by contractor/OEM) for systems other than some critical systems like bogie, traction motor etc.</p>	
201	Volume III, ERGS, Part 1: ERGS-RS	26.3.1.24, 2nd paragraph (138 of 397)	<p>The data entry and update in the Asset Management System shall be done by Contractor's personnel. However, <u>MPMRCL shall be given access to the data, information and reports generated by the Asset Management System</u> through dedicated terminals / workstations / servers provided by the Contractor at DCC, OCC and at any other MPMRCL offices</p>	<p>Kindly provide the clarifications for the following: -</p> <ul style="list-style-type: none"> i) No. of licenses to be made availed to MPMRCL team. ii) The authorization structure and access level details to be implemented in licenses of Asset management tools. iii) The Rolling stock would be owned by MPMRCL and hence the licenses of MPMRCL cannot 	Corrigendum – 3 is being issued separately.

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			<p>through the internet. <u>Sufficient number of licenses as asked shall be provided to the MPMRCL for the same.</u> Apart from this real time access to TCMS fault and event data of Train shall always be available on Employer’s Asset Management Tool. RS contractor shall interface with S&T contractor for procuring Asset Management System and number of licenses.</p>	<p>be used by Maintenance contractor. Hence, Maintenance contractor shall procure separate licenses. In that case, how many licenses shall be procured by Maintenance contractor.</p>	
202	Volume III, ERGS, Part 1: ERGS-RS	28.1.1 (f) (158 of 397)	<p>Handover Requirements: Deliver and transfer relevant records, reports and Intellectual Property pertaining to the Trainsets and Maintenance Depot including all software and manuals pertaining thereto, and complete “as built” Drawings as on the Termination Date so as to enable MPMRCL to operate and maintain the Trainsets and Maintenance Depot</p>	<p>"Intellectual Property" is not defined. The contractor may not be able to provide source codes. Please confirm the definition and scope</p>	<p>The Tender Conditions shall prevail.</p>

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203	Volume III, ERGS, Part 1: ERGS-RS	29.2 (161 of 397)	Retention of payments due	The methodology /time frame for release of retention money or retention bank guarantee as per the clause ERGS 29.2 is not mentioned. Please include.	Refer ERGS-RS sub-clauses 29.2.2 & 29.2.3. The Tender Conditions shall prevail.
204	Volume III, ERGS, Part 1: ERGS-RS	ERGS, APPENDIX V-A (337 of 397)	Preliminary design submission: NTP+6w Pre final design submission: NTP+16w Final design submission: NTP+36w Manufacture, dispatch, delivery and receipt in depot of Prototype Train set (Train no 1): NTP+74w Preliminary testing and commissioning of prototype train on Depot test track: NTP+78w Testing and commissioning of prototype train on mainline and oscillation trials by RDSO: NTP+88w Integrated Testing,	For BHOPAL, we proposed to change timeline for below milestones: Proposed timeline: Preliminary design submission: NTP+18w Pre final design submission: NTP+35w Final design submission: NTP+48w Manufacture, dispatch, delivery and receipt in depot of Prototype Train set (Train no 1): NTP+87w Preliminary testing and commissioning of prototype train on Depot test track: NTP+92w Testing and commissioning of	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Commissioning and Service Trials on section etc. (Proto train): NTP+94w Serial deliveries from NTP+82w onwards @ 1-2TSs per month Integrated Testing, Commissioning and Service Trials on section etc. (Serial deliveries): NTP+94w onwards	prototype train on mainline and oscillation trials by RDSO: NTP+102w Integrated Testing, Commissioning and Service Trials on section etc. (Proto train): NTP+108w Serial deliveries from NTP+96w onwards @ 1-2TSs per month Integrated Testing, Commissioning and Service Trials on section etc. (Serial deliveries): NTP+108w onwards	
205	Volume III, ERGS, Part 1: ERGS-RS	ERGS, APPENDIX V-B (337 of 397)	Appendix V-B Preliminary design submission: NTP+6w Pre final design submission: NTP+16w Final design submission: NTP+36w Manufacture, dispatch, delivery	For INDORE, we proposed to change timeline for below milestones: Proposed timeline: Preliminary design submission: NTP+18w Pre final design submission: NTP+35w	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>and receipt in depot of Prototype Train set (Train no 1): NTP+74w</p> <p>Preliminary testing and commissioning of prototype train on Depot test track: NTP+78w</p> <p>Testing and commissioning of prototype train on mainline and oscillation trials by RDSO: NTP+88w</p> <p>Integrated Testing, Commissioning and Service Trials on section etc. (Proto train): NTP+94w</p> <p>Serial deliveries from NTP+82w onwards @ 1-2TSs per month</p> <p>Integrated Testing, Commissioning and Service Trials on section etc. (Serial deliveries): NTP+94w onwards</p>	<p>Final design submission: NTP+48w</p> <p>Manufacture, dispatch, delivery and receipt in depot of Prototype Train set (Train no 1): NTP+87w</p> <p>Preliminary testing and commissioning of prototype train on Depot test track: NTP+92w</p> <p>Testing and commissioning of prototype train on mainline and oscillation trials by RDSO: NTP+102w</p> <p>Integrated Testing, Commissioning and Service Trials on section etc. (Proto train): NTP+108w</p> <p>Serial deliveries from NTP+96w onwards @ 1-2TSs per month</p> <p>Integrated Testing, Commissioning and Service Trials on section etc. (Serial deliveries): NTP+108w onwards</p>	

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206	Volume III, ERGS, Part 1: ERGS-RS	Appendix VIII (1.3) (357 of 397)	Overhauling Spares Tenderers shall submit the complete list of overhauling spares required in the Technical bid. List will be finalised during the design review stage with the satisfaction of the Engineer. The spares shall be delivered and maintained by the Contractor at the depots nominated by the Employer	GA spare list is not mentioned in the RFP. Request you to please clarify the requirements	It has to be procured and maintained by the Contractor at the depots nominated by the Employer under the scope of maintenance. Same needed to be handed over to the Employer as part of handover package after the contract. The Tender Conditions shall prevail.
207	Volume III, ERGS, Part 1: ERGS-RS	APPENDIX X, 8, 1st four paragraphs (391 of 397)	8. NO. OF USERS/LICENSE REQUIREMENT: Named user licenses In general, there shall be no limitation in the no. of users. In the License/User restricted cases of Module or Software, there shall be adequate number of licenses for both Bhopal as well as Indore metro rail depot. Moreover, sufficient number of all type of licenses shall be provided	Kindly provide the clarifications for the following: - i) No. of licenses to be made availed to MPMRCL team. ii) The authorization structure and access level details to be implemented in licenses of Asset management tools. iii) The Rolling stock would be owned by MPMRCL and hence	Corrigendum – 3 is being issued separately.

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			<p>to the Engineer/ Employer as asked (to be finalised during design stage).</p> <p>There shall be customization with Security group based on Application access rights in multiple levels.</p> <p>There should be rights to either increase or decrease the no. of Licenses required based on the actual requirement.</p>	<p>the licenses of MPMRCL cannot be used by Maintenance contractor. Hence, Maintenance contractor shall procure separate licenses. In that case, how many licenses shall be procured by Maintenance contractor.</p>	
208	Volume III, ERGS, Part 1: ERGS-RS	APPENDIX XII (396 of 397)	APPENDIX XII M&P to be supplied by Contractor	We could not find the key dates for setting up the M&Ps. Kindly provide.	<p>Contractor has to propose the same during design phase as per their requirement in maintenance activities and same need to be aligned with the delivery of the prototype train.</p> <p>Also, refer Corrigendum – 3 is being issued separately, with respect to ERGS-RS sub-clause 25.6.4.</p>

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209	Volume III, ERGS, Part 2: ERGS-ST	12.10, 1st sentence (172 of 233)	Independent Safety Assessor (ISA) Employer will engage an Independent Safety Assessor (ISA) who will certify Safety Assurance for the subsystems of Signalling & Train Control, Public Address System (PAS) at stations, including their interfaces.	Public Address System (PAS) at stations, including their interfaces is a non-safety critical system. Bidder requests employer to confirm our understanding	Corrigendum – 3 is being issued separately.
210	Volume III, ERGS, Part 2: ERGS-ST	13.7.4 (193 of 233)	All test equipment must be capable of operating from the mains supply (230V AC 50Hz).	As some instruments work on Three Phase (415V AC) supply, we request customer to delete this requirement.	Corrigendum – 3 is being issued separately.
211	Volume III, ERGS, Part 2: ERGS-ST	15.1.1 (204 of 233)	15.1.1. The Contractor shall provide comprehensive training to the Employer's Operation staff and the Operation staff to enable all of the systems and equipment supplied, installed or modified as part of the Works to be operated and maintained in the designed manner, safely and efficiently, so as to achieve the maximum	Maintenance personal Training (Man Month) not mentioned in RFP. Kindly provide these details.	25% of manpower shall be provided by the Employer under the scope of maintenance who will work under the contractor. Refer Volume II, PC, Part B: PC 2.7 [Employer Supplied Counterpart Personnel]. Accordingly, the Contractor shall be responsible to train the Contractor's Personnel, the Employer's Personnel and the

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			<p>reliability and economy, and to meet the requirements of the Employer's programme. To achieve the objective, it will be necessary to train the Employer's Operation staff, appointed by the Employer, including Employer's Training Instructors (ETI). The Contractor shall submit to the Engineer for a notice of no objection the number and designated level of staff for whom training is recommended as per Appendix 8, and a Training Plan to be proposed to the Employer as stated in Employer's Specification.</p>		<p>Employer Supplied Counterpart Personnel. No separate payments shall be made for training of the Employer Supplied Counterpart Personnel.</p> <p>Refer ERGS-S&T Appendix 20 Para 6.7. and 7.</p> <p>The Tender Conditions shall prevail.</p>
212	Volume III, ERGS, Part 2: ERGS-ST	16.3.4 (209 of 233)	<p>The Contractor shall supply one copy of the requirements management software to the Engineer for the Engineers sole use, together with training in its use for four (4) people. The Contractor may use Dynamic</p>	<p>Bidder understand that similar requirement is given for Rolling stock also. Bidder requests employer to confirm whether two separate license to be considered or single.</p>	<p>Corrigendum – 3 is being issued separately.</p>

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			Object-Orientated Requirements System (DOORS) or similar software for the RMS.		
213	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 7, 10.1.1 (14 of 29)	The punctuality for the day, calculated at the terminal Stations with respect to the time table, shall be more than 98.5%. If the arrival of a train at the terminal Station is delayed by more than 1 (one) minute, it will be deemed to have lost punctuality.	Bidder requests employer to clarify whether punctuality for the day target is applicable at S&TC sub-system level.	Punctuality for the day target shall be applicable at S&TC sub-system level. The Tender Conditions shall prevail.
214	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 7, 11.4.3, (a), (b), (c), (d) (15 of 29)	FMECA / FMEA & FTA: a. The Contractor shall identify and quantify the ways in which the works for which they are responsible could fail to provide the intended level of service in terms of RAM. b. The effects on the system of single and co-incident multiple failures shall also be addressed.	Bidder would like to bring to the employer's kind notice that addressing human error and error arising from interfaces with other items or equipment in FMECA / FTA is not applicable for sub-systems. Bidder requests employer to remove clause c from sub-system requirement.	Requirement is given for Design of equipment/system as per standard 50126-1, clause no 4.4.2. The Tender Conditions shall prevail.

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			<p>c. The effects of human errors and errors arising from interfaces with other items of equipment shall be addressed as an integral part of the analysis.</p> <p>d. Software / Firmware FMECA & FTA shall be conducted for Sub-systems consisting of software as a core component.</p>		
215	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 7, 11.4.3 (d) (16 of 29)	<p>FMECA / FMEA & FTA:</p> <p>d. Software / Firmware FMECA & FTA shall be conducted for Sub-systems consisting of software as a core component.</p>	Bidder requests employer that this clause for Software / Firmware FMECA & FTA can be removed as the internal software quality and verification process will fulfil this requirement.	<p>Bidder query itself is self-explanatory.</p> <p>The Tender Conditions shall prevail.</p>
216	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 9, 9.8.2, (d) (23 of 50)	Failure Mode Effect & Criticality Analysis (FMECA)	FMECA is a methodology used to prepare SHA and IHA. Hence SHA & IHA submission Bidder requests employer to confirm our understanding	<p>The FMECA report shall be submitted as per the Appendix - 9.</p> <p>The Tender Conditions shall prevail.</p>
217	Volume III,	APPENDIX 9,	(f) Fault Tree Analysis (FTA)	FTA and QRA are similar and	FTA and QRA are different. Refer

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	ERGS, Part 2: ERGS-ST	9.8.2, (f), (g) (23 of 50)	(g) Quantitative Risk Analysis (QRA)	either one will be sufficient to demonstrate Quantitative targets. Bidder requests employer to confirm our understanding	sub-clauses 12.2.6 for FTA and 12.2.8 for QRA. The Tender Conditions shall prevail.
218	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 9, 11 (27 of 50)	Sub system Safety Plan	Project safety plan includes the Sub-system Safety Plan. Bidder requests employer to confirm our understanding	The Tender Conditions shall prevail.
219	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 9, 11 (27 of 50)	Sub system deliverables	All the studies will be performed at System level and allocated down to sub system level. Bidder requests employer to confirm our understanding	The Tender Conditions shall prevail.
220	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 9, 11 (27 of 50)	Preliminary hazard log & Master Hazard Log (System)	Preliminary hazard log & Master Hazard Log (System) will be one evolving document as per project maturity. Bidder requests employer to confirm our understanding	The Tender Conditions shall prevail.
221	Volume III,	APPENDIX 9,	Specific Application Safety case	System Specific Application	The Tender Conditions shall

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	ERGS, Part 2: ERGS-ST	11 (27 of 50)	(Operations)	Safety Case (Engineering) is released as authorisation for revenue operations. Bidder requests employer to confirm our understanding	prevail.
222	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 9, 11 (27 of 50)	Hazard Log & FMECA template	Bidder understands that we can propose most relevant and optimised Hazard log and FMECA Template implemented in all the projects globally to be considered.	Refer Templates given in Appendix 9, Annexure 3 (page 47 of 50) and Annexure 4 (page 49 of 50) The Tender Conditions shall prevail.
223	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 12, 5.4.4.2, 2nd sentence (22 of 45)	The minimum design headway is 90 Seconds	Please share latest actual track-layouts and speed restrictions envisaged for accurate calculation and simulation.	Corrigendum – 3 is being issued separately. Refer ERGS Appendix XIII for speed restriction data, being issued with Corrigendum.
224	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 13, N4, ST/TRS-	Contractor B shall furnish the details of Earth Conductor and Buried Earth Conductor along	Scope of Earthing system is mentioned only for the design stage. Bidder understands that	Refer Volume III Appendix 13, for Traction Interface document.

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		01 (81 of 134)	with OPC in mainline, at grade section, and depot. Contractor B shall design the bonds accordingly.	Track contractor will provide the BEC for Mainline and Depot. Please confirm.	Corrigendum – 3 is being issued separately.
225	Volume III, ERGS, Part 2: ERGS-ST	Appendix 19 (2 of 6)	<p>1.1 The Contractor shall provide all facilities and the services for such facilities for the exclusive use of the Employer, Engineer and any other parties directed by the Employer, on the Site or at other locations agreed with and to the satisfaction of the Engineer. The site office at Bhopal and Indore will be separate and having same facility in each position to be provided.</p> <p>2.4 Meeting rooms shall be fully equipped with, but not limited to, tables, desks, chairs, white boards, flip charts, telephone, large LCD screen (50-inch minimum), video conference facility</p>	<p>The requirement is more related to civil/infra scope, generally not part of Signalling contractor scope. Hence, we request MP Metro to remove this requirement from Signalling contractor scope and export to respective contractor's work package.</p> <p>Also, the space / location is not shared by the Employer, generally Employer will arrange his own and GCs offices by themselves and provide the space for contractor to create contractor office and warehouse for contractor engineer only within depot.</p>	Corrigendum – 3 is being issued separately.

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			<p>2.5 The Contractor shall provide a fully functioning local server, with network software and 16T minimum of hard drive space. The Contractor shall provide network connectivity, a minimum 30mbps to the office, to all desks and wi-fi connection throughout the office.</p> <p>2.9 The offices shall include a fully equipped kitchens complying with regulatory requirements, suitable for the preparation of hot and cold food and drinks relevant to the intended number of occupants. The kitchen will as a minimum be provided with a refrigerator/freezer of minimum 300 litres capacity, a microwave, water boiling equipment, dishwashing facilities etc.</p> <p>2.10 Toilet facilities shall have a minimum of one shower unit, and the Contractor shall provide a changing area and clothes</p>	<p>Present budget allocated for Signalling and Telecom is not sufficient enough to cater non-core activities like infrastructure development, housekeeping activities, site travel arrangement.</p>	

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			<p>lockers.</p> <p>2.11 A room with seating is to be provided for drivers</p> <p>2.12 The Contractor shall provide the main Contract office with 24-hour security services.</p> <p>2.13 The Contractor shall provide the main Contract office with 24-hour security services.</p> <p>2.15 The contractor shall provide six (3 at Bhopal and 3 at Indore) number of four wheeler for the Employer/Engineer use at site office of the Innova or similar type.</p> <p>3. Minimum office provision: 168 m²Area for Employer representative</p> <p>4.1 the services shall include signage, maintained access roads, allocated covered car parking for a minimum of 30 car spaces, standard 240 V voltage</p>		

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			<p>electricity, lighting, telephone lines, internet connections, air conditioning and heating, water supply, sewage disposal and waste disposal, fire detection/alarm system and the like</p> <p>4.2 The building(s) shall be cleaned daily and shall regularly maintained with 365/24/7 working. Sanitary facilities shall be regularly supplied with consumables such as, but not limited to, lavatory paper, disinfectant, soap, detergent and paper towels.</p> <p>5.2 The Contractor shall provide telephone services which shall be restricted to national calls (within India) only, except for the Chief Engineer room which shall have international call facility, and the Contractor will pay the related telephone bills.</p>		

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			<p>5.3 The Contractor shall provide high speed internet connection (minimum 50 mbps) to support the facilities and pay both the Internet Service Provider fees and the user costs for internet connections.</p> <p>5.4 Water cooler with RO filter for potable water and two water fountains including a supply of potable water bottled by a reputable and registered water supplier.</p>		
226	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20 (1 of 40)	PROVIDING MAINTENANCE SERVICES TO SIGNALLING AND TELECOMMUNICATION SYSTEMS	We request you to issue a "separate" LoA / PO/ Work order as applicable for the 7 year maintenance STDLCMP period with Value as quoted in the BoQ price schedule.	The Tender Conditions shall prevail.
227	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 5.2.5 (7 of 40)	The contractor shall maintain forward store facility to cater to the needs of L1 maintenance. The stores shall be capable of	Our understanding is that the space required for forward store facility will be provided by the employer at the appropriate	Space for forward store facility shall be provided by Employer at following tentative locations:

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			supplying tools, consumables and OEM spares to meet the requirements specified in Appendix 4.	locations. Please confirm.	<ol style="list-style-type: none"> 1. Bhopal Depot 2. Pulbogda Interchange Station 3. Indore Depot 4. Two Interlocked stations (Vijaynagar Square, Ramchandra Nagar Square) <p>The Tender Conditions shall prevail.</p>
228	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 5.5.1 (9 of 40)	The contractor shall deploy mobile & web-based SW platform (Maximo) for the management of the activities as given in this contract for maintenance of facilities, refer S&T Volume III clause no 8.14.	We request you to accept Maximo OR any similar equivalent web-based Computer Maintenance Management System for this purpose which provides the same functions and outputs.	Corrigendum – 3 is being issued separately.
229	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 6.6 & 6.9 (11 of 40)	Employer shall provide about 25% of the total manpower being engaged by the Contractor for Maintenance obligation Equivalent Grade Tentative Number of Personnel as defined	This mentioned number of personnel (total 42) corresponds to the 25% of total manpower which will be provided by the employer. Please confirm.	The numbers given are tentative. The Contractor is required to assess manpower required for maintenance during comprehensive maintenance.

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			below 1 Executive 2 2 Supervisor 12 3 Technician 28		The Tender Conditions shall prevail.
230	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 6.6, 1st sentence (11 of 40)	6.6 Employer shall provide about 25% of the total manpower being engaged by the Contractor for Maintenance obligation (tentative as defined below) personnel, 4 weeks before the likely date of Revenue Operation.	Tentative number of personnel given in appendix 20, 6.6 is consist of total maintenance staff is require for both Bhopal and Indore project which includes both employer and contractor personnel. Please confirm our understanding is correct.	Corrigendum – 3 is being issued separately.
231	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 6.8, 2nd sentence (11 of 40)	The remuneration, salary, allowances etc. of these personnel shall be borne by the Employer except expenses on account of Travel for official purposes, Personal Protective Equipment, Uniform, Canteen facilities and overtime wages which shall be borne by Contractor.	Please confirm that lodging and boarding expenses if necessary for the 25% employees provided by the employer shall be borne by the employer only.	Lodging and boarding expenses if necessary for the 25% employees provided by the Employer shall be borne by the Employer. The Tender Conditions shall prevail.

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232	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 7.7 (12 of 40)	7.7 The duration of training as follows 	We request you to make these persons available at least 12 weeks before likely date of revenue operation to ensure proper training and preparedness. 4 weeks will be insufficient. This will also be in line with clause 7.7 (Normal route to competency for fresher)	Corrigendum – 3 is being issued separately, with respect to APPENDIX 20, 8.1.
233	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 7.10 (12 of 40)	The employees, who have failed in the examination twice, will be considered ineligible to continue. The contractor shall provide suitable replacement who shall further undergo the training and competency procedure, for which the inconvenience fee of INR 10000 per employee will be charged to the contractor.	We request you to delete the inconvenience fee as the training cost for the replacement candidate shall be borne by the contractor only.	The Tender Conditions shall prevail.
234	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 7.11 (12 of 40)	The competency certificate is valid for two years from the date of issue and all staff deployed in maintenance shall be in	As the competency certificate is being issued by the employer, it will be the responsibility of the employer to do the needful for	However, the contractor shall initiate the process for renewal of competency certificate well in advance of expiry of the validity,

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			possession of valid competency certificate at all times during the tour of duty.	issue of new competency certificates before the end of validity of the 2 year period. Please confirm.	after confirming suitability of the proposed personnel. The Tender Conditions shall prevail.
235	Volume III, ERGS, Part 2: ERGS-ST	Appendix 20, 7.13 (12 of 40)	The contractor shall provide suitable replacement of any employee who has left or terminated within 2 weeks. The non-availability of an employee in view of termination or attrition shall not provide any relaxation to the contractor. The replacement employee shall possess previous experience equivalent to the employee whom he is replacing.	We request MP Metro to change replacement period from 2 weeks to 3 months as Industry standard Notice Period time is 3 months	The Tender Conditions shall prevail.
236	Volume III, ERGS, Part 2: ERGS-ST	Appendix 20, 15.1 (16 of 40)	The Employer shall provide office space at two stations in mainline and at Stores in Depot.	The space for office and stores will be provided by Employer is covered area and common resources i.e., PM, Maintenance Managers and supporting staff's sitting space will be provided Maintenance by Employer in	Space for forward store facility shall be provided by Employer at following tentative locations: 1. Bhopal Depot 2. Pulbogda Interchange Station 3. Indore Depot

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				Depot. Please confirm our understanding is correct. Kindly also inform timeline to provide space.	4. Two Interlocked stations (Vijaynagar Square, Ramchandra Nagar Square) The Tender Conditions shall prevail.
237	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 17 (18 of 40)	Corrective Maintenance (Applicable for Depot) Table C1 and C2	C1 and C2 appear same. Please clarify. Also clarify the different penalties for them thereof in table no 18	Refer sub-clause 18 of Appendix 20 (page 19 of 40) for understanding. Also, Corrigendum – 3 is being issued separately.
238	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 17 & 18 (18 of 40)	Maintenance applicable penalty	We request you to accept the below - The total cumulative penalties imposed during the 7 year period shall not exceed 10% of the total value for STDLCMP price as per the price schedule.	The Tender Conditions shall prevail.
239	Volume III, ERGS, Part 2:	APPENDIX 20, 17 & 18	Maintenance applicable penalty	We understand that the 7 year comprehensive maintenance	Contractor shall have adequate time between the date of LOA and

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	ERGS-ST	(18 of 40)		period ("STDLCMP") for a section will start immediately after such section is brought in revenue services (i.e., date of commercial operation ROD). However, we request employer to grant a reasonable period 3 months from the commencement date of maintenance period to enable setup and integration of the contractor's maintenance organisation to fully equip itself to carry out maintenance as per employer's requirement. During this time no Maintenance applicable penalties as mentioned in clause no 18 (of Volume III, Employer's Requirements General Specifications: GS – S&T – Appendix 20) shall be applicable on the contractor.	<p>ROD to prepare and setup Maintenance facility.</p> <p>The Tender Conditions shall prevail.</p>
240	Volume III,	APPENDIX	Maintenance applicable penalty	We request you to accept the	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERGS, Part 2: ERGS-ST	20, 17 & 18 (18 of 40)		below - The total cumulative penalties imposed during the 7 year period shall not exceed 10% of the total value for STDLCMP price as per the price schedule.	prevail.
241	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 17, Table, Sl. No. C1 and C2 (18 of 40)	<p>Maintenance applicable penalty C1.</p> <p>Name: Adherence to the Down time ceilings</p> <p>Description/ checks: The contractor needs to meet the ceiling limits of the down time per failure.</p> <p>Non-compliance: Penalty for non-compliance</p> <p>C2.</p> <p>Name: Adherence to the Down time ceilings</p> <p>Description/ checks: The contractor needs to meet the ceiling limits of the down time per</p>	Description of both C1 and C2 is same. Bidder request customer to clarify the difference the difference between C1 and C2.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			failure. Non-compliance: Penalty for non-compliance		
242	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 18, Table for availability damage (20 of 40)	Damages (in INR) MP1* MP2* MP3*	Kindly define MP1, MP2 and MP3 for S&T (as done for RS)	Corrigendum – 3 is being issued separately.
243	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, 18, Table for availability damage (20 of 40)	Group 2 - 5 *For increase in section block for each hour beyond 1 Hour damages will be increased by 10 lakhs i.e.	sentence seems incomplete and is not clear. Kindly elaborate.	Corrigendum – 3 is being issued separately.
244	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, Appendix 4 (33 of 40)	Appendix 4: Mean Time To Repair (MTTR) – S&T Systems	The MTTR shall be calculated after the safe access of the site / equipment, with due maintenance block as necessary, is granted to the contractor.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
245	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20, Appendix 4, Table (33 of 40)	Appendix 4: Mean Time To Repair (MTTR) – S&T Systems	We request you to consider MTTR in minutes as per below in view of practical considerations - 1. Equipments located in equipment Rooms and other control Rooms: 30 in place of 15. 2. Track side equipments: 60 in place of 30 3. Train detection equipments: 45 in place of 15 4. Train-borne equipments: 30 in place of 15. 5. Telecommunication Systems all: no change	Corrigendum – 3 is being issued separately.
246	Volume III, ERGS, Part 2: ERGS-ST	APPENDIX 20 (40 of 40)		The 7 year maintenance will commence and end section wise as per Tentative Commissioning Schedule mentioned in sr no 3 (and not together for the whole line). We understand that the contractor shall have the freedom to Rampup and Ramp down the manpower	Proportionate manpower shall be deployed by Employer. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				accordingly. Employer shall also plan and provide the corresponding 25% personnel accordingly. Please confirm.	
247	Volume IV, ERTS, Part 1: ERTS-RS	1.1.1, 1st sentence (11 of 492)	This specification establishes the requirements for the design, development, manufacture, supply, testing, delivery, commissioning, integrated testing, training of the necessary operations and maintenance personnel and comprehensive maintenance for 15 years (from the handover of first trainset) for the light weight, fully equipped, modern passenger trains with microprocessor control 3-phase induction motor drive suitable for Unattended train operation in Bhopal and Indore Metro Rail Projects of MPMRCL.	The term Handover in the underlined portion of the adjacent clause is understood as taken over of the first trainset into revenue service, and not to be confused as Handover after DLCMP. Please modify the clause as below to avoid confusion: "This specification establishes the requirements for the design, development, manufacture, supply, testing, delivery, commissioning, integrated testing, training of the necessary operations and maintenance personnel and comprehensive maintenance for 15 years (from the Taken over of first trainset)	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
248	Volume IV, ERTS, Part 1: ERTS-RS	1.1.9 (13 of 492)	<p>On the basis of existing solution usually proposed by Manufacturers, it is supposed that the metro train will be composed by 3 cars (firm order of the contract) with the following composition:</p> <p>3-car configuration: ±DMC=TC=DMC±</p> <p>Where, DMC: Driving Motor Car TC: Trailer Car “±” is an automatic coupler “=” is a semi-permanent coupler The automatic couplers shall consist of mechanical, electrical and pneumatic coupling.</p>	<p>We understand that 6 car configuration would be a permanent configuration and moreover any coupling between two trainsets will be for rescue purpose only. With this consideration we recommend to avoid electrical head on the automatic coupler as the same functionality can be achieved by other means.</p>	The Tender Conditions shall prevail.
249	Volume IV, ERTS, Part 1: ERTS-RS	1.1.10 (14 of 492)	<p>In future it is proposed to couple two 3-car Trainset mechanically, pneumatically and electrically to form 6-car Trainset to achieve the same performance in terms of</p>	<p>6 car train configuration may be proposed as below: ±DMC=TC=MC=MC=TC=DMC±</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>speed, acceleration, braking capacity etc. The composition of 6 car metro train will be: 6-car train configuration: $\pm DMC=TC=DMC\pm DMC=TC=DMC\pm$</p> <p>Note: Hereafter the above 6-Car configuration formed from coupling of two 3-car configuration shall be referred as "6-Car Trainset".</p>	<p>Semi-Permanent Coupler may be proposed between MC & MC.</p> <p>Also Front Automatic Coupler without Electrical head may be proposed (Used only for Rescue operation).</p> <p>Also 6-car trainset configuration may be reviewed in view of PSD Interface for ERTS 1.1.10 (2 nos. 3-cars trainset coupled) and ERTS 1.7 (6-car new trainset). Accordingly, ERTS 1.1.9, 1.1.10, 1.1.12, 1.7 and relevant clauses may be amended.</p>	
250	Volume IV, ERTS, Part 1: ERTS-RS	1.1.12 (14 of 492)	In a global overview of the present technical requirements and tenderer proposal, the option for 6 car compositions	We understand that detailed performance and energy simulations for future 6-car extension need not be submitted	Detailed performance and energy simulations for future 6-car extension may be submitted during detailed design phase.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			(±DMC=TC=DMC±DMC=TC=DM C±) shall be anticipated and presented in the calculations, performance compliance, design and solution proposed.	during the bid. This can be done during detailed design phase. Kindly confirm the same.	The Tender Conditions shall prevail.
251	Volume IV, ERTS, Part 1: ERTS-RS	1.1.10, 3.1.2, 3.24.11, 4.14.3.1, 10.1.2 (14 of 492)	In future it is proposed to couple two 3-car Trainset mechanically, pneumatically and electrically to form 6-car Trainset to achieve the same performance in terms of speed, acceleration, braking capacity etc.	The bidder proposes to accept insertion of 3-Intermediate Cars for 6-car formation: - This would increase the efficiency of the design with increased Passenger capacity by elimination of 2 additional sets of Cab equipment/Cab. - This would facilitate easier evacuation of 6-car train from single end. In case of Multiple-Unit configuration, both end evacuation ramps to be deployed, with no direct passage from 1st 3-car Unit to 2nd 3-car unit Bidder suggests to rephrase the	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>clause as follows:</p> <p>In future it is proposed to couple two 3-car Trainset mechanically, pneumatically and electrically insert 3 intermediate cars to form 6-car Trainset to achieve the same performance in terms of speed, acceleration, braking capacity etc.</p>	
252	Volume IV, ERTS, Part 1: ERTS-RS	1.1.12 (14 of 492)	In a global overview of the present technical requirements and tenderer proposal, the option for 6 car compositions ($\pm DMC=TC=DMC\pm DMC=TC=DMC\pm$) shall be anticipated and presented in the calculations, performance compliance, design and solution proposed.	We understand that detailed performance and energy simulations for future 6-car extension need not be submitted during the bid. This can be done during detailed design phase. Kindly confirm the same.	<p>Detailed performance and energy simulations for future 6-car extension may be submitted during detailed design phase.</p> <p>The Tender Conditions shall prevail.</p>
253	Volume IV, ERTS, Part 1: ERTS-RS	1.5 (15 of 492)	There shall be two stage testing and commissioning of trains. In the first stage, the train operation in GoA2 (ATP/ATO/RM/ROS/Cutout	Please clarify the schedule targeted GoA4 testing in each line / car configuration.	Once complete system including RS, S&T and PSD is ready with GoA4 functionality then GoA4 testing can be started.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>modes) as described in chapter 12 of TS shall be made available. In the second stage, GoA4 (UTO and associated mode viz; standby mode etc.) shall be commissioned along with prototype testing and made available for operation. The interface testing may have to be done separately for purple line & red line at Bhopal and yellow line at Indore. After successful T&C of 3 car trains Contractor shall perform T&C of 6 car trains by coupling two 3 car trains as mentioned in ERTS 1.1.10 (details need to be submitted during design stage to Engineer for approval).</p>		<p>The Tender Conditions shall prevail.</p>
254	Volume IV, ERTS, Part 1: ERTS-RS	1.5 (15 of 492)	<p>There shall be two stage testing and commissioning of trains. In the first stage, the train operation in GoA2 (ATP/ATO/RM/ROS/Cutout</p>	<p>Please clarify the schedule targeted GoA4 testing in each line / car configuration.</p>	<p>Once complete system including RS, S&T and PSD is ready with GoA4 functionality then GoA4 testing can be started.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>modes) as described in chapter 12 of TS shall be made available. In the second stage, GoA4 (UTO and associated mode viz; standby mode etc.) shall be commissioned along with prototype testing and made available for operation. The interface testing may have to be done separately for purple line & red line at Bhopal and yellow line at Indore. After successful T&C of 3 car trains Contractor shall perform T&C of 6 car trains by coupling two 3 car trains as mentioned in ERTS 1.1.10 (details need to be submitted during design stage to Engineer for approval).</p>		<p>The Tender Conditions shall prevail.</p>
255	Volume IV, ERTS, Part 1: ERTS-RS	2.5.8, 1st paragraph (21 of 492)	<p>The Contractor shall prepare a Fire Safety Design Report for review and acceptance by the Engineer. This shall be submitted within 2 months of</p>	<p>We propose to allow air spring as HL2, according chapter 4.5 of EN 45545. Currently there is no technical solution in the market to comply to HL3.</p>	<p>For air spring the guidelines of EN 45545 may be applicable. The Tender Conditions shall</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Commencement Date and revised and updated for the completion of the preliminary, pre-final and final design stages. Materials used in the cars shall conform to fire safety requirements of EN 45545 part 1 to 7 (Category 4-A, Hazard level HL3) latest editions as a minimum or better international standard applicable for similar Metro for underground operations with front evacuation, subject to the acceptance of the Engineer.		prevail.
256	Volume IV, ERTS, Part 1: ERTS-RS	2.5.8, 1st paragraph (21 of 492)	The Contractor shall prepare a Fire Safety Design Report for review and acceptance by the Engineer. This shall be submitted within 2 months of Commencement Date and revised and updated for the completion of the preliminary, pre-final and final design stages. Materials used in the cars shall	Based on bidder's experience not all materials in market are complied to HL3. Bidder requests to rephrase the Clause as follows: The Contractor shall prepare a Fire Safety Design Report for	For air spring the guidelines of EN 45545 may be applicable. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			conform to fire safety requirements of EN 45545 part 1 to 7 (Category 4-A, Hazard level HL3) latest editions as a minimum or better international standard applicable for similar Metro for underground operations with front evacuation, subject to the acceptance of the Engineer.	review and acceptance by the Engineer. This shall be submitted within 2 months of Commencement Date and revised and updated for the completion of the preliminary, pre-final and final design stages. Materials used in the cars shall conform to fire safety requirements of EN 45545 part 1 to 7 (Category 4-A, Hazard level HL3) latest editions as a minimum or better international standard applicable for similar Metro for underground operations with front evacuation, subject to the acceptance of the Engineer. Any deviation shall be approved by the Engineer.	
257	Volume IV, ERTS, Part 1: ERTS-RS	2.7.2 (23 of 492)	The Contractor shall comply with the guidelines of IEC 60300-1, IEC 60300-2 and IEC 60571 for electronic equipment, and IEC 60300-3-5 in meeting the	For electronic components EN 50128, MIL 217 or IEC-62380 or EN 50125 or similar international spec for reliability, availability and maintainability requirements	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			reliability, availability and maintainability requirements of equipment.	of equipment. Request to update/amend the clause suitably	
258	Volume IV, ERTS, Part 1: ERTS-RS	2.7.2 (23 of 492)	The Contractor shall comply with the guidelines of IEC 60300-1, IEC 60300-2 and IEC 60571 for electronic equipment, and IEC 60300-3-5 in meeting the reliability, availability and maintainability requirements of equipment.	For electronic components EN 50128, MIL 217 or IEC-62380 or EN 50125 or similar international spec for reliability, availability and maintainability requirements of equipment. Request to update/amend the clause suitably	Corrigendum – 3 is being issued separately.
259	Volume IV, ERTS, Part 1: ERTS-RS	2.11 (28 of 492)	Availability and Availability Damages:	Request customer to amend the availability KPI's in line with recent DMRC phase 4 Tender. Clauses attached for reference.	Corrigendum – 3 is being issued separately.
260	Volume IV, ERTS, Part 1: ERTS-RS	2.14.9 (33 of 492)	During the Pre-final design stage, the Contractor shall furnish a list of Least Replaceable Units (LRUs) for the equipment, Sub-system and Systems supplied, which should not take more than	LRU replacement time for equipment like AGTU will be more than 60 min and hence, the requirement may please be changed to 120 min. Alternatively the clause may be	As stated in this sub-clause, specific exceptions shall be indicated in the bid. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>30 minutes for replacement. Specific exceptions, if any, whose replacement is not achievable in 30 minutes, shall be indicated by the Tenderers in their offer. In order to achieve this requirement, quick release connections such as plugs and adaptor shall be provided between LRUs and the equipment.</p>	<p>changes as "those equipment weighing more than 200 kg will have a replacement time of 60 min." Other equipment lower than 200 kgs, 30 min can be given.</p>	
261	Volume IV, ERTS, Part 1: ERTS-RS	2.14.9 (33 of 492)	<p>During the Pre-final design stage, the Contractor shall furnish a list of Least Replaceable Units (LRUs) for the equipment, Sub-system and Systems supplied, which should not take more than 30 minutes for replacement. Specific exceptions, if any, whose replacement is not achievable in 30 minutes, shall be indicated by the Tenderers in their offer. In order to achieve this requirement, quick release connections such as plugs and</p>	<p>LRU replacement time for equipment like AGTU will be more than 60 min and hence, the requirement may please be changed to 120 min. Alternatively the clause may be changes as "those equipment weighing more than 200 kg will have a replacement time of 60 min." Other equipment lower than 200 kgs, 30 min can be given.</p>	<p>As stated in this sub-clause, specific exceptions shall be indicated in the bid.</p> <p>The Tender Conditions shall prevail.</p>

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			adaptor shall be provided between LRUs and the equipment.		
262	Volume IV, ERTS, Part 1: ERTS-RS	2.22.1, (vii) (47 of 492)	Contractor shall consider the pad stiffness used in ballast-less track and the same shall be used for design. This is specified as 35 kN/mm (max) – EN 13146-4-2012. The noise tests during running condition shall be done in the section after six months of train operation. The Contractor may suggest change in pad stiffness if it can help in further reducing the noise level.	<p>The pad stiffness of 35kN/mm doesn't meet the required track conditions as per ISO 3095 and creates more track noise than rolling stock noise. Bidder recommends 800-1000MN/m of pad stiffness for the test track for noise validation. In case of boundary conditions not as per ISO standard during the type tests, the measured pass-by noise shall be corrected to real ISO compliant conditions by calculation.</p> <p>Bidder requests to rephrase the Clause as follows: Contractor shall consider the pad stiffness used in ballast-less track and the</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>same shall be used for design. This is specified as 35 kN/mm (max) 800-1000MN/m– EN 13146-4-2012. The noise tests during running condition shall be done in the section after six months of train operation. The Contractor may suggest change in pad stiffness if it can help in further reducing the noise level. In case of boundary conditions not as per ISO standard during the type tests, the measured pass-by noise shall be corrected to real ISO compliant conditions by calculation.</p>	
263	Volume IV, ERTS, Part 1: ERTS-RS	2.22.2, (i) (48 of 492)	The Contractor shall submit a Noise and Vibration Assurance Plan for 3-Car and 6-Car Trainset as specified in the Employer's Requirements: General	Bidder proposes to submit a Noise and Vibration Assurance Plan for 3 - Car configuration only.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Specifications for review by the Engineer.		
264	Volume IV, ERTS, Part 1: ERTS-RS	2.22.3, (iii) (49 of 492)	All measurements to be made along the car centre-line 1500mm above the floor and not less than 600mm from the end of the vehicle.	<p>It was mentioned to take measurements at 1500mm from floor (in Saloon) but in gangway it was mentioned to do at 1400mm (refer 2.22.1 (vi)).</p> <p>Bidder requests to change the Clause as follows: All measurements to be made along the car centre-line 1500 1400mm above the floor and not less than 600mm from the end of the vehicle.</p>	Corrigendum – 3 is being issued separately.
265	Volume IV, ERTS, Part 1: ERTS-RS	2.24.2.1, last sentence (52 of 492)	However, Contractor shall also propose other fire detection system based on latest technology with SIL2 compliance such as, intelligent infrared matrix addressable detectors with integrated microcontroller during	IR needs line of sight for detection, generally used for flame detection. Hence, multi detector is recommended as it can detect both smoke and heat (Smoke detection based on principle of obscuration)	The Tender Conditions shall prevail.

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			Preliminary design review stage based on which final decision will be taken by the Engineer.		
266	Volume IV, ERTS, Part 1: ERTS-RS	2.26.1 (54 of 492)	The Bidder shall submit life cycle cost (LCC) plan and analysis in accordance with IEC 60300-3-3 with an aim to optimize the overall life cycle cost whilst meeting the safety, quality, availability, maintainability and reliability requirement of this technical specification.	Wabtec follows internal guidelines which is followed in many Metro applications. Hence the clause may please be changes as "The Bidder shall submit life cycle cost (LCC) plan and analysis in accordance with IEC 60300-3-3 or followed in other Metro applications globally with an aim to optimize the....."	The Tender Conditions shall prevail.
267	Volume IV, ERTS, Part 1: ERTS-RS	2.26.1 (54 of 492)	The Bidder shall submit life cycle cost (LCC) plan and analysis in accordance with IEC 60300-3-3 with an aim to optimize the overall life cycle cost whilst meeting the safety, quality, availability, maintainability and reliability requirement of this technical specification.	Request you to please clarify/confirm the LCC requirements for Rolling Stock & for RS Maintenance.	It has to be proposed by the contractor as per the requirement of the tender conditions. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
268	Volume IV, ERTS, Part 1: ERTS-RS	2.26.1 (54 of 492)	The Bidder shall submit life cycle cost (LCC) plan and analysis in accordance with IEC 60300-3-3 with an aim to optimize the overall life cycle cost whilst meeting the safety, quality, availability, maintainability and reliability requirement of this technical specification.	Wabtec follows internal guidelines which is followed in many Metro applications. Hence the clause may please be changes as "The Bidder shall submit life cycle cost (LCC) plan and analysis in accordance with IEC 60300-3-3 or followed in other Metro applications globally with an aim to optimize the....."	The Tender Conditions shall prevail.
269	Volume IV, ERTS, Part 1: ERTS-RS	2.26.2 (54 of 492)	The LCC plan and analysis submitted during the bidding stage shall be further developed by the Contractor during the design stage with detailed calculation for review of the Engineer	Request you to please clarify/confirm the LCC requirements for Rolling Stock & for RS Maintenance.	It has to be proposed by the contractor as per the requirement of the tender conditions. The Tender Conditions shall prevail.
270	Volume IV, ERTS, Part 1: ERTS-RS	2.27 (55 of 492)	Cyber Security Assurance	We request Employer to adapt this clause 2.27 as per the below provisions:	Corrigendum – 3 is being issued separately.

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				Relevant Standards for compliance: a) IEC 62443; b) ISO 27005	
271	Volume IV, ERTS, Part 1: ERTS-RS	2.27 (55 of 492)	Cyber Security Assurance	The Contractors shall propose and execute a secure design lifecycle and implementation methodology covering (a) Security policies, standards and processes which govern the systems (b) Information flows within the system and with other interfacing Contractor's systems indicating ports and services to be used, and its controls (c) Requirements and controls for confidentiality, integrity, availability, authentication. (d) User identification, roles and groups to be used with their access control matrices	Corrigendum – 3 is being issued separately.

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				(e) Security parameters (f) Access rights of files and directories (g) Audit, logging and monitoring controls (h) Deployment of Network Security Protection for prevention, detection and correction	
272	Volume IV, ERTS, Part 1: ERTS-RS	2.27 (55 of 492)	Cyber Security Assurance	The Contractors shall cover the threats landscape like a) Hacking, b) Phishing c) Malware via Removable Media d) Intrusion via Remote Access e) DOS Attack using IEC 62443 or ISO/IEC 27005 Risk Methodology and residual risk should be at acceptable level in line with Authority	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
273	Volume IV, ERTS, Part 1: ERTS-RS	3.11.1, Table 3.1, 7th row (65 of 492)	Table 3.1: Climatic & Environmental Conditions Maximum Wind speed 120 kmph	Considering the climatic & Environmental condition of Indore & Bhopal, Request for relaxation in the Max. wind speed from 120 to 100 kmph. Using the practical wind speed of 100 kmph will avoid the over designing.	Corrigendum – 3 is being issued separately.
274	Volume IV, ERTS, Part 1: ERTS-RS	3.12.1 and 5.4.5 (66 of 492)	3.12.1 - The traction subsystems / equipment mounted on the under-frame will be designed to permit propulsion of the train at 10kmph through water up to a depth of 75mm above rail level. 5.4.5 - The minimum clearance of bogie-mounted equipment from rail level for a fully loaded (AW4) car under worst conditions>(*worst condition means wheels with maximum tread wear and primary springs with maximum deflection) shall	These clauses are contradictory in terms of clearance above rail level, as traction subsystem (assuming gearbox) is the lowest bogie-mounted equipment. AT complying minimum clearance of 65 mm above rail level in static condition as per past Indian project experience. To achieve 75 mm clearance for flood proofing will be a design constraint.	Both sub-clauses are independent to each other. The Tender Conditions shall prevail.

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			not be less than 65 mm in static condition and 50 mm in dynamic condition.		
275	Volume IV, ERTS, Part 1: ERTS-RS	3.12.1 5.4.5 (66 of 492)	<p>3.12.1 The traction subsystems / equipment mounted on the under-frame will be designed to permit propulsion of the train at 10kmph through water up to a depth of 75mm above rail level.</p> <p>5.4.5 The minimum clearance of bogie-mounted equipment from rail level for a fully loaded (AW4) car under worst conditions>(*worst condition means wheels with maximum tread wear and primary springs with maximum deflection) shall not be less than 65 mm in static condition and 50 mm in dynamic condition.</p>	<p>These clauses are contradictory in terms of clearance above rail level, as traction subsystem (assuming gearbox) is the lowest bogie-mounted equipment. 75mm of water above rail level and clearance of 65 mm above rail level means, a part of gearbox will remain submerged in the water.</p> <p>We request following rewording:</p> <p>3.12.1 The traction subsystems / equipment mounted on the under-frame will be designed to permit propulsion of the train at 10kmph through water up to a depth of 75 50mm above rail level.</p>	<p>Both sub-clauses are independent to each other.</p> <p>The Tender Conditions shall prevail.</p>

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				<p>5.4.5 The minimum clearance of bogie-mounted equipment from rail level for a fully loaded (AW4) car under worst conditions>(*worst condition means wheels with maximum tread wear and primary springs with maximum deflection) shall not be less than 65 mm in static condition and 50 mm in dynamic condition.</p>	
276	Volume IV, ERTS, Part 1: ERTS-RS	3.17.1, Table 3.4; 6th row (70 of 492)	<p>Table 3.4: Platform Interfaces Distance between track centre and platform edge: Underground Corridor - 1525mm (max) and 1515mm (min) Elevated Corridor - 1530mm (max) and 1520mm (min)</p>	<p>Based on our experience, the platform distances from Track centre are a bit tighter for a 2.9m car width vehicle. Request to update the below values Distance between track centre and platform edge: Underground Corridor - 1525mm (max) and 1520mm (min)</p>	<p>Exact values may be indicated once SOD is approved. Tentative values are for Underground - 1525mm (max) and 1515mm (min) Elevated - 1535mm (max) and 1525mm (min)</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Elevated Corridor - 1535mm (max) and 1530mm (min)	The Tender Conditions shall prevail.
277	Volume IV, ERTS, Part 1: ERTS-RS	3.21.4, last paragraph (73 of 492)	Abnormal Conditions: Vehicle lateral and rolling movements due to wind forces with a wind speed of 125kmph on the At-grade and Elevated corridors.	In Abnormal condition, Windspeed of 125 kmph looks very high. AT recommend a wind speed of 100 kmph which is more realistic.125 kmph will affect the car width of the car body (2.9m), passenger capacity etc. Bidder requests to change the Clause as follows: Abnormal Conditions: Vehicle lateral and rolling movements due to wind forces with a wind speed of 100 125kmph on the At-grade and Elevated corridors.	The Tender Conditions shall prevail.
278	Volume IV, ERTS, Part 1:	3.22.1, (viii)	Tractive and braking effort shall be defined and calculated for the	To achieve required acceleration and performance of the train for	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS	(74 of 492)	3-car and 6-car metro train in the limit of the wheel rail adhesion ratio (18% in tunnel and 16 % at grade and super-elevated structures, adhesion values will be finalized during the design stage) by the Bidder in order to achieve the operation performances of 3-car and 6-car Trainset.	fully loaded train, required adhesion needs to be > 16 or 18 %. Therefore, we request to kindly suitably modify this clause wordings. Kindly change the clause suitably. 'Tractive and braking effort shall be defined and calculated for the 3-car and 6-car metro train in the limit of the wheel rail adhesion ratio (18% in tunnel and 16 % at grade and super-elevated structures, adhesion values will be finalized during the design stage) by the Bidder in order to achieve the operation performances of 3-car and 6-car Trainset.'	separately.
279	Volume IV, ERTS, Part 1: ERTS-RS	3.22.2.1 (74 of 492)	Commercial speed requirements Performances of 3-car and 6-car Metro train in Exceptional Crush load AW4 (8 persons standee/m ²)	Since speed limitation data is not shared, it's unclear to achieve the minimum commercial speed. After receiving the speed	Corrigendum – 3 is being issued separately. Refer ERGS Appendix XIII for

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			under normal conditions shall be compliant to achieve a minimum commercial speed of 34 kmph (excluding reverse time in terminal station).	limitation data, this minimum commercial speed is needed to discuss.	speed restriction data, being issued with Corrigendum.
280	Volume IV, ERTS, Part 1: ERTS-RS	3.23.1, 2nd paragraph (74 of 492)	<p>Train Performance (Car Weight, Passenger Capacity / Loading Definition).</p> <p>Weight / Loading definitions are as under:-</p> <p>i. AWO:- Weight of the empty, ready to run vehicle.</p> <p>ii. AW1:- Weight of the vehicle with all seats occupied.</p> <p>iii. AW2:- Fully loaded vehicle weight. This weight is the sum of AW1 + weight of Standees at 65 KG each and 4 Standees / mtr.2.</p> <p>iv. AW3: - Crush Loaded Vehicle Weight. This weight is sum of AW1 + weight of Standees at 65</p>	<p>While loading conditions from AW0 to AW4 are quite normal to be considered for design as well as in service loading of Passengers in the Train, AW5 loading of AW1 + weight of Standees at 65 KG each and 10 Standees / mtr.2 is not really a practical class of loading. AW4 Class of loading with AW1 + 8 Standees / mtr.2 itself is exceptional Crush Loaded Vehicle Category. It is somewhat impracticable to push more than 8 Standees / mtr.2 in the standing area.</p> <p>Keeping in view the above, AW5</p>	The Tender Conditions shall prevail.

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			<p>KG each and 6 Standees / mtr.2.</p> <p>v. AW4:- Exceptional Crush Load Vehicle Weight. This weight is the sum of AW1 + weight of standees at 65 KG each and 8 Standees / mtr.2.</p> <p>vi. AW5:- Super Crush Loaded Vehicle Weight. This weight is some of AW1 + weight of standees at 65 KG each and 10 Standees / mtr.2 (Car Body Structure and Bogie Frame calculation shall be based on AW5 loading).</p>	<p>loading may be considered for dropping. It will unnecessarily increase the Car Body Structure and Body Frame Strength requirements which will not actually be encountered in real practice while running Trains.</p> <p>It is also relevant to mention that in Tier 2 Cities like Bhopal and Indore, Coach Width of 2.9 mtr. has been preferred as compared to 3.2 mtr. which was also possible. This is because of passenger density not being high in Tier 2 Cities as compared to Tier 1 Cities like Delhi and Mumbai etc.</p>	
281	Volume IV, ERTS, Part 1: ERTS-RS	3.23.6 (78 of 492)	Command Response Time Command Response Time includes response to modulation within a mode (power, coast and brake) and transition from one	Two conditions influence the delay time: 1.Delay coming from the network communication 2.Jerk limitation to be applied	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>mode to another, including emergency brake. Modulation within a mode shall be jerk limited. The command response time within a mode shall not exceed 300ms. Mode change dead time for transition from one to adjacent mode (motoring to coast, coast to brake, brake to coast and coast to motoring) shall not exceed 500ms, exclusive of jerk limiting for 3-Car and 6-Car Trainset. The command response time shall be measured from the time the change is initiated until the acceleration or deceleration transitions to 10 percent of the requested change. The achieved command response time as per above shall be submitted during pre-final design stage.</p>	<p>according to the standards or to specific requirements. This does not align with the delay requirement.</p> <p>Since, both delay time and Jerk cannot be controlled together, priority has to be clarified in the spec to correct delay or correct jerk. EN 13452-1 standard doesn't define target values and hence the target values of 300 ms, 500 ms will have to be removed from the requirement.</p>	
282	Volume IV, ERTS, Part 1: ERTS-RS	3.23.6 (78 of 492)	Command Response Time Command Response Time includes response to modulation	Two conditions influence the delay time: 1.Delay coming from the	Tender condition shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>within a mode (power, coast and brake) and transition from one mode to another, including emergency brake. Modulation within a mode shall be jerk limited. The command response time within a mode shall not exceed 300ms. Mode change dead time for transition from one to adjacent mode (motoring to coast, coast to brake, brake to coast and coast to motoring) shall not exceed 500ms, exclusive of jerk limiting for 3-Car and 6-Car Trainset. The command response time shall be measured from the time the change is initiated until the acceleration or deceleration transitions to 10 percent of the requested change. The achieved</p>	<p>network communication 2. Jerk limitation to be applied according to the standards or to specific requirements. This does not align with the delay requirement. Since, both delay time and Jerk cannot be controlled together, priority has to be clarified in the spec to correct delay or correct jerk. EN 13452-1 standard doesn't define target values and hence the target values of 300 ms, 500 ms will have to be removed from the requirement.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			command response time as per above shall be submitted during pre-final design stage.		
283	Volume IV, ERTS, Part 1: ERTS-RS	3.24.1, Table 3.7, 4th row (78 of 492)	Minimum Design Average Acceleration rate for AW3 train on level tangent track shall be as: 0-40 kmph 0-60 kmph 0-80 kmph	For AW3, speed range mentioned here is not consistent with table 3.8, where it is 0-35 kmph instead of 0-40 kmph.	Corrigendum – 3 is being issued separately.
284	Volume IV, ERTS, Part 1: ERTS-RS	3.24.1, Table 3.7, 4th row (78 of 492)	Minimum Design Average Acceleration rate for AW3 train on level tangent track shall be as: 0-40 kmph 0-60 kmph 0-80 kmph	For AW3, speed range mentioned here is not consistent with table 3.8, where it is 0-35 kmph instead of 0-40 kmph.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
285	Volume IV, ERTS, Part 1: ERTS-RS	3.24.1, Table 3.7; 4th row (79 of 492)	Table 3.7: Performance Requirements Minimum Design Average Acceleration rate for AW3 train on level tangent track shall be as: 0 kmph to 40 kmph: 1.2 m/s ²	Table 3.7 shows the average acceleration is required 1.2m/s ² for 0to40km/h at AW3 and 1.0m/s ² for 0to40km at AW4. However, table 3.8 shows 0 to 35km/h at AW3. Please check table 3.7 requirement of acceleration is 1.2m/s ² for 0 to 35km/h for AW3.	Corrigendum – 3 is being issued separately.
286	Volume IV, ERTS, Part 1: ERTS-RS	3.24.1, Table 3.7, 7th row (79 of 492)	Minimum emergency braking rate from 80 kmph to 0 km/h up to fully loaded train on level tangent track - 1.3 m/s ²	To have better clarity, standard number may be added. That is "Emergency braking rate from 80 kmph to 0 km/h up to fully loaded train on level tangent track - 1.3 m/s ² as per EN 13452"	The Tender Conditions shall prevail.
287	Volume IV, ERTS, Part 1: ERTS-RS	3.24.1, Table 3.7, 7th row (79 of 492)	Minimum emergency braking rate from 80 kmph to 0 km/h up to fully loaded train on level tangent track - 1.3 m/s ² .	To have better clarity, standard number may be added. That is "Emergency braking rate from 80 kmph to 0 km/h up to fully loaded train on level tangent track - 1.3 m/s ² as per EN	The Tender Conditions shall prevail.

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				13452"	
288	Volume IV, ERTS, Part 1: ERTS-RS	3.24.4, (ii), (a), 3rd bullet point (80 of 492)	<p>ii. Exceptional Crush Loaded AW4: (AW1 Full Seating + 8 standee/m² of 65 kg weight per passenger)</p> <p>a. Normal (Coasting) Mode for 3-Car and 6-Car Trainset:</p> <ul style="list-style-type: none"> • Achieve rate of deceleration of not less than 1.0 m/s² from at least 70 kmph running speed till 5 kmph with dynamic brake only and with blended brake from 5 kmph till the train comes to a stop. Full-Service Brake requirements for speed range of 5 kmph to 70 kmph with load not exceeding AW3 shall be met with regeneration brakes only, i.e., without any friction brake. The Regenerative braking power shall be constant from 80Kmph to 70Kmph. The regenerative power 	<p>Same as other Indian project, please relax the condition as below.</p> <p><Proposal></p> <p>a. Normal (Coasting) Mode for 3-Car and 6-Car Trainset:</p> <ul style="list-style-type: none"> • Achieve rate of deceleration of not less than 1.0 m/s² from at least 65 kmph running speed till 5 kmph with dynamic brake only and with blended brake from 5 kmph till the train comes to a stop. Full-Service Brake requirements for speed range of 5 kmph to 70 kmph with load not exceeding AW3 shall be met with regeneration brakes only, i.e., without any friction brake. The Regenerative braking power shall be constant from 80Kmph to 70Kmph. The regenerative 	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			shall be used to the maximum extent possible. Deceleration for crush load shall be as specified in Table 3.7 above.	power shall be used to the maximum extent possible. Deceleration for crush load shall be as specified in Table 3.7 above.	
289	Volume IV, ERTS, Part 1: ERTS-RS	3.24.4, (ii), (a), 3rd bullet point (80 of 492)	<p>ii. Exceptional Crush Loaded AW4: (AW1 Full Seating + 8 standee/m² of 65 kg weight per passenger)</p> <p>a. Normal (Coasting) Mode for 3-Car and 6-Car Trainset:</p> <ul style="list-style-type: none"> Achieve rate of deceleration of not less than 1.0 m/s² from at least 70 kmph running speed till 5 kmph with dynamic brake only and with blended brake from 5 kmph till the train comes to a stop. Full-Service Brake requirements for speed range of 5 kmph to 70 kmph with load not exceeding AW3 shall be met with regeneration brakes only, i.e., 	<p>Same as other Indian project, please relax the condition as below.</p> <p><Proposal></p> <p>a. Normal (Coasting) Mode for 3-Car and 6-Car Trainset:</p> <ul style="list-style-type: none"> Achieve rate of deceleration of not less than 1.0 m/s² from at least 65 kmph running speed till 5 kmph with dynamic brake only and with blended brake from 5 kmph till the train comes to a stop. Full-Service Brake requirements for speed range of 5 kmph to 70 kmph with load not exceeding AW3 shall be met with regeneration brakes only, 	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			without any friction brake. The Regenerative braking power shall be constant from 80Kmph to 70Kmph. The regenerative power shall be used to the maximum extent possible. Deceleration for crush load shall be as specified in Table 3.7 above.	i.e., without any friction brake. The Regenerative braking power shall be constant from 80Kmph to 70Kmph. The regenerative power shall be used to the maximum extent possible. Deceleration for crush load shall be as specified in Table 3.7 above.	
290	Volume IV, ERTS, Part 1: ERTS-RS	3.24.5 and 3.24.6, Table 3.8, S. No. 6 (82 of 492)	Table 3.8 AW1 NORMAL MODE (ATP) 0-30 Kmph = 0-60 Kmph = 0-80 Kmph = 3.24.6 The Tenderer shall also submit in their offer the Speed-Time, Distance-Time, Line Current – Speed/Time and Tractive Effort & Braking Effort characteristic curves of a AW4, AW3 & AW0 loaded train	As per table 3.8 and cl. no. 3.24.5, tenderer has to submit details for AW4, AW3 & AW1 loading. While as per cl. No. 3.24.6 it has to be submitted for AW4, AW3 & AW0 loading. We understand that AW0 loading case is to be referred for cl. 3.24.5 and table 3.8. Kindly change the clause suitably. Table 3.8 AW0 NORMAL MODE (ATP) 0-30 Kmph =	Corrigendum – 3 is being issued separately.

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			under.....	0-60 Kmph = 0-80 Kmph =	
291	Volume IV, ERTS, Part 1: ERTS-RS	3.25.1 (85 of 492)	3-Car Trainset: i. One serviceable fully loaded 3-car train with one pair of traction motors of a Motor Car isolated shall be capable of pushing a fully loaded defective 3-car train respectively without parking brakes applied, on all Lines including a section of 4% gradient as per the specified route alignment up to the next station. Thereafter, the healthy train shall, after all the passengers have detrained at the station, continue to push the defective train up to the terminal station. There shall be no equipment damage or degradation, while maintaining safe operation. Train shall be able to start and move on an up gradient of 4% on above condition	As per ERTS3.23.1 iii, AW2: Fully Loaded Vehicle weight. This weight is the sum AW1 plus the weight of standees at 65 kg each and 4 standee/m ² . Therefore, it is necessary to consider the emergency condition of AW2. However, AW3/AW4 is described as more severe weight condition. Please confirm whether emergency operation with AW3/AW4 to be considered or not.	Corrigendum – 3 is being issued separately.

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			including the conditions specified in clauses 3.24.7. ii. A 3-car fully loaded train shall be capable of clearing the section, with 50% traction motors cut out. The temperature rise of the traction motor and equipment shall be within rating of traction motor and other equipment in the above condition.		
292	Volume IV, ERTS, Part 1: ERTS-RS	3.26.2.1.4 (87 of 492)	<p>Loading conditions:</p> <p>i. For Combined test bed: AW4 loading condition</p> <p>ii. For Field Trial: 970 passengers (DMA=315, TC=340, DMB=315) for 3-Car train set, 65kg weight per passenger.</p>	For field trial, 970 passengers are related to AW4 loading only (as per cl. 3.23.3). Hence it should be AW4 loading condition for both combined test bed and field trial.	<p>AW4 loading condition for both combined test bed as well as field trial shall be same.</p> <p>The Tender Conditions shall prevail.</p>
293	Volume IV, ERTS, Part 1: ERTS-RS	4.3.2, 1st sentence (100 of 492)	Car max. height (rail top to roof top) with Air-conditioning unit: 3800mm to 3980mm within the limits of the kinematic envelopes given in Volume V.	We request Employer to the provide the SoD and KE details for all the conditions as this information is critical in defining the dimensions of Rolling Stock	Corrigendum – 3 is being issued separately.

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				such as the max. height and car envelope.	
294	Volume IV, ERTS, Part 1: ERTS-RS	4.3.3, 1st sentence (100 of 492)	Car max. height (rail top to roof top) with Air-conditioning unit: 3800mm to 3980mm within the limits of the kinematic envelopes given in Volume V.	<p>Generally, the max. height and the envelope of the cars will be defined by KE.</p> <p>Request to share the SOD and the Kinematic envelope details for all the conditions, which is very critical.</p> <p>We suggest to delete this clause to avoid any confusion.</p>	Corrigendum – 3 is being issued separately.
295	Volume IV, ERTS, Part 1: ERTS-RS	4.3.4 (100 of 492)	Car floor height shall be >5mm and <50mm above the platform height compatible with the access conditions for disabled people.	<p>The height difference will not be the same for a platform with ballasted track and a platform with ballast less track. We understand that all the platforms (elevated and underground) will be with balastless tracks, please confirm.</p> <p>Based on the bidder's</p>	<p>All the platforms will be with balastless tracks.</p> <p>The Tender Conditions shall prevail.</p>

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				<p>experience mentioning floor height from top of the rail is a standard practice which has already been defined in the specifications in table 4.1.</p> <p>We request to delete this clause.</p>	
296	Volume IV, ERTS, Part 1: ERTS-RS	4.8.1 (102 of 492)	<p>The mechanical strength of car body structure shall comply with the requirements of EN12663 Category PIII except for the compressive load which shall be 1000kN applied at the end of car body at the centerline of the coupler, and shall be compatible in respect of crashworthiness. The tensile force shall also be increased in the same ratio, i.e., 750 kN as the compressive force in EN12663 category PIII.</p>	<p>Based on the project experience for Metro application with dedicated tracks, compliance to EN 12663 PIII category would lead to optimum design in meeting all requirements including crash as defined in the standard and will avoid over designing of the rolling stock.</p> <p>Bidder requests to rephrase the Clause as follows: The mechanical strength of the car body structure shall comply with the requirements of EN 12663 Category PIII.</p>	The Tender Conditions shall prevail.

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297	Volume IV, ERTS, Part 1: ERTS-RS	4.8.5 (103 of 492)	For a welded construction, the camber on coach body under fully loaded condition with 10 person per square meter shall be such that the structure shall not sag below the horizontal plane throughout the vehicle's 35 years life. However, for shells fabricated with modular elements, the coach shall be built with a suitable camber under tare condition. It shall be ensured that the downward deflection of the coach in AW5 condition (with 10 person per meter square) shall be within the permitted deflection throughout the service life of thirty-five years to ensure proper operation of doors under all loading conditions. Detailed calculations shall be submitted by the contractor for the expected deflection so as to confirm that the deflection is within	EN standards or ERTS doesn't have reference for permissible camber. Positive camber will be maintained as per requirement of design MPMRCL may indicate desired camber value.	The Tender Conditions shall prevail.

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			permissible limits under all conditions throughout the life of the coach. Tests for stresses etc. as well as other tests as per relevant standard for the method of construction deployed shall be carried out under specified loads.		
298	Volume IV, ERTS, Part 1: ERTS-RS	4.8.7 (103 of 492)	The car body, and any equipment mounted on, beneath or within it shall be designed to withstand the fatigue loads that the car body structure will encounter over a period of 35 years in service, in accordance with the criteria described herein. The fatigue life assessment of body structure shall be carried out using recognized techniques and shall be submitted by the Contractor for review by the Engineer.	EN or ERTS doesn't have a definition of a fatigue cycle or load/unload cycle. MPMRCL may define a fatigue cycle.	The Tender Conditions shall prevail.
299	Volume IV, ERTS, Part 1:	4.11.4	A suitable proven energy absorption feature with	As per guideline of EN 15227, weight during collision to be	The Tender Conditions shall prevail.

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	ERTS-RS	(105 of 492)	associated collapse features shall be incorporated into the coupler draft gear. The coupler shall sustain no permanent damage when a fully loaded 3-car train and 6-car train collides with an impact speed up to 10 kmph with another stationary fully loaded correspondingly three-car train and six-car train with braked (maximum parking Brake) and un-braked conditions. In order to have an understanding of broad collision parameters at car body and coupler such as energy, force, acceleration, stroke etc. at 10 kmph., a simplified 1-d calculation considering appropriate stiffness and inertia of car body structure and coupler representing the train can be submitted for the Engineer's review.	<p>taken as tare loading + 0.5*seated passenger weight</p> <p>Can we consider same for 10 kmph 1D simulation compliance?</p> <p>We would propose</p> <p>Scenario 1 (Design scenario): Train-1: 3 car coupling @10kmph Train-2 3 car barked/unbraked</p> <p>Scenario 2: Train-1: 6 car coupling @max. sped to be proposed Train-2 6 car barked/unbraked</p> <p>As 3 car may frequently needs to be converted to 6 car (3x3) hence 10 kmph with full loaded is reasonable whereas for 6 car coupling with another 6 car will happen only in emergency cases</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>hence 10 kmph coupling speed can be relaxed as it will not be regular coupling case.</p> <p>Also, as per clause 4.8.1, compression strength is limited to 1000 kN, this will impose additional constrain to include high reversible energy absorbers (say gas hydraulic damper) in coupler which will not be much useful during crash as it acts as rigid at higher speeds.</p>	
300	Volume IV, ERTS, Part 1: ERTS-RS	4.11.4 (105 of 492)	A suitable proven energy absorption feature with associated collapse features shall be incorporated into the coupler draft gear. The coupler shall sustain no permanent damage when a fully loaded 3-car train and 6-car train collides with an impact speed up to 10 kmph with another stationary fully loaded	Couplers will not participate and does not absorb energy during collision above 10 kmph. Please clarify, whether an energy absorbing element required in coupler	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>correspondingly three-car train and six-car train with braked (maximum parking Brake) and un-braked conditions. In order to have an understanding of broad collision parameters at car body and coupler such as energy, force, acceleration, stroke etc. at 10 kmph., a simplified 1-d calculation considering appropriate stiffness and inertia of car body structure and coupler representing the train can be submitted for the Engineer's review.</p>	<p>for speeds above 10 kmph?</p>	
301	Volume IV, ERTS, Part 1: ERTS-RS	4.11.4 (105 of 492)	<p>A suitable proven energy absorption feature with associated collapse features shall be incorporated into the coupler draft gear. The coupler shall sustain no permanent damage when a fully loaded 3-car train and 6-car train collides with</p>	<p>As per guideline of EN 15227, weight during collision to be taken as tare loading + 0.5*seated passenger weight Can we consider same for 10 kmph 1D simulation compliance?</p>	<p>The Tender Conditions shall prevail.</p>

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			<p>an impact speed up to 10 kmph with another stationary fully loaded correspondingly three-car train and six-car train with braked (maximum parking Brake) and un-braked conditions.</p> <p>In order to have an understanding of broad collision parameters at car body and coupler such as energy, force, acceleration, stroke etc. at 10 kmph., a simplified 1-d calculation considering appropriate stiffness and inertia of car body structure and coupler representing the train can be submitted for the Engineer's review.</p>	<p>We would propose Scenario 1 (Design scenario): Train-1: 3 car coupling @10kmph Train-2 3 car barked/unbraked</p> <p>Scenario 2: Train-1: 6 car coupling @max. sped to be proposed Train-2 6 car barked/unbraked</p> <p>As 3 car may frequently needs to be converted to 6 car (3x3) hence 10 kmph with full loaded is reasonable whereas for 6 car coupling with another 6 car will happen only in emergency cases hence 10 kmph coupling speed can be relaxed as it will not be regular coupling case.</p> <p>Also, as per clause 4.8.1, compression strength is limited</p>	

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				to 1000 kN, this will impose additional constrain to include high reversible energy absorbers (say gas hydraulic damper) in coupler which will not be much useful during crash as it acts as rigid at higher speeds.	
302	Volume IV, ERTS, Part 1: ERTS-RS	4.11.5 (105 of 492)	At high energy levels it shall ensure that collision energy is absorbed by progressive deformation of the Coupler structure, Anti Climber at driving car end as well as in between the cars and the vehicle end structure, thereby protecting the passengers and passenger area in the car. There shall be least deformation between the body bolsters.	Couplers will not participate and does not absorb energy during collision, above 10 kmph. Please clarify, whether an energy absorbing element required in coupler for speeds above 10 kmph?	The Tender Conditions shall prevail.
303	Volume IV, ERTS, Part 1: ERTS-RS	4.11.6 (105 of 492)	Of particular concern is the driving car front structure, which is required to protect the train operator, and vital control and	Since proposed cars for Bhopal and Indore are 3rd rail power collection, front emergency exit door, which ramps to track is not	The Tender Conditions shall prevail.

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			communications equipment in the event of a collision. The front part of the driving cars is to be used as an emergency escape route from driving car to track. The contractor shall design the driving vehicle and its cab structure in such a manner as to fulfil the requirements of EN 15227.	advisable. The presence of 3rd rail adjacent to tracks with 750VDC may prove fatal for de-boarded passenger. The FEED (Front emergency exit door) in not usable in the collided cars (front DM cars of train sets) as FEED is not openable due to presence to another train exactly in opposite direction. MPMRCL is requested to review the clause and amend the clause suitably.	
304	Volume IV, ERTS, Part 1: ERTS-RS	4.11.7, (v) (106 of 492)	The maximum speed at which the cab structural collapse features deform completely, without damage to the main car body structure.	EN 15227 calls to consider AW0+50% seated passenger mass for all collision related calculations. The clause may be amended suitably.	The Tender Conditions shall prevail.
305	Volume IV, ERTS, Part 1:	4.14.3.8 (108 of 492)	The couplers shall incorporate longitudinal resilience sufficient to	The longitudinal stiffness characteristic of all couplers of	Corrigendum – 3 is being issued separately.

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	ERTS-RS		absorb shock loads during the transmission of traction and braking forces. The longitudinal stiffness characteristic of all couplers shall be identical.	similar type shall be identical. As there will be different type (Front automatic coupler and semi-permanent type) using different energy absorbers hence longitudinal stiffness will be different.	
306	Volume IV, ERTS, Part 1: ERTS-RS	4.14.3.8 (108 of 492)	The couplers shall incorporate longitudinal resilience sufficient to absorb shock loads during the transmission of traction and braking forces. The longitudinal stiffness characteristic of all couplers shall be identical.	The longitudinal stiffness characteristic of all couplers of similar type shall be identical. As there will be different type (Front automatic coupler and semi-permanent type) using different energy absorbers hence longitudinal stiffness will be different.	Corrigendum – 3 is being issued separately.
307	Volume IV, ERTS, Part 1: ERTS-RS	4.14.3.8 (108 of 492)	The couplers shall incorporate longitudinal resilience sufficient to absorb shock loads during the transmission of traction and braking forces. The	The longitudinal stiffness characteristic of all couplers of similar type shall be identical. As there will be different type	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			longitudinal stiffness characteristic of all couplers shall be identical.	(Front automatic coupler and semi-permanent type) using different energy absorbers hence longitudinal stiffness will be different.	
308	Volume IV, ERTS, Part 1: ERTS-RS	4.14.3.8 (108 of 492)	The couplers shall incorporate longitudinal resilience sufficient to absorb shock loads during the transmission of traction and braking forces. The longitudinal stiffness characteristic of all couplers shall be identical.	<p>The longitudinal stiffness characteristic of all couplers of similar type shall be identical.</p> <p>As there will be different type (Front automatic coupler and semi-permanent type) using different energy absorbers hence longitudinal stiffness will be different.</p> <p>We propose following rewording: 4.14.3.8 The couplers shall incorporate longitudinal resilience sufficient to absorb shock loads during the transmission of traction and braking forces. The</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				longitudinal stiffness characteristic of similar all couplers shall be identical.	
309	Volume IV, ERTS, Part 1: ERTS-RS	4.14.4.3 (109 of 492)	The semi-permanent coupler and draft-gear shall, in conjunction with the inter-car gangway, be capable of gathering, engaging and coupling units on all track conditions detailed in the chapter 3. Under these track conditions, coupling shall be achieved with the most adverse mismatch of car height, caused by wheel wear, passenger loading, air spring deflection, and service tolerances.	Semi-Permanent coupler should be coupled in workshop/depot. It cannot be coupler along with gangway in worst track condition.	This Sub-Clause is being deleted. Corrigendum – 3 is being issued separately.
310	Volume IV, ERTS, Part 1: ERTS-RS	4.14.4.3 (109 of 492)	The semi-permanent coupler and draft-gear shall, in conjunction with the inter-car gangway, be capable of gathering, engaging and coupling units on all track conditions detailed in the chapter 3. Under these track conditions,	Semi-Permanent coupler should be coupled in workshop/depot. It cannot be coupler along with gangway in worst track condition.	This Sub-Clause is being deleted. Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			coupling shall be achieved with the most adverse mismatch of car height, caused by wheel wear, passenger loading, air spring deflection, and service tolerances.		
311	Volume IV, ERTS, Part 1: ERTS-RS	4.14.6 (109 of 492)	All the coupler (Auto coupler & Semi permanent coupler) shall have the shear-off functionality. Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years.	Wearing part will have life of approx. 6 to 8 years which needs to be replaced at intermediate overhaul.	Corrigendum – 3 is being issued separately.
312	Volume IV, ERTS, Part 1: ERTS-RS	4.14.4.3 (109 of 492)	The semi-permanent coupler and draft-gear shall, in conjunction with the inter-car gangway, be capable of gathering, engaging and coupling units on all track conditions detailed in the chapter 3. Under these track conditions, coupling shall be	Semi-Permanent coupler should be coupled in workshop/depot. It cannot be coupler along with gangway in worst track condition.	This Sub-Clause is being deleted. Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			achieved with the most adverse mismatch of car height, caused by wheel wear, passenger loading, air spring deflection, and service tolerances.		
313	Volume IV, ERTS, Part 1: ERTS-RS	4.14.6 (109 of 492)	All the coupler (Auto coupler & Semi permanent coupler) shall have the shear-off functionality. Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years.	Wearing parts cannot have service life of 15years.Wearing parts / plates of the gangway and couplers shall give a service life of minimum eight years.	Corrigendum – 3 is being issued separately.
314	Volume IV, ERTS, Part 1: ERTS-RS	4.14.6 (109 of 492)	All the coupler (Auto coupler & Semi permanent coupler) shall have the shear-off functionality. Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years.	Wearing part will have life of approx. 6 to 8 years which needs to be replaced at intermediate overhaul.	Corrigendum – 3 is being issued separately.
315	Volume IV,	4.14.6	All the coupler (Auto coupler &	Bidder request to have the	Corrigendum – 3 is being issued

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	ERTS, Part 1: ERTS-RS	(109 of 492)	Semi permanent coupler) shall have the shear-off functionality. Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years.	<p>shear-off only for Auto-coupler & semi-permanent coupler without shear-off functionality while meeting EN15227.</p> <p>Bidder requests to change the Clause as follows:</p> <p>All the coupler (Auto coupler & Semi permanent coupler) shall have the shear-off functionality. Supplier can propose a different design with not all coupler having shear off functionality but meeting performance as per EN 15227. Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years.</p>	separately.
316	Volume IV, ERTS, Part 1: ERTS-RS	4.16.3, (x), 1st sentence	LED Back lit MPMRCL Metro Logo shall be provided / placed over the wind	Bidder requests to allow flexibility in terms of placement of the logo on the front. Placing	Corrigendum – 3 is being issued separately.

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		(110 of 492)	screen just below the flasher light assembly.	<p>the logo on the detrainment door front would be an aesthetically better solution.</p> <p>Bidder requests to change the Clause as follows: LED Back lit MPMRCL Metro Logo shall be provided/ placed over the wind screen just below the flasher light assembly. provided at an appropriate place at the front of the train. Location of the same shall be approved by the Engineer.</p>	
317	Volume IV, ERTS, Part 1: ERTS-RS	4.17.2, (ii), 1st sentence (112 of 492)	A 120° horizontal visibility in sitting position shall be allowed by the windscreen and the windows.	Please kindly clarify, The Bidding is required for escape door design , it will cause that not meet with 120°horizontal visibility in sitting position, it is recommended to meet the UIC 651 standard.	Corrigendum – 3 is being issued separately.
318	Volume IV,	4.18.1, (xii),	All internal panel surfaces shall	Please add below option of FRP	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	1st and 2nd paragraphs (114 of 492)	<p>be smooth finished with modern low flammability, low smoke emission, anti-graffiti and low toxicity materials. All internal panels shall be resistant to graffiti, scuffing, vandalism, and cleaning agents. Rounded corners or covings shall be provided wherever mutually perpendicular flat plane surfaces abut. Metal kicking strips of at least 150mm depth with contoured coving are required on all exposed vertical surfaces above floor level.</p> <p>All internal panels shall be ceramic coated Aluminium panels preferably with Aluminium extrusion having suitable thickness, adequately stiffened can be considered. Ceramic coating shall be applied on both sides of Aluminium panels with thickness of 50 µm on front side</p>	<p>interior panels in clause 4.18.1(xii) "All saloon interior panels shall conform to ASTM D2563- level 1and NFF01-281 standards.</p> <p>The colour shall not fade or discolour with time, or change due to rubbing.</p> <p>Fibre-glass reinforced plastics (FRP) may be used for non-structural parts, and applications as accepted by the Engineer. They shall be manufactured to an approved process and satisfy the flammability, toxicity and smoke generation limitations of EN 45545 Part 1 to 7 (Hazard level HL3) latest editions (or the better equivalent internationally accepted standard. See also Clause 2.5.8). "</p>	prevail.

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			and 20 µm on back side. The flatness of Aluminium side panels shall be controlled within 0.5 mm per 1m length. The panels shall have rubber packing on backside of the panel to prevent any bi-metallic corrosion. The colour shall not fade / discolor with time or due to rubbing. Contractor shall submit detail plan for approval. Details shall be discussed during design.		
319	Volume IV, ERTS, Part 1: ERTS-RS	4.18.6, (v), 1st two sentences (120 of 492)	Grab poles and rails in the DM Car and T car shall be provided to cover maximum number standing passengers. As a minimum 3 rows of longitudinal bars shall be provided throughout the saloon.	Since the cars are of 2.9m width, Bidder requests to change the clause as follows: "min 2 rows of longitudinal hand rails, making sure the maximum number of standing passengers have support"	The Tender Conditions shall prevail.
320	Volume IV,	4.19	EN 16286 (latest version) or	EN 16286 (latest version) or	Corrigendum – 3 is being issued

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	ERTS, Part 1: ERTS-RS	(123 of 492)	equivalent shall be used for design of the gangways. Double piece, double skin with interior panel gangway suitably protected from heat and dust (subject to Engineer's approval) with suitable clamping and jointing arrangement on both ends with saloon end walls shall be provided within the unit. The attenuation of outside noise through the gangway shall not be less than 33 dB. In case of separation of cars, the gangways shall have securing arrangement and shall not get damaged or de-shaped. Suitable from of guiding pin / plate etc. shall be provided so that the coupling / uncoupling of gangways can be carried out by one person.	equivalent shall be used for design of the gangways. Single piece/Double piece, double skin with interior panel gangway suitably protected from heat and dust (subject to Engineer's approval) with suitable clamping and jointing arrangement on both ends with saloon end walls shall be provided within the unit. The attenuation of outside noise through the gangway shall not be less than 33 dB. In case of separation of cars, the gangways shall have securing arrangement and shall not get damaged or de-shaped. Suitable from of guiding pin / plate etc. shall be provided so that the coupling / uncoupling of gangways can be carried out by one person.	separately.
321	Volume IV, ERTS, Part 1:	4.19,	Double piece, double skin with interior panel gangway suitably	Bidder proposes to change the Clause as follows:	Corrigendum – 3 is being issued separately.

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	ERTS-RS	2nd sentence (123 of 492)	protected from heat and dust (subject to Engineer's approval) with suitable clamping and jointing arrangement on both ends with saloon end walls shall be provided within the unit.	"Single/double piece, single/double skin with interior panel"	
322	Volume IV, ERTS, Part 1: ERTS-RS	4.19.3, (v) (124 of 492)	The rubber / elastomer elements of the gangway shall give a service life of minimum ten years. However, bellows shall give the service life of minimum fifteen years.	Request to change as "The rubber / elastomer elements of the gangway shall give a service life of minimum eight years"	Corrigendum – 3 is being issued separately.
323	Volume IV, ERTS, Part 1: ERTS-RS	4.19.2, (ix) (124 of 492)	The elements of the gangway shall give a service life of minimum fifteen years except those susceptible to wear and deterioration, such as gangway flexible elements, which may give a service life of 10 years.	Wearing parts cannot have service life of 10years. Request to change as "The elements of the gangway shall give a service life of minimum fifteen years except those susceptible to wear and deterioration, such as gangway flexible elements, which may give a service life of 8 years."	Corrigendum – 3 is being issued separately.

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324	Volume IV, ERTS, Part 1: ERTS-RS	4.14.6 (125 of 492)	Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years.	Wearing part will have life of approx. 6 to 8 years which needs to be replaced at intermediate overhaul.	Corrigendum – 3 is being issued separately.
325	Volume IV, ERTS, Part 1: ERTS-RS	4.19.5 (125 of 492)	Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years.	Wearing parts cannot have service life of 15years. Request to change as “Wearing parts / plates of the gangway and couplers shall give a service life of minimum eight years “.	Corrigendum – 3 is being issued separately.
326	Volume IV, ERTS, Part 1: ERTS-RS	4.19.5 (125 of 492)	Wearing parts / plates of the gangway and couplers shall give a service life of minimum fifteen years	Wearing part will have life of approx. 6 to 8 years which needs to be replaced at intermediate overhaul.	Corrigendum – 3 is being issued separately.
327	Volume IV, ERTS, Part 1: ERTS-RS	4.20.2, (i) (125 of 492)	HVAC Equipment and Duct Package HVAC units shall be mounted at each end of the car roof, housed in suitable watertight wells in the car roof structure. The wells shall be provided with adequate, double sealed	Appropriate HVAC mounting arrangements and suitable roof structure according to the bidders proven design principles shall be accepted.	The Tender Conditions shall prevail.

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			connections to the main conditioned air ducting, electrical supply and condensate drains. Conditioned air shall be fed into thermally insulated ducting. The duct shall be split diagonally from end to end to distribute air evenly throughout the length of the car. In the event of the failure of one HVAC unit, conditioned air shall be made available throughout the length of car including cab in DM car. The design of duct shall comply with the requirements laid down in ERTS Chapter 11.		
328	Volume IV, ERTS, Part 1: ERTS-RS	5.1.3 (129 of 492)	The bogies shall be of the two axle bolster less type incorporating a proven primary suspension system such as metal bonded rubber springs or proven helical coil steel springs. Calculation supporting the selection of axles and bearings shall be submitted for review and	All subsystems, equipment and major components etc. shall be considered of proven design if the bidder has design capability/support based on proven design principles for similar rolling stock which are in operation in any mass rapid transit systems.	The Tender Conditions shall prevail.

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			approval by the Engineer. Bogie-body connection shall preferably be through resilient transmission bar arrangement.	Proposal of a proven bogie (with or without bolster) should be accepted which matches the performance requirements. Supporting calculation will be provided for approval.	
329	Volume IV, ERTS, Part 1: ERTS-RS	5.2.4 (131 of 492)	The bogie suspension, in conjunction with the car body, shall be designed to enable cars to operate satisfactorily on track with the maximum specified track twist. The maximum offloading of any wheel Q/Q' shall not exceed 50% in inflated and 60% in deflated conditions of nominal wheel load.	Please kindly clarify, If the maximum offloading of any wheel Q/Q' shall not exceed 60% in inflated and 60% in deflated conditions of nominal wheel load. Is it OK?	The Tender Conditions shall prevail.
330	Volume IV, ERTS, Part 1: ERTS-RS	5.2.4, 2nd sentence (131 of 492)	The maximum offloading of any wheel Q/Q' shall not exceed 50% in inflated and 60% in deflated conditions of nominal wheel load.	As per RFP Q/Q' shall not exceed 50% in inflated, however in our past tenders it is 60% for both inflated and deflated. Please confirm.	The Tender Conditions shall prevail.
331	Volume IV,	5.2.4,	The maximum offloading of any	Based on bidder's experience	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	last sentence (131 of 492)	wheel Q/Q' shall not exceed 50% in inflated and 60% in deflated conditions of nominal wheel load.	<p>Q/Q' of 60% will meet the performance required during the operations both in inflated and deflated conditions.</p> <p>Bidder proposes to amend the clause as following:</p> <p>The maximum offloading of any wheel Q/Q' shall not exceed 50 60% in inflated and 60% in deflated conditions of nominal wheel load.</p>	prevail.
332	Volume IV, ERTS, Part 1: ERTS-RS	5.2.11 (132 of 492)	The Contractor shall conduct the vehicle dynamics simulation studies on new and worn wheel and rail profiles. For worn wheel and rail profiles, Contractor shall consider the data of similar Metro network operational for more than 5 years.	<p>Bidder request to worn rail profile data.</p> <p>As each network is different, data from similar network will not be suitable for Bhopal Indore metro.</p>	<p>Contractor may consider the worn rail profile data of any similar metro network for the same.</p> <p>The Tender Conditions shall prevail.</p>
333	Volume IV,	5.4.1,	The service life of rubber bonded	Please kindly clarify if the	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	4th sentence (133 of 492)	metal components / helical springs shall be not less than 10 years, and shall be warranted for the same.	service life of rubber bonded metal components / helical springs shall be not less than 8 years. Is it OK?	prevail.
334	Volume IV, ERTS, Part 1: ERTS-RS	5.4.1, 4th sentence (133 of 492)	The service life of rubber bonded metal components / helical springs shall be not less than 10 years, and shall be warranted for the same.	Maintaining the service life requirement of rubber bonded metal components on par with helical springs is not practical. In view of the above, it is requested to update the ERTS clause to suitably defining the service life of rubber bonded metal components as 6 years and service life of helical coil springs as not less than 8 years.	The Tender Conditions shall prevail.
335	Volume IV, ERTS, Part 1: ERTS-RS	5.4.1, 4th paragraph (133 of 492)	The service life of rubber bonded metal components / helical springs shall be not less than 10 years,	Request to provide the load spectra for further calculation.	Applicable bogie standard shall be referred. The Tender Conditions shall prevail.
336	Volume IV,	5.4.3	The primary suspension shall be	Please kindly clarify, if the	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	(133 of 492)	designed to ensure that the creep amount in 10 years later shall not exceed 5mm under worst condition.	primary suspension shall be designed to ensure that the creep amount in 10 years later shall not exceed 10mm under worst condition, is it OK?	prevail.
337	Volume IV, ERTS, Part 1: ERTS-RS	5.4.3 (133 of 492)	The primary suspension shall be designed to ensure that the creep amount in 10 years later shall not exceed 5mm under worst condition.	Creep is an inherent characteristic of rubber suspension and the requirement of creep not exceeding 5mm in 10 years or later is not practical. Hence, the clause may please be modified as below: The primary suspension shall be designed to ensure that creep adjustment shall be made, as necessary, throughout the life of the primary suspension components.	The Tender Conditions shall prevail.
338	Volume IV, ERTS, Part 1: ERTS-RS	5.4.5, 4th paragraph (134 of 492)	The minimum clearance of car body mounted equipment from rail level for a fully loaded (AW4)	The “Deflected Air spring” may please be elaborated.	Corrigendum – 3 is being issued separately.

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			car under worst conditions* (*worst condition means wheels with maximum tread wear and primary springs with maximum deflection and with deflected Air Spring) shall not be less than 102 mm in static condition.		
339	Volume IV, ERTS, Part 1: ERTS-RS	5.4.15 (136 of 492)	The design life of secondary suspension air bags (all inclusive) shall not be less than 12 years. The air bags and its components shall not crack / shear / balloon / burst or deteriorate in its performance during its design life.	Proposing Design life of air bellow as 10 years which can be extended to 12 years when a monitoring program is applied.	Corrigendum – 3 is being issued separately.
340	Volume IV, ERTS, Part 1: ERTS-RS	5.4.15 (136 of 492)	The design life of secondary suspension air bags (all inclusive) shall not be less than 12 years. The air bags and its components shall not crack / shear / balloon / burst or deteriorate in its performance during its design life.	Based on bidder's experience, design life of 12 years would be difficult to achieve, however bidder can deploy a monitoring program to check whether the life can be extended to 12 years. Bidder proposes to change the	Corrigendum – 3 is being issued separately.

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				<p>Clause as follows:</p> <p>The design life of secondary suspension air bags (all inclusive) shall not be less than 42–10 years. The air bags and its components shall not crack / shear / balloon / burst or deteriorate in its performance during its design life.</p>	
341	Volume IV, ERTS, Part 1: ERTS-RS	5.6.3 (137 of 492)	5.6.3 The number of seated passengers shall be taken as one per seat, and standing passengers as 10/m ² for all the above-mentioned strength analysis except for fatigue test. The fatigue load shall be decided based on actual loading which shall correspond to AW3 loading conditions. The loading cycles shall be as specified in respective UIC. There shall not be any crack at the end of any stage of loading	<p>Bidder request to modify clause as follows:</p> <p>The number of seated passengers shall be taken as one per seat, and standing passengers as 10/m² for all the above-mentioned strength analysis except for fatigue test. The fatigue load shall be decided based on actual loading which shall correspond to AW3 loading conditions. The loading cycles shall be as specified in</p>	Corrigendum – 3 is being issued separately.

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			cycles. The passenger weight for this calculation shall be taken as 65kg/person.	respective UIC. There shall not be any crack at the end of first 2 cycle stage of loading cycles.	
342	Volume IV, ERTS, Part 1: ERTS-RS	5.7.1, 1st paragraph (137 of 492)	The train equipment shall conform to IEC 61371 / IEC 61373 in respect of shocks and vibrations including the endurance limits. These shall be incorporated in the type test of the equipment.	Bogie shall follow EN 13749 standard, for Mechanical component only, as IEC 61373 is related to electrical & electronic equipment.	This requirement is for attached electrical/electronic equipment on bogies such as motors. The Tender Conditions shall prevail.
343	Volume IV, ERTS, Part 1: ERTS-RS	5.7.1, 1st paragraph (137 of 492)	The train equipment shall conform to IEC 61371 / IEC 61373 in respect of shocks and vibrations including the endurance limits. These shall be incorporated in the type test of the equipment.	A shock-and vibration test will not be performed on traction motor or gearbox. Arguments for not doing the test: • Our motor and gearbox design concept is proven in use since many years in various train applications, without any structural integrity issues. • The motor and gearbox mechanical structure will be	The Tender Conditions shall prevail.

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				<p>designed to meet the specified operational vibration environment, and the structural integrity of the main castings will be validated using FEA calculations.</p> <ul style="list-style-type: none"> The shock and vibration test must be performed according to the norm IEC61373, which specifies higher amplitude than the operational. This means that nonlinear materials (windings and insulation system) might be overloaded incorrectly (in a way that does not represent real service stress). 	
344	Volume IV, ERTS, Part 1: ERTS-RS	5.10.2, 6th sentence (138 of 492)	No sensor shall be installed in the gear case	<p>Speed sensor will be placed on the gearbox with the following arguments:</p> <ul style="list-style-type: none"> To get a more precise and robust wheel axle speed signal measurement To have the tooth wheel for the 	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>speed sensor in the traction motor will reduce the active length of the motor, i.e., reduce motor performance.</p> <ul style="list-style-type: none"> • When having the speed sensor located on the gearbox it is more protected from flying objects, for example stones. • It is easier to replace the speed sensor when mounted on the gearbox 	
345	Volume IV, ERTS, Part 1: ERTS-RS	5.10.2, 6th sentence (138 of 492)	No sensor shall be installed in the gear case.	<p>We prefer to have the speed sensor placed on the gearbox with the following points:</p> <ul style="list-style-type: none"> • To get a more precise and robust wheel axle speed signal measurement • To have the tooth wheel for the speed sensor in the traction motor will reduce the active length of the motor, i.e., reduce motor performance. • When having the speed sensor 	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>located on the gearbox it is more protected from flying objects, for example stones.</p> <ul style="list-style-type: none"> • It is easier to replace the speed sensor when mounted on the gearbox <p>Request to allow speed sensor on gearbox. Please also amend requirement in section 8.8.2: Speed sensors if used shall not generally be placed on the gear case.</p>	
346	Volume IV, ERTS, Part 1: ERTS-RS	5.11.15 (140 of 492)	The Contractor shall furnish the extreme maintenance limits for wheels according to UIC standard. The maintenance limits for wheels shall be within limits recommended in UIC 510-2 OR and SOD adopted by MPMRCL. Regarding wheel life, objective is that the cars shall achieve approximate of 300000	<p>Achieving 300000 kilometers before re-profiling of the wheels is a challenging requirement and not practical.</p> <p>In view of the above, it is requested to remove the requirement "Regarding wheel life, objective is that the cars shall achieve approximate of 300000 kilometres before re-</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			kilometres before re-profiling of the wheels is necessary, whilst operating on the routes as specified in both corridors of Bhopal and Indore Metro. The Contractor shall provide a reprofiling program in order to optimize the life span during the design stage and it shall be verified during the operation.	profiling of the wheels is necessary, whilst operating on the routes as specified in both corridors of Bhopal and Indore Metro.” And update the clause according.	
347	Volume IV, ERTS, Part 1: ERTS-RS	5.11.15, 3rd sentence (140 of 492)	Regarding wheel life, objective is that the cars shall achieve approximate of 300,000 kilometres before re-profiling of the wheels is necessary	Regarding wheel life, objective is that the cars shall achieve approximate of 200,000 kilometres before re-profiling of the wheels is necessary	Corrigendum – 3 is being issued separately.
348	Volume IV, ERTS, Part 1: ERTS-RS	5.11.17, 1st paragraph (140 of 492)	Axle bearings shall be of a proven type. The bearing shall be such that no attention is required between bogie overhauls. The Contractor shall carry out bearing life calculations to demonstrate that the selected size of bearing is adequate for L10 bearing life of	Please accept load spectra for the L10 calculation. Curve spectra and load spectra suitable for MPMRCL, proposed to apply. The curve and load spectra	Tender condition shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			3,000,000 km under AW4 car loading (including dynamic force effects) in accordance with the method given in ISO 281/1.	<p>required as it gives more realistic result of L10. In reality train run some percentage of time with peak load (AW3), some percentage of time with Normal (AW2) load and some percentage with AW4. This gives load distribution with time. Axial loads results from train running in curves.</p> <p>Using the curve spectra into the calculation provides realistic assumption of lateral loads.</p> <p>This method is being applied by European railway operator too.</p>	
349	Volume IV, ERTS, Part 1: ERTS-RS	5.11.17, 1st paragraph (140 of 492)	Axle bearings shall be of a proven type. The bearing shall be such that no attention is required between bogie overhauls. The Contractor shall carry out bearing life calculations to demonstrate that the selected size of bearing is adequate for L10 bearing life of	<p>Bidder requests to accept load spectra for the L10 calculation.</p> <p>For calculations, bidder proposes to apply Curve spectra and load spectra suitable for MPMRCL.</p> <p>The curve and load spectra</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>3,000,000 km under AW4 car loading (including dynamic force effects) in accordance with the method given in ISO 281/1.</p>	<p>provides more realistic result of L10. In reality train run some percentage of time with peak load (AW3), some percentage of time with Normal (AW2) load and some percentage with AW4. This gives load distribution with time.</p> <p>Axial loads results from train running in curves. Using the curve spectra into the calculation provides realistic assumption of lateral loads. This method is being applied by European railway operator too.</p> <p>Bidder requests to change the Clause as follows:</p> <p>Axle bearings shall be of a proven type. The bearing shall be such that no attention is</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				required between bogie overhauls. The Contractor shall carry out bearing life calculations to demonstrate that the selected size of bearing is adequate for L10 bearing life of 3,000,000 km under AW4 car loading considering the curve and the load spectra (including dynamic force effects) in accordance with the method given in ISO 281/1.	
350	Volume IV, ERTS, Part 1: ERTS-RS	5.11.25 (141 of 492)	Temperature monitoring of axle box bearing: Provision shall be made to monitor the temperature of each axle box bearing through TCMS. Indication shall be available in TCMS in case of temperature breaching the specified limits. Details shall be finalized during design stage.	Requirement of temperature monitoring of axle box bearing through TCMS seems to be redundant as way-side monitoring system is also sought as per ERTS clause 5.11.26. Also, the solution for temperature monitoring of axle box bearing through TCMS is not proven and may induce complexity to rolling stock and	This Sub-Clause is being deleted. Corrigendum – 3 is being issued separately.

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				TCMS. In view of the above, the requirement may please be deleted.	
351	Volume IV, ERTS, Part 1: ERTS-RS	5.11.26, 1st sentence (141 of 492)	Contractor shall provide one system each in the Depot for the automated wayside wheel profile measurement and on-line temperature monitoring of axle box bearing along with calibration tools.	Bidder understand the clause as follows: Bidder proposes the RFID TAG to monitor the wayside temperature of axle box bearing. Confirm whether this approach is acceptable.	Corrigendum – 3 is being issued separately.
352	Volume IV, ERTS, Part 1: ERTS-RS	5.14.1 (142 of 492)	Oil type Wheel flange lubricators (oil type) of a proven design in EMU / metro application shall be provided only at both driving ends of each train. A suitable mechanism shall be provided to ensure that lubricators operate only in the leading position on the train actuate suitably during traversing of the curves automatically and shall be	Stick type wheel flange lubricator may also be allowed to be used in line with the present practice worldwide.	Provision of flange type lubricator may be allowed. Corrigendum – 3 is being issued separately, in sub-clause 5.14.4 in this regard.

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			effective for all wheels. The purpose of the WFL shall be to reduce wear of wheel and track / rail and reduce noise in the curves.		
353	Volume IV, ERTS, Part 1: ERTS-RS	5.14.4 (143 of 492)	Provision shall also be made in bogies to permit fitment of dry type flange lubricator on 50% axles in a train. The complete arrangement of dry type flange lubricator shall be provided by the Contractor on 50% axles in a train. Details shall be discussed during design and got approved from the Engineer.	Please kindly clarify it is required for wet type WFL or dry type WFL?	Corrigendum – 3 is being issued separately.
354	Volume IV, ERTS, Part 1: ERTS-RS	5.14.4 (143 of 492)	Provision shall also be made in bogies to permit fitment of dry type flange lubricator on 50% axles in a train. The complete arrangement of dry type flange lubricator shall be provided by the Contractor on 50% axles in a train.	Bidder understand the clause as follows: The contractor is responsible for provision of dry type WFL on 50% of train only. The complete arrangement of	Corrigendum – 3 is being issued separately.

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				<p>dry type WFL shall not be provided.</p> <p>Confirm this understanding.</p>	
355	Volume IV, ERTS, Part 1: ERTS-RS	5.15.7, 1st paragraph (144 of 492)	<p>The Contractor shall submit the detail of ultrasonic testing of powered and nonpowered axles. The detail shall include the testing procedure and pattern used as reference for this test, which shall be used by Employer's maintenance staff.</p>	<p>MPI or DP as NDT proposed during overhaul.</p> <p>The use of Ultrasonic testing from the axle ends, using far end and near end scanning techniques is not appropriate to ensuring axle integrity. This method would require a significant crack depth before a detectable defect could be found with reasonable certainty. The axle end equipment and bearing end cap require to be removed to undertake this testing. This creates the risk of refitting the equipment incorrectly (leading to Axle end earth equipment failure and Journal bearing failure).</p>	The Tender Conditions shall prevail.

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				<p>This risk is seen as greater than the actual risk the test is trying to mitigate.</p> <p>Magnetic Particle Inspection (MPI) should be undertaken at overhaul. This method can find much smaller cracks with a very high level of probability. Therefore, MPI at overhaul will control the risk of defects at axle.</p> <p>Dye Penetrant Test (DP) will enable to detect any line cracks externally initiated on the part.</p>	
356	Volume IV, ERTS, Part 1: ERTS-RS	5.15.7 (144 of 492)	The Contractor shall submit the detail of ultrasonic testing of powered and nonpowered axles. The detail shall include the testing procedure and pattern used as reference for this test, which shall be used by Employer's maintenance staff.	<p>MPI or DP as NDT proposed during overhaul.</p> <p>The use of Ultrasonic testing from the axle ends, using far end and near end scanning techniques is not appropriate to ensuring axle integrity. This</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>method would require a significant crack depth before a detectable defect could be found with reasonable certainty. The axle end equipment and bearing end cap require to be removed to undertake this testing. This creates the risk of refitting the equipment incorrectly (leading to Axle end earth equipment failure and Journal bearing failure). This risk is seen as greater than the actual risk the test is trying to mitigate.</p> <p>Magnetic Particle Inspection (MPI) should be undertaken at overhaul. This method can find much smaller cracks with a very high level of probability. Therefore, MPI at overhaul will control the risk of defects at axle.</p> <p>Dye Penetrant Test (DP) will</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>enable to detect any line cracks externally initiated on the part.</p> <p>Bidder requests to change the Clause as follows: The Contractor shall submit the detail of ultrasonic testing Magnetic Particle Inspection (MPI) and Dye Penetrant Test (DP) of powered and nonpowered axles. The detail shall include the testing procedure and pattern used as reference for this test, which shall be used by Employer's maintenance staff.</p>	
357	Volume IV, ERTS, Part 1: ERTS-RS	6.2.3, 1st sentence (147 of 492)	Air compressor shall be proven design in metro train operations for at least 5 years and shall be of Oil free reciprocating type.	<p>Bidder proposes to keep requirement flexible for Oil/Oil free type Compressor.</p> <p>Bidder proposes to change the Clause as follows: Air compressor shall be proven</p>	The Tender Conditions shall prevail.

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				design in metro train operations for at least 5 years and shall be of Oil/Oil free reciprocating type.	
358	Volume IV, ERTS, Part 1: ERTS-RS	6.2.5, 2nd sentence (147 of 492)	The average duty cycle of each compressor without electric braking shall not exceed 45% during operation at a declared rate of leakage, based upon the brake and auxiliary air requirements of 3-Car and 6-Car metro train.	Please kindly clarify we consider that Low duty cycle will cause compressor emulsify. So, we recommend the average duty cycle of each compressor without electric braking shall not below 30%. Is it Ok?	It shall not exceed 45%. The Tender Conditions shall prevail.
359	Volume IV, ERTS, Part 1: ERTS-RS	6.2.14 (148 of 492)	A pressure switch (pressure governor) shall be provided which shall be capable of withstanding a pressure not less than the 'open' pressure of the safety valve without damage or deterioration. The pressure switch shall control the cutting in and out of the compressor. The cutting in pressure and cut out pressure details for the compressor shall	The Health status of Compressor and air delivery system is continuously monitored & logged by TCMS. No time relay is required to achieve this function. The cutting in and out of the compressor can also be easily done by reading pressure via transducer and a pressure switch is not required for the	The Tender Conditions shall prevail.

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			<p>be defined during design process to achieve the required number of subsequent emergency brake applications. A time relay shall be provided to monitor the state of health of the compressor and air delivery system which shall also be logged in TCMS.</p>	<p>same.</p> <p>Bidder requests to change the Clause as follows:</p> <p>The pressure switch shall control the cutting in and out of the compressor. Alternate design not using pressure switch for cutting in and out can also be used. The cutting in pressure and cut out pressure details for the compressor shall be defined during design process to achieve the required number of subsequent emergency brake applications. A time relay/alternate method shall be provided to monitor the state of health of the compressor and air delivery system which shall also be logged in TCMS.</p>	
360	Volume IV,	6.2.17	The compressor shall not be	The Air generation and	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	(148 of 492)	made to start against back pressure. Soft start features as a built-in part of APS or direct on line shall be provided.	<p>treatment unit (AGTU) is already provided with the drain valve which shall depressurize the system once the compressor is stopped and hence there will not be any back pressure during the compressor start-up. A separate soft start feature is thus not required.</p> <p>Bidder requests to change the Clause as follows:</p> <p>"The compressor shall not be made to start against back pressure. If required, a soft start feature as a built-in part of APS or direct on line shall be provided."</p>	prevail.
361	Volume IV, ERTS, Part 1: ERTS-RS	6.2.20 (149 of 492)	The compressor shall be designed to achieve a minimum of 12000 hours of running time between overhauls. Routine	Overhaul is dependent on operating hours as well as the years of operations.	The Tender Conditions shall prevail.

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			maintenance shall not be required at a frequency more than once per year.	<p>Bidder requests to change the Clause as follows:</p> <p>The compressor shall be designed to achieve a minimum of 12000 hours of running time or 8 years between overhauls in line with clause 6.2.4 Routine maintenance shall not be required at a frequency more than once per year</p>	
362	Volume IV, ERTS, Part 1: ERTS-RS	6.3.5, 1st paragraph (149 of 492)	<p>The grade of filtration at rated pressure shall be minimally as follows:</p> <ul style="list-style-type: none"> • Particles removal down to :1 micron • Liquid water removal :> 95% • Dew point depression at 10 kg/cm²: Minimum 25°C 	<p>Please kindly clarify, regarding the requirements of the grade of filtration,</p> <p>We can meet the class 2-2-2 in ISO 8573-1 2001. Is it OK?</p>	Corrigendum – 3 is being issued separately.
363	Volume IV, ERTS, Part 1: ERTS-RS	6.4.6 (150 of 492)	Reservoirs shall also be provided with manual draining arrangement which shall normally	No facility for "automatically locked and secured" in drain cock. The wording can be	Corrigendum – 3 is being issued separately.

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			be automatically locked and secured.	changed as "Manual closing and secured".	
364	Volume IV, ERTS, Part 1: ERTS-RS	6.4.6 (150 of 492)	Reservoirs shall also be provided with manual draining arrangement which shall normally be automatically locked and secured.	Normally, the service proven cocks available are of self-locking type. In view of the above, it is requested to review the requirement and update the clause suitably.	Corrigendum – 3 is being issued separately.
365	Volume IV, ERTS, Part 1: ERTS-RS	6.4.6 (150 of 492)	Reservoirs shall also be provided with manual draining arrangement which shall normally be automatically locked and secured.	No facility for "automatically locked and secured" in drain cock. The wording can be changed as "Manual closing and secured".	Corrigendum – 3 is being issued separately.
366	Volume IV, ERTS, Part 1: ERTS-RS	6.6.2 (150 of 492)	All piping, fittings, fixtures shall be of stainless-steel conforming to the requirements of SUS 316 or equivalent with flare-less double compression fittings. Pipe fittings shall conform to the requirements	The pipe material shall be stainless steel confirming AISI304L The pipe fittings AISI304 shall conform to the requirements of DIN 2353 with single	The Tender Conditions shall prevail.

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			of DIN 2353.	compression fittings The clause may please include these as alternatives	
367	Volume IV, ERTS, Part 1: ERTS-RS	6.6.2 (150 of 492)	All piping, fittings, fixtures shall be of stainless-steel conforming to the requirements of SUS 316 or equivalent with flare-less double compression fittings. Pipe fittings shall conform to the requirements of DIN 2353.	The pipe material shall be stainless steel confirming AISI304L The pipe fittings AISI304 shall conform to the requirements of DIN 2353 with single compression fittings The clause may please include these as alternatives	The Tender Conditions shall prevail.
368	Volume IV, ERTS, Part 1: ERTS-RS	6.6.4 (151 of 492)	All branches from the main reservoir pipe or control system shall be fed via self-locking cocks (coloured according to the corresponding pipe colour) with or without vent and electrical switches as appropriate. Magnet valves, reducing valves, check	No facility for "automatically locked and secured" in drain cock. The wording can be changed as "Manual closing and secured".	"automatically locked and secured" is nowhere mentioned in the clause. The Tender Conditions shall prevail.

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			valves, silencer and drain plugs etc. shall be incorporated as required.		
369	Volume IV, ERTS, Part 1: ERTS-RS	6.6.4 (151 of 492)	All branches from the main reservoir pipe or control system shall be fed via self-locking cocks (coloured according to the corresponding pipe colour) with or without vent and electrical switches as appropriate. Magnet valves, reducing valves, check valves, silencer and drain plugs etc. shall be incorporated as required.	No facility for "automatically locked and secured" in drain cock. The wording can be changed as "Manual closing and secured".	"automatically locked and secured" is nowhere mentioned in the clause. The Tender Conditions shall prevail.
370	Volume IV, ERTS, Part 1: ERTS-RS	6.6.10 (151 of 492)	In the event of leakage from the Pneumatic circuit/system, it shall be possible to isolate the effected part of the circuit by train operator in GoA2 and remote isolation in GoA4 operation and reach up to destination station. Isolation arrangement shall be simple and shall not require more than	Manual and Remote Isolation of Brake at Bogie level can be done in case of leakage, not just the affected part of the circuit. Hence this clause may please be changed as "In the event of leakage from the Pneumatic circuit/system, it shall be possible to isolate the	The Tender Conditions shall prevail.

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			square key normally carried by Train Operator. Contractor shall submit detail plan during design for engineer's approval. The isolation arrangement shall preferably be in the saloon and shall be secured and monitored. The isolation arrangement shall be through remote isolation of magnet valves for isolation of service brake in affected bogie (s). This isolation shall not affect the emergency brake.	Manually by train operator in GoA2 and Remote Isolation of Brake at Bogie level in GoA4 operation and reach up to destination station. Isolation arrangement shall be simple and shall not require more than square key normally carried by Train Operator.	
371	Volume IV, ERTS, Part 1: ERTS-RS	6.6.10 (151 of 492)	In the event of leakage from the Pneumatic circuit/system, it shall be possible to isolate the effected part of the circuit by train operator in GoA2 and remote isolation in GoA4 operation and reach up to destination station. Isolation arrangement shall be simple and shall not require more than square key normally carried by	Manual and Remote Isolation of Brake at Bogie level can be done in case of leakage, not just the affected part of the circuit. Hence this clause may please be changed as "In the event of leakage from the Pneumatic circuit/system, it shall be possible to isolate the Manually by train operator in GoA2 and Remote Isolation of	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Train Operator. Contractor shall submit detail plan during design for engineer's approval. The isolation arrangement shall preferably be in the saloon and shall be secured and monitored. The isolation arrangement shall be through remote isolation of magnet valves for isolation of service brake in affected bogie (s). This isolation shall not affect the emergency brake.	Brake at Bogie level in GoA4 operation and reach up to destination station. Isolation arrangement shall be simple and shall not require more than square key normally carried by Train Operator.	
372	Volume IV, ERTS, Part 1: ERTS-RS	6.6.4, 1st sentence (151 of 492)	All branches from the main reservoir pipe or control system shall be fed via self locking cocks	Bidder requests to change the Clause as follows: All branches from the main reservoir pipe or control system shall be fed via self-locking Isolation cocks	The Tender Conditions shall prevail.
373	Volume IV, ERTS, Part 1: ERTS-RS	6.8.1, 1st two sentences	A levelling control system shall be provided to ensure longitudinal and transversal	Bidder requests to allow other than 4 point levelling system meeting the required	The Tender Conditions shall prevail.

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		(152 of 492)	<p>control of body height under all conditions of load. In each bogie, one four-point levelling suspension system shall be provided to adjust air pressure in the air springs. In the case of failure of one air spring, the other should quickly bleed out so that the car body is lowered to its stable position.</p>	<p>performances.</p> <p>Bidder requests to rephrase the Clause as follows: A levelling control system shall be provided to ensure transversal control of body height under all conditions of load. In each bogie, one levelling system shall be provided to adjust air pressure in the air springs. In the case of failure of one air spring, the other should quickly bleed out so that the carbody is lowered to its stable position. The air supply for the levelling system shall be taken from the main reservoir pipe and a separate reservoir shall be provided with each air suspension bellow. However, an alternate proven design meeting the functional requirements may be proposed by the Contractor</p>	

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				for approval of the Engineer. Load sensing valve shall be provided. Antiroll bars shall be provided with air suspension units.	
374	Volume IV, ERTS, Part 1: ERTS-RS	6.12.1, 2nd paragraph (153 of 492)	Brake valves shall be designed and validated for heavy duty cycles required for intensive brake blending. No change of valves or components except rubber items shall be required for at least 15 years beyond DLP. Contractor shall assess the cyclic load under worst service conditions appearing together and validate the same on a test bench.	There are some parts such as valve springs, Valve stems, filters and some of safety items like Safety valve, critical EP valves needs replacement apart from Rubber parts in some of the valves to have reliable service life. Request to please modify the requirement to allow "except critical valve assemblies"	The Tender Conditions shall prevail.
375	Volume IV, ERTS, Part 1: ERTS-RS	6.12.4, 1st paragraph (153 of 492)	The EP brake shall be so designed that its control function including Wheel Slide Protection (WSP) can be taken over by the other redundant control elements even in the case of failure of	BCU will be redundant but WSP will not be redundant but will have axle detection and correction. Since the failure rate is quite low, tis clause may please be changed as	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			individual electronic or electrical control elements. Bogie level control shall be provided for Brake electronics while WSP shall be controlled at axle level.	"The EP brake shall be so designed that its control function including Wheel Slide Protection (WSP) can be taken over by the other redundant control elements even in the case of failure of individual electronic or electrical control elements. Bogie level control shall be provided for Brake electronics while WSP shall be controlled at axle level.	
376	Volume IV, ERTS, Part 1: ERTS-RS	6.11.3 (153 of 492)	Isolating cock handles shall lie parallel to the pipe in which it is installed, in the normal operational (Open) position, and perpendicular to the pipe in the isolated (Closed) position, and shall operate in the horizontal plane only. All cocks shall be lift and operate type to the extent possible. Cable ties shall provide a ready means of identification of a cock, which has been operated.	Normally, the service proven cocks available are of self-locking type. In view of the above, it is requested to review the requirement and update the clause suitably.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			The cocks should be properly labelled for easy identification by the train operator.		
377	Volume IV, ERTS, Part 1: ERTS-RS	6.12.4 (153 of 492)	<p>6.12.4 The EP brake shall be so designed that its control function including Wheel Slide Protection (WSP) can be taken over by the other redundant control elements even in the case of failure of individual electronic or electrical control elements. Bogie level control shall be provided for Brake electronics while WSP shall be controlled at axle level.</p> <p>Redundant power supply and processor card for hot stand by in the control unit and spare slots for I/O cards shall be ensured. However, any other suitable design for redundancy of EP Brake control function including WSP may be proposed by the Contractor subject to approval of</p>	<p>For bogie control brake system, proven solution is not available for WSP redundancy.</p> <p>In view of the above, it is requested to review the requirement and update the clause suitably.</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			the Engineer.		
378	Volume IV, ERTS, Part 1: ERTS-RS	6.12.1, 2nd paragraph (153 of 492)	Brake valves shall be designed and validated for heavy duty cycles required for intensive brake blending. No change of valves or components except rubber items shall be required for at least 15 years beyond DLP. Contractor shall assess the cyclic load under worst service conditions appearing together and validate the same on a test bench.	There are some parts such as valve springs, Valve stems, filters and some of safety items like Safety valve, critical EP valves needs replacement apart from Rubber parts in some of the valves to have reliable service life. Request to please modify the requirement to allow "except critical valve assemblies"	The Tender Conditions shall prevail.
379	Volume IV, ERTS, Part 1: ERTS-RS	6.12.4 (153 of 492)	The EP brake shall be so designed that its control function including Wheel Slide Protection (WSP) can be taken over by the other redundant control elements even in the case of failure of individual electronic or electrical control elements. Bogie level	WSP system is independent for each car and even if there is a failure of wsp control card it will not affect the WSP function of the other car. Bidder requests to change the Clause as follows:	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>control shall be provided for Brake electronics while WSP shall be controlled at axle level. Redundant power supply and processor card for hot stand by in the control unit and spare slots for I/O cards shall be ensured. However, any other suitable design for redundancy of EP Brake control function including WSP may be proposed by the Contractor subject to approval of the Engineer.</p>	<p>The EP brake shall be so designed that its control function including Wheel Slide Protection (WSP) can be taken over by the other redundant control elements in the case of failure of individual electronic or electrical control elements. Redundant power supply and processor card for hot stand by in the control unit and spare slots for I/O cards shall be ensured. However, any other suitable design for redundancy of EP Brake control function including WSP may be proposed by the Contractor subject to approval of the Engineer</p>	
380	Volume IV, ERTS, Part 1: ERTS-RS	6.12.9 (154 of 492)	Each brake isolation device shall be locked with a breakable seal and the appearance of Bogie Isolating Cock – BIC & Electro	The isolation device can be located in passenger saloon area with duly lockable cover or either it can be with breakable	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Pneumatic Isolation Cock – EPIC shall be distinguishable.	<p>seal.</p> <p>Since brake isolation device is a safety device. Rolling stock OE recommends to locate the same only in passenger saloon area.</p> <p>In view of the above, it is requested to review the requirement and update the clause suitably.</p>	
381	Volume IV, ERTS, Part 1: ERTS-RS	6.12.4, 1st paragraph (154 of 492)	The EP brake shall be so designed that its control function including Wheel Slide Protection (WSP) can be taken over by the other redundant control elements even in the case of failure of individual electronic or electrical control elements. Bogie level control shall be provided for Brake electronics while WSP shall be controlled at axle level.	<p>BCU will be redundant but WSP will not be redundant but will have axle detection and correction. Since the failure rate is quite low, tis clause may please be changed as</p> <p>"The EP brake shall be so designed that its control function including Wheel Slide Protection (WSP) can be taken over by the other redundant control elements even in the case of failure of individual electronic or electrical control elements.</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Bogie level control shall be provided for Brake electronics while WSP shall be controlled at axle level.	
382	Volume IV, ERTS, Part 1: ERTS-RS	6.12.23 (156 of 492)	The Brake calculations under all the service operating conditions including wheel-rail interaction study, adhesion calculations and for emergency braking distances under dry and wet conditions shall be submitted. Braking distances for normal service braking with electric brake blending shall also be submitted for 3-Car and 6-Car Trainset.	The maximum adhesion value between wheel and rail to be considered may please be specified	The Tender Conditions shall prevail.
383	Volume IV, ERTS, Part 1: ERTS-RS	6.12.24 (156 of 492)	All the pneumatic control equipment, safety valves, governors, switches, sensors etc. in the underframe shall be provided minimum in IP53 or higher compliant lockable boxes for dust control. These boxes shall be made of stainless steel /	All the pneumatic control equipment and valves will not be mounted in enclosed lockable boxes Hence, this clause may please change to "pneumatic control equipment and valves having electrical contact or switches	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			aluminium (anodized).	shall be IP65 protected"	
384	Volume IV, ERTS, Part 1: ERTS-RS	6.12.28 (156 of 492)	Following minimum SIL levels at train level shall be complied for the brake system Emergency brakes: SIL 3 WSP (Wheel Slip Slide Protection): SIL 3	WSP Electronics software will be SIL 2 in all the metro applications. WSP Functional Failure Rate will be $1e-7 < FFR < 1e-6$ Request customer to change the WSP Requirement from SIL3 to SIL2 as in other Metro applications	Corrigendum – 3 is being issued separately.
385	Volume IV, ERTS, Part 1: ERTS-RS	6.12.23 (156 of 492)	The Brake calculations under all the service operating conditions including wheel rail interaction study, adhesion calculations and for emergency braking distances under dry and wet conditions shall be submitted. Braking distances for normal service braking with electric brake blending shall also be submitted for 3-Car and 6- Car Trainset.	The maximum adhesion value between wheel and rail to be considered may please be specified	The Tender Conditions shall prevail.
386	Volume IV,	6.12.24	All the pneumatic control	All the pneumatic control	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 1: ERTS-RS	(156 of 492)	equipment, safety valves, governors, switches, sensors etc. in the underframe shall be provided minimum in IP53 or higher compliant lockable boxes for dust control. These boxes shall be made of stainless steel / aluminium (anodized).	equipment and valves will not be mounted in enclosed lockable boxes Hence, this clause may please change to "pneumatic control equipment and valves having electrical contact or switches shall be IP65 protected"	separately.
387	Volume IV, ERTS, Part 1: ERTS-RS	6.12.28 (156 of 492)	Following minimum SIL levels at train level shall be complied for the brake system Emergency brakes: SIL 3 WSP (Wheel Slip Slide Protection): SIL 3 The Contractor shall submit relevant certifications for the SIL levels as above.	WSP Electronics software will be SIL 2 in all the metro applications. WSP Functional Failure Rate will be $1e-7 < FFR < 1e-6$ Request customer to change the WSP Requirement from SIL3 to SIL2 as in other Metro applications	Corrigendum – 3 is being issued separately.
388	Volume IV, ERTS, Part 1: ERTS-RS	6.12.28 (156 of 492)	Following minimum SIL levels at train level shall be complied for the brake system.	Based on the safety analysis SIL2 level is enough for WSP system. Further WSP system with SIL2 level is a proven	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Emergency brakes SIL 3 WSP (Wheel Slip Slide Protection) SIL 3	solution. Bidder requests to change the Clause as follows: Following minimum SIL levels at train level shall be complied for the brake system. Emergency brakes SIL 3 WSP (Wheel Slip Slide Protection) SIL 3 2	
389	Volume IV, ERTS, Part 1: ERTS-RS	6.12.31 (157 of 492)	The speed measurement devices and couplings required for measurement of train speed in a fail-safe manner by the Signalling and Train Control Contractor shall be installed on one non-powered axle in each 3-car unit (DM+T+DM) which shall be: i. not used for service brake application and; ii. used for emergency brake	Bidder request to modify the clause as follows: The speed measurement devices and couplings required for measurement of train speed in a fail-safe manner by the Signalling and Train Control Contractor shall be installed on one non-powered axle in each 3-car unit (DM+T+DM) which shall	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>application, whenever required.</p> <p>This shall be finalized by the Contractor during finalization of interface with signaling Contractor. In case signaling Contractor is not yet finalized by Employer then the design shall be finalized in consultation and with the approval of the Engineer. The train braking system shall meet the specified braking performance requirements with the above considerations.</p>	<p>be:</p> <p>i. not used for service brake application if deemed necessary by brake performance and;</p> <p>ii. used for emergency brake application, whenever required.</p> <p>This shall be finalized by the Contractor during finalization of interface with signaling Contractor. In case signaling Contractor is not yet finalized by Employer then the design shall be finalized in consultation and with the approval of the Engineer. The train braking system shall meet the specified braking performance requirements with the above considerations.</p>	
390	Volume IV, ERTS, Part 1: ERTS-RS	6.13.11 (158 of 492)	Brake system design shall ensure that in event of isolation of 33% bogie brake, train can safely work at least up to the maximum speed	Contradictory with speed restriction clause 6.12.10 that is, in case of isolation of bogies, a suitable speed restriction shall	This Sub-Clause is being deleted. Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			of 80 Kmph. In case of two bogie isolation (33%) Contractor shall ensure that no braking distance shall be affected as long as train controlling is being done by signalling system for 3-Car and 6-Car Trainset.	be applied in compliance with Metro Railways General Rules 2020. 1/3rd of the braking in the train is isolated speed restriction should come automatically. The clause may please be modified suitably to avoid contradicting with Clause 6.12.10	
391	Volume IV, ERTS, Part 1: ERTS-RS	6.13.11 (158 of 492)	Brake system design shall ensure that in event of isolation of 33% bogie brake, train can safely work at least up to the maximum speed of 80 Kmph. In case of two bogie isolation (33%) Contractor shall ensure that no braking distance shall be affected as long as train controlling is being done by signalling system for 3-Car and 6-Car Trainset.	Contradictory with speed restriction clause 6.12.10 that is, in case of isolation of bogies, a suitable speed restriction shall be applied in compliance with Metro Railways General Rules 2020. 1/3rd of the braking in the train is isolated speed restriction should come automatically.	This Sub-Clause is being deleted. Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				In view of the above, it is requested to review the requirement and update the clause suitably.	
392	Volume IV, ERTS, Part 1: ERTS-RS	6.13.11 (158 of 492)	Brake system design shall ensure that in event of isolation of 33% bogie brake, train can safely work at least up to the maximum speed of 80 Kmph. In case of two bogie isolation (33%) Contractor shall ensure that no braking distance shall be affected as long as train controlling is being done by signalling system for 3-Car and 6-Car Trainset.	<p>Contradictory with speed restriction clause 6.12.10 that is, in case of isolation of bogies, a suitable speed restriction shall be applied in compliance with Metro Railways General Rules 2020.</p> <p>1/3rd of the braking in the train is isolated speed restriction should come automatically. The clause may please be modified suitably to avoid contradicting with Clause 6.12.10</p>	<p>This Sub-Clause is being deleted.</p> <p>Corrigendum – 3 is being issued separately.</p>
393	Volume IV, ERTS, Part 1: ERTS-RS	6.14.2 (159 of 492)	Parking brakes shall be applied in the event of loss of the main compressed air supply. The parking brakes shall be capable of release from within the cab	There is no proven solution available for mechanical release of parking brake from inside saloon in the absence of compressed air supply. Proven	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>when the compressed air supply is present. With no compressed air supply available, it shall be possible to release individual parking brake actuators manually from saloon (cubicle). Application and release of parking brakes shall also be controllable from the driving console and remotely from OCC (to be finalized during design stage).</p>	<p>Parking Brake manual release mechanism is available at Platform Level or track level.</p> <p>In view of the above, it is requested to update the clause as below: “it shall be possible to mechanically release the lever from inside the saloon / platform level for release of Parking brakes”</p>	
394	Volume IV, ERTS, Part 1: ERTS-RS	6.14.10, 1st two sentences (159 of 492)	<p>The parking brake force on individual axles shall not be so large as to inhibit emergency train recovery or to give rise to locked wheels during recovery. The maximum wheel/rail adhesion level to be assumed for the “push-out” requirement shall be 0.1.</p>	<p>When the parking brake is applied during emergency rake recovery, the adhesion limit can exceed beyond 0.1 as rail wheel adhesion is not a controllable parameter.</p> <p>In view of the above, this requirement need not be restrictive / deleted. Please clarify/ update the clause suitably.</p>	<p>This Sub-Clause is being deleted.</p> <p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
395	Volume IV, ERTS, Part 1: ERTS-RS	6.14.10, 3rd and 4th sentences (159 of 492)	Under conditions of a dragging parking brake for a minimum distance of 3 kilometers, no damage shall be caused to the braking system or any bogie component, with the exception of abnormal shoe wear. Detailed figures to be provided during preliminary design stage.	Parking brake is released when pulling the train unless not possible due to train stopped inside tunnel / bridge. Dragging requirement will limit the safety against rolling under worst case. In view of the above, as the clause is not practical, it is recommended to remove dragging brake requirement or allow wheel flat.	This Sub-Clause is being deleted. Corrigendum – 3 is being issued separately.
396	Volume IV, ERTS, Part 1: ERTS-RS	6.14.10 (159 of 492)	The parking brake force on individual axles shall not be so large as to inhibit emergency train recovery or to give rise to locked wheels during recovery. The maximum wheel/rail adhesion level to be assumed for the “push-out” requirement shall be 0.1. Under conditions of a dragging parking brake for a minimum distance of 3 kilometers, no damage shall be caused to the	Bidder request to modify the clause as follows: The parking brake force on individual axles shall not be so large as to inhibit emergency train recovery or to give rise to locked wheels during recovery. The maximum wheel/rail adhesion level to be assumed for the “push-out” requirement shall be 0.1. Under conditions of a dragging parking brake for a	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			braking system or any bogie component, with the exception of abnormal shoe wear. Detailed figures to be provided during preliminary design stage.	minimum distance of 3 kilometers with allowance to stop the trainset in between if needed; no damage shall be caused to the braking system or any bogie component, with the exception of abnormal shoe wear. Detailed figures to be provided during preliminary design stage.	
397	Volume IV, ERTS, Part 1: ERTS-RS	6.15.5 (160 of 492)	Wheel slide protection shall be available during emergency braking. Any failure in the wheel slide protection in emergency braking shall result in the application of full brake force and deactivation of the spin/slide system.	<p>Failure of WSP will deactivate Dump valve to open the Brake cylinder path to admit the Brake Cylinder pressure as per load condition. "Full brake force" is misleading and hence, this may be changed to give full brake force as needed by load weighed function.</p> <p>Recommended to change the sentence as "Wheel slide protection shall be available during emergency braking. Any failure in the wheel slide</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				protection in emergency braking shall result in the application of brake force depending on the load in the car and deactivation of the slip/slide system will have to be done suitably."	
398	Volume IV, ERTS, Part 1: ERTS-RS	6.15.5 (160 of 492)	Wheel slide protection shall be available during emergency braking. Any failure in the wheel slide protection in emergency braking shall result in the application of full brake force and deactivation of the spin/slide system.	<p>Failure of WSP will deactivate Dump valve to open the Brake cylinder path to admit the Brake Cylinder pressure as per load condition. "Full brake force" is misleading and hence, this may be changed to give full brake force as needed by load weighed function.</p> <p>Recommended to change the sentence as "Wheel slide protection shall be available during emergency braking. Any failure in the wheel slide protection in emergency braking shall result in the application of brake force depending on the load in the car and deactivation</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				of the slip/slide system will have to be done suitably."	
399	Volume IV, ERTS, Part 1: ERTS-RS	6.15.11 (161 of 492)	Complete brake system shall be tested on Brake dynamometer and validated during field tests for 3-Car and 6-Car Trainset.	<p>The Brake Dynamometer test is done only at brake pads/shoes or brake discs level for validation of friction material.</p> <p>In view of the above, complete brake system will not be tested on brake dynamometer.</p> <p>Pease clarify and update the clause suitably.</p>	The Tender Conditions shall prevail.
400	Volume IV, ERTS, Part 1: ERTS-RS	6.15.9 (161 of 492)	The Contractor shall furnish the maximum braking distance for AW4 load condition from a speed of 80 kmph to stop, under emergency brake application. The guaranteed maximum braking distance shall satisfy the requirements specified in Table 15.1.B and 15.16.4 emergency brake application for 3-Car and 6-Car Trainset	<p>Bidder understands requirement as follows:</p> <p>The emergency braking distance shall satisfy the requirement of Table 15.1 b and bidder to declare the guaranteed emergency brake rate to system contractor (GEBR).</p> <p>It is to be noted Emergency braking and GEBR are different</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>and GEBR distance of 245 m is highly difficult considering the isolation of bogies and lower tolerances on brake equipment during GEBR. GEBR is the worst case when compared to emergency brake.</p> <p>Thus, Bidder request to modify clause as follows:</p> <p>The Contractor shall furnish the maximum emergency braking distance for AW4 load condition from a speed of 80 kmph to stop, under emergency brake application for 3-Car and 6-Car Trainset. The Bidder shall calculate and declare the guaranteed maximum braking distance to system contractor shall satisfy the requirements specified in Table 15.1.B and 15.16.4 emergency brake application for 3-Car and 6-Car</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>Trainset</p> <p>Also, Clause 15.16.4 is not available.</p> <p>Please confirm.</p>	
401	Volume IV, ERTS, Part 1: ERTS-RS	6.15.10, 1st paragraph (161 of 492)	<p>The Contractor shall provide the guaranteed emergency brake de-acceleration rate to signaling Contractor during interface. The Guaranteed Emergency Brake rate shall be decided on the basis of minimum initial adhesion of 6% on Bhopal and Indore Metro network, one car brake isolated and with maximum 15% emergency brake distance extension (for adhesion from 8% to 6%) due to wheel sliding for 3-Car and 6-Car Trainset.</p>	<p>Bidder request to modify the clause as follows:</p> <p>The Contractor shall provide the guaranteed emergency brake de-acceleration rate to signaling Contractor during interface. The Guaranteed Emergency Brake rate shall be decided on the basis of minimum initial adhesion of 6% on Bhopal and Indore Metro network. During Guaranteed Emergency Brake Rate (GEBR) one bogie shall be isolated for a 3 car trainset and once car brake shall be isolated in a 6 car trainset. and with maximum 15% emergency</p>	Corrigendum – 3 is being issued separately.

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				brake distance extension (for adhesion from 8% to 6%) due to wheel sliding for 3- Car and 6- Car Trainset.	
402	Volume IV, ERTS, Part 1: ERTS-RS	6.16.10 (163 of 492)	<p>The Brake control unit shall have provision for logging of selectable parameters (by MPMRCL) and faults with related data. The memory shall be extendable. Provision shall be available for continuous logging or logging triggered by a particular event of User selectable parameters (up to 20 at a time) for a period of up to 24 hrs. The memory shall be adequate to store the above data including additional minimum 20000 incidents. Provision shall be available to download the stored data. Supply of any special tools complete with requisite software (one set for each depot) required for the above shall be included in the quoted cost.</p>	<p>Please allow the recorded trace of all the relevant variables without restricting to some selectable parameters. After downloading, relevant parameters can be used for analysis. The clause may be clarified to allow all relevant parameters and not selectable parameters. This will give higher flexibility while analysing any traces.</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Training shall be organized by the OEM trainer for adequate duration before the commissioning of first 10 trains and cost of training is deemed to be included in quoted price of the contract.</p>		
403	Volume IV, ERTS, Part 1: ERTS-RS	6.16.10 (163 of 492)	<p>The Brake control unit shall have provision for logging of selectable parameters (by MPMRCL) and faults with related data. The memory shall be extendable. Provision shall be available for continuous logging or logging triggered by a particular event of User selectable parameters (up to 20 at a time) for a period of up to 24 hrs. The memory shall be adequate to store the above data including additional minimum 20000 incidents. Provision shall</p>	<p>Please allow the recorded trace of all the relevant variables without restricting to some selectable parameters. After downloading, relevant parameters can be used for analysis. The clause may be clarified to allow all relevant parameters and not selectable parameters. This will give higher flexibility while analysing any traces.</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>be available to download the stored data. Supply of any special tools complete with requisite software (one set for each depot) required for the above shall be included in the quoted cost. Training shall be organized by the OEM trainer for adequate duration before the commissioning of first 10 trains and cost of training is deemed to be included in quoted price of the contract.</p>		
404	Volume IV, ERTS, Part 1: ERTS-RS	6.20.1 (165 of 492)	<p>Failure Management It shall be possible to recover a dead train (i.e., one having no traction power and no means of generating further compressed air, but with the air brake system intact) using only an air connection from the rescue train</p>	<p>Spec calling for braking dead train with locomotive. This means the locomotive shall have suitable controls for operating the dead train. Please clarify</p>	<p>It shall be done through Brake Pipe (BP) controlled brake system. The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			or locomotive. The emergency brake application of the dead train shall be possible by its operator. The detailed scheme shall be subject to the Engineer's review during design finalization.		
405	Volume IV, ERTS, Part 1: ERTS-RS	6.20.1 (165 of 492)	It shall be possible to recover a dead train (i.e., one having no traction power and no means of generating further compressed air, but with the air brake system intact) using only an air connection from the rescue train or locomotive. The emergency brake application of the dead train shall be possible by its operator. The detailed scheme shall be subject to the Engineer's review during design finalization.	Spec calling for braking dead train with locomotive. This means the locomotive shall have suitable controls for operating the dead train. Please clarify	It shall be done through Brake Pipe (BP) controlled brake system. The Tender Conditions shall prevail.
406	Volume IV, ERTS, Part 1: ERTS-RS	6.21.4, (v), (vi), (vii), (viii)	v. The wheel slide system shall detect the onset of slip/slide by either an axle deceleration exceeding a pre-set parameter,	Monitoring of the dump valve done by Brake Controls Electronics as it is part of WSP system integrated with Brake	Corrigendum – 3 is being issued separately.

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		(166 of 492)	<p>or detection of a difference between the relative speeds of the axles of any one axle of any bogie.</p> <p>vi. The Tenderer shall incorporate the complete compatibility for slip/slide with signalling system and interfaces. The Tenderer shall submit full details of wheel slide/slip protection scheme and equipment.</p> <p>vii. Wheel slip/slide indication shall be made available in the driving cab through TCMS system.</p> <p>viii. Dump valves shall be monitored for their correct functioning and shall be monitored by TCMS. System shall ensure correct functioning of dump valves as pre-test before train is dispatched from depot or initialized.</p>	<p>Controls Electronics and not by TCMS.</p> <p>Friction brake slide indication during Emergency Brake can be given through TCMS. However, under service brake condition friction slide is a normal functioning of WSP and indication will lead to transmission of lot of data which will not be useful and it is not related to safety. Hence, request to change as "Wheel slide indication under Emergency Brake shall be displayed through TCMS..." and "Dump valves shall be monitored for their correct functioning and shall be monitored by Brake Controls Electronics"</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
407	Volume IV, ERTS, Part 1: ERTS-RS	6.21.4, (i) (166 of 492)	Digital wheel slide protection with gradual slide correction shall be provided in all braking modes. The slide detection shall be performed per axle and the correction per bogie. The correction of slide shall operate independently on each vehicle. Automatic wheel wear compensation shall be incorporated in the wheel slip/slide protection sub-system.	As per the clause 6.21.2 the wheel slide detection and correction is per axle basis. In view of the above, ERTS clause requirement 6.21.2 is contradicting with ERTS clause requirement 6.21.4 (i). Please clarify and update the clause suitably.	Corrigendum – 3 is being issued separately.
408	Volume IV, ERTS, Part 1: ERTS-RS	6.21.4, (viii) (166 of 492)	Dump valves shall be monitored for their correct functioning and shall be monitored by TCMS. System shall ensure correct functioning of dump valves as pre-test before train is dispatched from depot or initialized.	Monitoring of the dump valve done by Brake Electronics and not by TCMS. However, the status can be displayed on TCMS. In view of the above, requested to update the ERTS clause suitably.	Corrigendum – 3 is being issued separately.
409	Volume IV, ERTS, Part 1:	6.21.4, (v), (vi), (vii) and	v. The wheel slide system shall detect the onset of slip/slide by	Monitoring of the dump valve done by Brake Controls	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS	(viii) (166 of 492)	<p>either an axle deceleration exceeding a pre-set parameter, or detection of a difference between the relative speeds of the axles of any one axle of any bogie.</p> <p>vi. The Tenderer shall incorporate the complete compatibility for slip/slide with signalling system and interfaces. The Tenderer shall submit full details of wheel slide/slip protection scheme and equipment.</p> <p>vii. Wheel slip/slide indication shall be made available in the driving cab through TCMS system.</p> <p>viii. Dump valves shall be monitored for their correct functioning and shall be monitored by TCMS. System</p>	<p>Electronics as it is part of WSP system integrated with Brake Controls Electronics and not by TCMS.</p> <p>Friction brake slide indication during Emergency Brake can be given through TCMS. However, under service brake condition friction slide is a normal functioning of WSP and indication will lead to transmission of lot of data which will not be useful and it is not related to safety. Hence, request to change as "Wheel slide indication under Emergency Brake shall be displayed through TCMS..." and "Dump valves shall be monitored for their correct functioning and shall be monitored by Brake Controls Electronics"</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>shall ensure correct functioning of dump valves as pre-test before train is dispatched from depot or initialized.</p>		
410	Volume IV, ERTS, Part 1: ERTS-RS	6.24.1 (167 of 492)	<p>Contractor shall supply exhaustive documentation on complete pneumatic system, its sub systems and components, Brake electronics (hardware and software), project software details, explanation and functionality at component and system level, coloured schemes of pneumatic system, brake system, valves with coloured cut sections under different operational states. It shall also include trouble shooting and diagnostic details explaining clearly (with coloured illustrations) the logics, transition states, algorithms, signal flow and</p>	<p>Sensitive / proprietary documents shall be auditable at contractor's premises and allowed to put under ESCROW account. Please consider this point and clarify allowing to put under ESCROW</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			software parameters etc.		
411	Volume IV, ERTS, Part 1: ERTS-RS	6.24.3 (167 of 492)	Engineer shall be able to adjust/change Brake cylinder pressure and other output parameters of Brake System. Any hardware/software tool required for this purpose shall also be provided at each depot. The documentation including but not restricted to flow charts (for complete software), signal flows, and interpretation of signal etc. shall be provided. Nominated Representative of the Engineer shall be fully trained and made fully conversant by the Contractor for this purpose.	Changing the Brake Cylinder pressure has direct implication on the braking performance and Safety of the train. Wabtec strongly do not recommend to make any change in the Brake Cylinder pressure from what was tested / validated during commissioning stage. In case of any change needed in Brake Cylinder pressure, Wabtec will have to be informed so as to review the requirement and to do the safety impact analysis before undertaking any modification in the system. Please note, any change made in the Brake Cylinder pressure calls for revalidating the Braking performance in the train. Request to please change the	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				clause suitably to participate Brake system supplier for making any change.	
412	Volume IV, ERTS, Part 1: ERTS-RS	6.24.1 (167 of 492)	Contractor shall supply exhaustive documentation on complete pneumatic system, its sub systems and components, Brake electronics (hardware and software), project software details, explanation and functionality at component and system level, coloured schemes of pneumatic system, brake system, valves with coloured cut sections under different operational states. It shall also include trouble shooting and diagnostic details explaining clearly (with coloured illustrations) the logics, transition states, algorithms, signal flow and software parameters etc.	Only standard documents can be provided. Intellectual Property like flow charts, signal flows, algorithms, logics and other data will not generally be shared by sub-contractor/OEMs. In view of the above, requested to update the ERTS clause suitably.	The Tender Conditions shall prevail.
413	Volume IV,	6.24.3	Engineer shall be able to	The brake cylinder pressure	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 1: ERTS-RS	(167 of 492)	adjust/change Brake cylinder pressure and other output parameters of Brake System. Any hardware/software tool required for this purpose shall also be provided at each depot. The documentation including but not restricted to flow charts (for complete software), signal flows, and interpretation of signal etc. shall be provided. Nominated Representative of the Engineer shall be fully trained and made fully conversant by the Contractor for this purpose.	adjustment involves risk to the safety. The details may be discussed during design stage. Only standard documents can be provided. Intellectual Property like flow charts, signal flows, and interpretation of signal etc. will not generally be shared by sub-contractor/OEMs. In view of the above, requested to update the ERTS clause suitably.	prevail.
414	Volume IV, ERTS, Part 1: ERTS-RS	6.24.1 (167 of 492)	Contractor shall supply exhaustive documentation on complete pneumatic system, its sub systems and components, Brake electronics (hardware and software), project software details, explanation and functionality at	Sensitive / proprietary documents shall be auditable at contractor's premises and allowed to put under ESCROW account. Please consider this point and clarify allowing to put under ESCROW	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>component and system level, coloured schemes of pneumatic system, brake system, valves with coloured cut sections under different operational states. It shall also include trouble shooting and diagnostic details explaining clearly (with coloured illustrations) the logics, transition states, algorithms, signal flow and software parameters etc.</p>		
415	Volume IV, ERTS, Part 1: ERTS-RS	6.24.3 (167 of 492)	<p>Engineer shall be able to adjust/change Brake cylinder pressure and other output parameters of Brake System. Any hardware/software tool required for this purpose shall also be provided at each depot. The documentation including but not restricted to flow charts (for complete software),</p>	<p>Changing the Brake Cylinder pressure has direct implication on the braking performance and Safety of the train. Wabtec strongly do not recommend to make any change in the Brake Cylinder pressure from what was tested / validated during commissioning stage. In case of any change needed in Brake</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>signal flows, and interpretation of signal etc. shall be provided. Nominated Representative of the Engineer shall be fully trained and made fully conversant by the Contractor for this purpose.</p>	<p>Cylinder pressure, Wabtec will have to be informed so as to review the requirement and to do the safety impact analysis before undertaking any modification in the system. Please note, any change made in the Brake Cylinder pressure calls for revalidating the Braking performance in the train.</p> <p>Request to please change the clause suitably to participate Brake system supplier for making any change.</p>	
416	Volume IV, ERTS, Part 1: ERTS-RS	6.24.3 (167 of 492)	<p>Engineer shall be able to adjust/change Brake cylinder pressure and other output parameters of Brake System. Any hardware/software tool required for this purpose shall also be provided at each depot. The documentation including but not</p>	<p>Bidder requests to delete this clause.</p> <p>Adjusting/changing brake cylinder pressure and other parameters of the brake system is not considered to be safe</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			restricted to flow charts (for complete software), signal flows, and interpretation of signal etc. shall be provided. Nominated Representative of the Engineer shall be fully trained and made fully conversant by the Contractor for this purpose.		
417	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (i) (169 of 492)	i. Each car side shall have minimum 4 double leaves of sliding bi-parting (externally hung) type. The clear door opening width of each door pair shall be minimum 1400 mm and a clear height of at least 1900 mm. The doors shall be electrically driven.	We propose that the gap between seal land (seal frame) and interior surface of the door panel shall be 7±1mm.	The Tender Conditions shall prevail.
418	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (iv) (169 of 492)	The passenger door pitch shall be equally spaced over the length of the individual cars and efforts shall be made to keep the spacing of the adjacent doors of two cars of a train same as far possible.	Please kindly clarify whether the distance between each door of the whole train is same.	The distance between each door of the whole train to be same. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			The Contractor shall submit the door layout design for approval by the Engineer.		
419	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (xxi), 1st paragraph (171 of 492)	xxi. DCU Hardware and Software support: It shall be possible for the Engineer to modify / change the parameters or closure / opening logic of door's circuit and implement the same as required by MPMRCL based on their operational and maintenance requirements. Full access to the software for the purpose above shall be provided.	We shall provide partial access to modify certain default parameters.	The Tender Conditions shall prevail.
420	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (xx), 2nd paragraph, 3rd sentence (171 of 492)	In case of EDCU transmission error, manual reset of EDCU shall be avoided and reset function shall be implemented through TCMS.	Please confirm below points: 1) Purpose of this function, 2) Interface to reset the EDCU during the transmission error with TCMS. Once these two points are clarified, it should be discussed	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				whether the TCMS should handle this function with the Hazard Analysis.	
421	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (xxi), 1st paragraph (171 of 492)	DCU Hardware and Software support: It shall be possible for the Engineer to modify / change the parameters or closure / opening logic of door's circuit and implement the same as required by MPMRCL based on their operational and maintenance requirements. Full access to the software for the purpose above shall be provided.	Only Partial access to modify certain default parameters will be provided by door suppliers	The Tender Conditions shall prevail.
422	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (xx), 2nd paragraph, 3rd sentence (171 of 492)	In case of EDCU transmission error, manual reset of EDCU shall be avoided and reset function shall be implemented through TCMS.	Please confirm below points: 1) Purpose of this function, 2) Interface to reset the EDCU during the transmission error with TCMS. Once these two points are clarified, it should be discussed	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				whether the TCMS should handle this function with the Hazard Analysis.	
423	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (xviii) - (i) (171 of 492)	i. The gap between the car body exterior and interior leaves of the door panel shall not exceed 6mm (4 + 2, - 0) and packing used shall have service life of at least 35 years.	We propose that the gap between seal land (seal frame) and interior surface of the door panel shall be 7±1mm.	The Tender Conditions shall prevail.
424	Volume IV, ERTS, Part 1: ERTS-RS	7.2.1, (xxi) (171 of 492)	DCU Hardware and Software support: It shall be possible for the Engineer to modify / change the parameters or closure / opening logic of door's circuit and implement the same as required by MPMRCL based on their operational and maintenance requirements. Full access to the software for the purpose above shall be provided.	We shall provide partial access to modify certain default parameters.	The Tender Conditions shall prevail.
425	Volume IV,	7.2.1, (xxi),	DCU Hardware and Software	Providing Full Access of the	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 1: ERTS-RS	1st two paragraphs (171 of 492)	<p>support: It shall be possible for the Engineer to modify / change the parameters or closure / opening logic of door's circuit and implement the same as required by MPMRCL based on their operational and maintenance requirements. Full access to the software for the purpose above shall be provided. Any hardware / software tool required for this purpose shall also be provided free of cost (two for each place Bhopal as well as Indore).</p>	<p>software with hardware/software tool to the Employer is difficult for the Bidder due to Intellectual Property rights. In case change in software is required, the Bidder or the Sub-System Vendor would be required to make necessary changes.</p> <p>Bidder requests to amend the clause as below: It shall be possible for The Bidder, upon request from the Engineer, shall to modify / change the parameters or closure / opening logic of door's circuit and implement the same as required by MPMRCL based on their operational and maintenance requirements as agreed during Design phase. Full access to the software for the purpose above shall be provided. Any hardware /</p>	prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				software tool required for this purpose shall also be provided free of cost (two for each place Bhopal as well as Indore).	
426	Volume IV, ERTS, Part 1: ERTS-RS	7.2.3, (iii) (174 of 492)	iii. All doors on the train shall fully open within 2.0 to 2.5 seconds from initiation of the open-door command.	We propose 2.5 to 3 seconds from initiation of the open-door command based on hardwire connection	The Tender Conditions shall prevail.
427	Volume IV, ERTS, Part 1: ERTS-RS	7.2.3, (iii) (174 of 492)	iii. All doors on the train shall fully open within 2.0 to 2.5 seconds from initiation of the open-door command.	We propose 2.5 to 3 seconds from initiation of the open-door command based on hardwire connection	The Tender Conditions shall prevail.
428	Volume IV, ERTS, Part 1: ERTS-RS	7.2.3, (viii) (175 of 492)	viii. The push back feature shall be operative after the door leaves have been closed and locked. It shall be possible to manually push back each closed-door leaf to enable entrapped objects such as clothing and other articles, to be withdrawn, even after the mechanical lock has engaged. The force required to push back	We propose 100N-150N	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>each door leaf shall neither be less than 80 N nor more than 120N. However final value shall be decided during design. Expected door gap to be created by push back during intentional operation should not exceed 15mm (the final gap shall be decided during detail design of the door). During Push-back operation, it shall be ensured that door closing switch is not getting dis-engaged. Every operation of push back shall be recorded with time stamp and message shall pop up in cab HMI. The complete scheme shall be of proven type in worldwide metros. The details shall be submitted for Engineer's review during design phase.</p>		
429	Volume IV, ERTS, Part 1: ERTS-RS	7.2.3, (viii) (175 of 492)	viii. The push back feature shall be operative after the door leaves have been closed and locked. It shall be possible to manually	We propose 100N-150N	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>push back each closed-door leaf to enable entrapped objects such as clothing and other articles, to be withdrawn, even after the mechanical lock has engaged. The force required to push back each door leaf shall neither be less than 80 N nor more than 120N. However final value shall be decided during design. Expected door gap to be created by push back during intentional operation should not exceed 15mm (the final gap shall be decided during detail design of the door). During Push-back operation, it shall be ensured that door closing switch is not getting dis-engaged. Every operation of push back shall be recorded with time stamp and message shall pop up in cab HMI. The complete scheme shall be of proven type in worldwide metros. The details shall be submitted for Engineer's</p>		

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			review during design phase.		
430	Volume IV, ERTS, Part 1: ERTS-RS	7.3.1, last sentence (180 of 492)	The clear width of the door way and ramp when operated shall not be less than 1100mm with a headroom not less than 1900mm so that two files of passengers can be simultaneously detrained without supervision.	Request to change as "The clear width of the door way and ramp when operated shall be 700mm".	Corrigendum – 3 is being issued separately.
431	Volume IV, ERTS, Part 1: ERTS-RS	7.3.1, last sentence (180 of 492)	The clear width of the door way and ramp when operated shall not be less than 1100mm with a headroom not less than 1900mm so that two files of passengers can be simultaneously detrained without supervision.	For 2.9m car width accommodating 1100 mm clear opening centrally located detrainment door is not feasible. Few Technical reasons: space challenges to accommodate the control functions for GoA4 cab driver/co-driver desk. (2 HMI displays, DMI display) Non-Compliance driver visibility. (UIC 651) For 2.9m width car, clear width	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>of 600-650mm is optimal and proven across metro industry. Bidder request to revise the clause.</p> <p>Bidder requests to change the Clause as follows:</p> <p>The clear width of the door way and ramp when operated shall be of suitable width allowing required timings for evacuation not be less than 1100mm with a headroom not less than 1900mm so that two files of passengers can be simultaneously detrained without supervision.</p>	
432	Volume IV, ERTS, Part 1: ERTS-RS	7.5.1 (182 of 492)	Suitably designed door in the removable / temporary partition between the saloon and the cab to permit access to the passenger saloon shall be provided. The clear door opening shall be	Bidder request to update the clause clear opening to "The clear door opening shall be approximately 600-700 mm wide." Which is in line for the width proposed for the	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			approximately 1100mm wide. In normal operation, opening the door from the saloon shall require the use of a special key.	<p>detrainment door.</p> <p>We propose following rewording: Suitably designed door in the removable / temporary partition between the saloon and the cab to permit access to the passenger saloon shall be provided. The clear door opening shall not be approximately 1100mm less than 600mm wide. In normal operation, opening the door from the saloon shall require the use of a special key.</p>	
433	Volume IV, ERTS, Part 1: ERTS-RS	8.1.13 (187 of 492)	Separate push button shall be provided on driver's desk to open line circuit breaker(s) of 3-Car and 6-Car Trainset in the event of extreme emergency by Train Operator.	Is it used for open the HSCB? or line contactor in VVVF?	<p>To open HSCB.</p> <p>The Tender Conditions shall prevail.</p>
434	Volume IV,	8.1.12	Complete map of spectrum of	Since this project is DC supply	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 1: ERTS-RS	(187 of 492)	<p>harmonics generated by the unit / train in traction and regeneration mode shall be submitted during design. The same shall be verified during system test and validated during line test. Harmonics emitted by the train and complete fleet operating in the system, including feed extended zone shall be compatible with the voltage distortion limits specified in relevant IEC & IEEE and shall be validated as type test. All traction units shall be suitably interlaced to minimize the effect harmonics in the power system. The overall harmonic current levels viewed at Current Collector shall not exceed 2% of the fundamental component under all modes of operation including regeneration with multiple number of trains in operation. The Tenderer shall also furnish the specification of</p>	<p>voltage, please delete this requirement.</p>	<p>separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Power Quality for the regenerated energy including its harmonic analysis confirming to Indian Electricity Grid Code.		
435	Volume IV, ERTS, Part 1: ERTS-RS	8.1.13 (187 of 492)	Separate push button shall be provided on driver's desk to open line circuit breaker(s) of 3-Car and 6-Car Trainset in the event of extreme emergency by Train Operator.	Is it used for open the HSCB? or line contactor in VVVF?	To open HSCB. The Tender Conditions shall prevail.
436	Volume IV, ERTS, Part 1: ERTS-RS	8.1.12 (187 of 492)	Complete map of spectrum of harmonics generated by the unit / train in traction and regeneration mode shall be submitted during design. The same shall be verified during system test and validated during line test. Harmonics emitted by the train and complete fleet operating in the system, including feed extended zone shall be compatible with the voltage distortion limits specified in	Since this project is DC supply voltage, please delete this requirement.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>relevant IEC & IEEE and shall be validated as type test. All traction units shall be suitably interlaced to minimize the effect harmonics in the power system. The overall harmonic current levels viewed at Current Collector shall not exceed 2% of the fundamental component under all modes of operation including regeneration with multiple number of trains in operation. The Tenderer shall also furnish the specification of Power Quality for the regenerated energy including its harmonic analysis confirming to Indian Electricity Grid Code.</p>		
437	Volume IV, ERTS, Part 1: ERTS-RS	8.2.16 (189 of 492)	Any investigation / design documents required for the power supply authorities concerning the quality of the regenerated power shall be submitted.	<p>Since the regenerative power will be used within the DC traction system, it does not affect power supply authorities. Hence, it's kindly asked to be deleted.</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p><Proposal> Any investigation / design documents required for the power supply authorities concerning the quality of the regenerated power shall be submitted</p>	
438	Volume IV, ERTS, Part 1: ERTS-RS	8.2.16 (189 of 492)	Any investigation / design documents required for the power supply authorities concerning the quality of the regenerated power shall be submitted.	<p>Since the regenerative power will be used within the DC traction system, it does not affect power supply authorities. Hence, it's kindly asked to be deleted.</p> <p><Proposal> Any investigation / design documents required for the power supply authorities concerning the quality of the regenerated power shall be submitted</p>	The Tender Conditions shall prevail.
439	Volume IV, ERTS, Part 1:	8.3.23, 1st sentence	Contractor shall provide a portable device (suitable	Requirement of Portable device will be discussed and confirmed	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS	(191 of 492)	mechanical arrangement attached with a force gauge of suitable range) to measure the CCD arm spring tension in situ condition in routine service check without removing CCD fixture from train.	during detail design phase after completing the detail engineering calculation.	
440	Volume IV, ERTS, Part 1: ERTS-RS	8.3.24, 1st sentence (191 of 492)	Suitable portable onboard Arc measuring device for identifying such locations with recording and analysis facilities where arcing is experienced shall be supplied as part of tools.	Requirement of portable onboard Arc measuring device will be discussed and confirmed during detail design phase after completing the detail engineering calculation.	The Tender Conditions shall prevail.
441	Volume IV, ERTS, Part 1: ERTS-RS	8.5.8 (192 of 492)	The surge arrestor shall be tested to EN 50124 - 2.	<Proposal> The surge arrestor shall be tested to EN 50124 - 2 or equivalent standard.	Corrigendum – 3 is being issued separately.
442	Volume IV, ERTS, Part 1: ERTS-RS	8.5.8 (192 of 492)	The surge arrestor shall be tested to EN 50124 - 2.	<Proposal> The surge arrestor shall be tested to EN 50124 - 2 or equivalent standard.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
443	Volume IV, ERTS, Part 1: ERTS-RS	8.7.1, 2nd paragraph, last sentence (193 of 492)	Gasket shall have minimum life of 12 years.	Since gasket itself is made of rubber, please relax the required life. <Proposal> Gasket shall have minimum life of 4 years.	Corrigendum – 3 is being issued separately.
444	Volume IV, ERTS, Part 1: ERTS-RS	8.7.7 (193 of 492)	The contractor shall demonstrate that the limits of electrical and thermal rating for all power components under all conditions of motoring and braking will not be exceeded.	Since electrical and thermal rating is design by contractor and validated as per specific standard, please delete this clause. <Proposal> The contractor shall demonstrate that the limits of electrical and thermal rating for all power components under all conditions of motoring and braking will not be exceeded.	The Tender Conditions shall prevail.
445	Volume IV, ERTS, Part 1: ERTS-RS	8.7.8 (193 of 492)	Accurate and detailed computer simulations of single power component failure shall be performed in the design of the	Please delete this clause since SW protection is implemented to protect in equipment.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			equipment.	<Proposal> Accurate and detailed computer simulations of single power component failure shall be performed in the design of the equipment.	
446	Volume IV, ERTS, Part 1: ERTS-RS	8.7.1, 2nd paragraph, last sentence (193 of 492)	Gasket shall have minimum life of 12 years.	Since gasket itself is made of rubber, please relax the required life. <Proposal> Gasket shall have minimum life of 4 years.	Corrigendum – 3 is being issued separately.
447	Volume IV, ERTS, Part 1: ERTS-RS	8.7.7 (193 of 492)	The contractor shall demonstrate that the limits of electrical and thermal rating for all power components under all conditions of motoring and braking will not be exceeded.	Since electrical and thermal rating is design by contractor and validated as per specific standard, please delete this clause. <Proposal> The contractor shall demonstrate that the limits of electrical and thermal rating for all power components under all	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				conditions of motoring and braking will not be exceeded.	
448	Volume IV, ERTS, Part 1: ERTS-RS	8.7.8 (193 of 492)	Accurate and detailed computer simulations of single power component failure shall be performed in the design of the equipment.	Please delete this clause since SW protection is implemented to protect in equipment. <Proposal> Accurate and detailed computer simulations of single power component failure shall be performed in the design of the equipment.	The Tender Conditions shall prevail.
449	Volume IV, ERTS, Part 1: ERTS-RS	8.7.11, 1st sentence (194 of 492)	The box for the power traction inverter shall be of stainless steel/Anodized Aluminium) so as to avoid any corrosion in service on any account and the box shall last for the lifetime of the traction inverter unit without needing any attention.	We provide Aluminium box which suitably painted to avoid corrosion. Please kindly add to apply Aluminium box with painting as same with other India metro train projects. <Proposal> The box for the power traction inverter shall be of stainless steel/Anodized Aluminium/Aluminium with paint)	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				so as to avoid any corrosion in service on any account and the box shall last for the lifetime of the traction inverter unit without needing any attention.	
450	Volume IV, ERTS, Part 1: ERTS-RS	8.7.11, 1st sentence (194 of 492)	The box for the power traction inverter shall be of stainless steel/Anodized Aluminium) so as to avoid any corrosion in service on any account and the box shall last for the lifetime of the traction inverter unit without needing any attention.	<p>We provide Aluminium box which suitably painted to avoid corrosion. Please kindly add to apply Aluminium box with painting as same with other India metro train projects.</p> <p><Proposal></p> <p>The box for the power traction inverter shall be of stainless steel/Anodized Aluminium/Aluminium with paint) so as to avoid any corrosion in service on any account and the box shall last for the lifetime of the traction inverter unit without needing any attention.</p>	Corrigendum – 3 is being issued separately.
451	Volume IV,	8.7.15, (vi)	Protection and diagnostics:	Since the uploading and	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 1: ERTS-RS	(195 of 492)	vi. Propulsion Software uploading and trace data downloading shall be done through TCMS and it shall not exceed 15 minutes for complete 3-car as well as 6-Car train set.	<p>downloading time is depending on each subsystem and vehicle, please discuss and decide this time in design stage.</p> <p><Proposed></p> <p>Propulsion Software uploading and trace data downloading shall be done through TCMS and it is preferable not to exceed 15 minutes for complete 3-car as well as 6-Car train set and detail will be discuss in design stage.</p>	prevail.
452	Volume IV, ERTS, Part 1: ERTS-RS	8.7.15, (vi) (195 of 492)	Protection and diagnostics: vi. Propulsion Software uploading and trace data downloading shall be done through TCMS and it shall not exceed 15 minutes for complete 3-car as well as 6-Car train set.	<p>Since the uploading and downloading time is depending on each subsystem and vehicle, please discuss and decide this time in design stage.</p> <p><Proposed></p> <p>Propulsion Software uploading and trace data downloading shall be done through TCMS and it is</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				preferable not to exceed 15 minutes for complete 3-car as well as 6-Car train set and detail will be discuss in design stage.	
453	Volume IV, ERTS, Part 1: ERTS-RS	8.7.15 (v) (195 of 492)	Current drawn by each motor shall be measured and recorded	As per 8.7.1, there shall be one inverter per bogie. So measured current would be per bogie, i.e., two motors. Kindly change the clause suitably. 'Current drawn by motors shall be measured and recorded.'	The Tender Conditions shall prevail.
454	Volume IV, ERTS, Part 1: ERTS-RS	8.7.22 (196 of 492)	For maintenance purpose, there shall be additional bypass ground switch in Inverter box duly interlocked with safety locks. Contractor shall submit the detail document for Engineer's review during design stage.	In addition to isolation switch requirement in ERTS 8.6.1, in inverter box there is an additional discharge path by braking chopper which is effective and proven. For this reason, we request your consideration for modifying the clause as proposed. <Proposal>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				For maintenance purpose, there shall be additional bypass ground switch in Inverter or a discharging switch for Traction Inverter in isolation switch box duly interlocked with safety locks. Contractor shall submit the detail document for Engineer's review during design stage.	
455	Volume IV, ERTS, Part 1: ERTS-RS	8.8.2, 2nd paragraph (196 of 492)	Additionally, cleaning arrangement for disassembled traction motor during major overhaul shall also be provided to each depot.	Please clarify the detailed requirement for cleaning arrangement.	The Tender Conditions shall prevail.
456	Volume IV, ERTS, Part 1: ERTS-RS	8.7.22 (196 of 492)	For maintenance purpose, there shall be additional bypass ground switch in Inverter box duly interlocked with safety locks. Contractor shall submit the detail document for Engineer's review during design stage.	In addition to isolation switch requirement in ERTS 8.6.1, in inverter box there is an additional discharge path by braking chopper which is effective and proven. For this reason, we request your consideration for modifying the	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>clause as proposed.</p> <p><Proposal></p> <p>For maintenance purpose, there shall be additional bypass ground switch in Inverter or a discharging switch for Traction Inverter in isolation switch box duly interlocked with safety locks. Contractor shall submit the detail document for Engineer's review during design stage.</p>	
457	Volume IV, ERTS, Part 1: ERTS-RS	8.8.2, 2nd paragraph (196 of 492)	Additionally, cleaning arrangement for disassembled traction motor during major overhaul shall also be provided to each depot.	Please clarify the detailed requirement for cleaning arrangement.	The Tender Conditions shall prevail.
458	Volume IV, ERTS, Part 1: ERTS-RS	8.8.2, 2nd sentence (196 of 492)	Class 200 insulation shall be used for stationary and rotating windings.	Class 200 insulation is only applicable for stator winding according to standard EN 60349-2. This insulation class is not applicable for rotor	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
459	Volume IV, ERTS, Part 1: ERTS-RS	8.8.2, 10th sentence (196 of 492)	Any sensor(s) if used shall be easily accessible for replacement and shall not necessitate removal of motor or it's dis-assembly	Only sensors in motor are temp sensors in stator winding. The PT100 elements is not able to remove without disassemble of the motor. We have two PT100 in the stator winding, one is redundant. A PT100 connector is placed on the connection box which makes it possible to switch to the other PT100 without removing the connection box cover if one PT100 fails.	The Tender Conditions shall prevail.
460	Volume IV, ERTS, Part 1: ERTS-RS	8.8.2, last sentence (197 of 492)	Speed sensors shall not be placed on the gear case.	Speed sensor will be placed on the gearbox with the following arguments: <ul style="list-style-type: none"> • To get a more precise and robust wheel axle speed signal measurement • To have the tooth wheel for the speed sensor in the traction motor will reduce the active length of the motor, i.e., reduce 	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>motor performance.</p> <ul style="list-style-type: none"> • When having the speed sensor located on the gearbox it is more protected from flying objects, for example stones. • It is easier to replace the speed sensor when mounted on the gearbox 	
461	Volume IV, ERTS, Part 1: ERTS-RS	8.8.3, 1st sentence (197 of 492)	Evaluation of the insulation system for sealing against moisture shall be made in accordance with IEEE 429.	<p>We have test report from already conducted tests.</p> <p>No new tests are planned</p>	The Tender Conditions shall prevail.
462	Volume IV, ERTS, Part 1: ERTS-RS	8.8.3, 1st sentence (197 of 492)	Evaluation of the insulation system for sealing against moisture shall be made in accordance with IEEE 429.	Not applicable. Standard IEEE 429 is not active and has been replaced with standard IEEE1776.	Corrigendum – 3 is being issued separately.
463	Volume IV, ERTS, Part 1: ERTS-RS	8.8.6 (197 of 492)	The traction motor shall be suitably rated to meet the most severe service requirements as specified in design parameter Clauses 3.24.5	This requirement will be validated by running load cycle heat run test in system test	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			& 3.24.6.		
464	Volume IV, ERTS, Part 1: ERTS-RS	8.8.7 (197 of 492)	Insulated bearing shall be used on both drive and non-drive end of traction motor to prevent current through the transmission to the axle.	Hybrid bearings will be used on both drive and non-drive end of traction motor. The hybrid bearings have electrically insulated ceramic balls and rollers which reduce the current passing through the bearings and minimise fretting damages	The Tender Conditions shall prevail.
465	Volume IV, ERTS, Part 1: ERTS-RS	8.8.2, last sentence (197 of 492)	Speed sensors shall not be placed on the gear case.	Based on the bidder's experience, placing speed sensor on the gearbox have the following advantages: <ul style="list-style-type: none"> • To get a more precise and robust wheel axle speed signal measurement • To have the tooth wheel for the speed sensor in the traction motor will reduce the active length of the motor, i.e., reduce motor performance. • When having the speed sensor 	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>located on the gearbox it is more protected from flying objects, for example stones.</p> <ul style="list-style-type: none"> • It is easier to replace the speed sensor when mounted on the gearbox <p>We propose to delete this requirement.</p>	
466	Volume IV, ERTS, Part 1: ERTS-RS	8.8.10, last sentence (198 of 492)	Two sets of portable system (one for each depot) with all arrangements shall be provided to monitor Traction motor performance in any train as required (to be finalized during design stage) equipped with data logger for data recording.	Please clarify the detailed requirement for portable system requirement.	The Tender Conditions shall prevail.
467	Volume IV, ERTS, Part 1: ERTS-RS	8.8.10, last sentence (198 of 492)	Two sets of portable system (one for each depot) with all arrangements shall be provided to monitor Traction motor performance in any train as	Please clarify the detailed requirement for portable system requirement.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			required (to be finalized during design stage) equipped with data logger for data recording.		
468	Volume IV, ERTS, Part 1: ERTS-RS	8.8.10, 1st sentence (198 of 492)	The motor bearing maintenance inspection interval (excluding lubrication if required) shall exceed one million kilometers and the bearing shall have a design life of minimum 2.1 million kilometers	We comply to this requirement assuming that it is the L10 value that is meant. Bearing calculations will be done according to ISO 281.	L10 value may be assumed and bearing calculations may be done according to ISO 281. The Tender Conditions shall prevail.
469	Volume IV, ERTS, Part 1: ERTS-RS	8.8.10, last sentence (198 of 492)	Two sets of portable system (one for each depot) with all arrangements shall be provided to monitor Traction motor performance in any train as required (to be finalized during design stage) equipped with data logger for data recording.	Clarification needed; the requirement is unclear.	Corrigendum – 3 is being issued separately.
470	Volume IV, ERTS, Part 1: ERTS-RS	8.8.15, 1st two sentences	Each traction motor shall be provided with redundant thermistor for determination of temperature of stator winding. It	The PT100 elements is not able to remove without disassemble of the motor. We have two PT100 in the stator winding, one	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
		(198 of 492)	should be possible to replace the thermistors in the depot without lifting the car	is redundant. A PT100 connector is placed on the connection box which makes it possible to switch to the other PT100 without removing the connection box cover if one PT100 fails.	
471	Volume IV, ERTS, Part 1: ERTS-RS	8.8.22 (199 of 492)	Any inspection covers provided shall be robust and designed for quick and easy removal / replacement and have secondary retention to prevent dropping. Inspection openings shall be as large as possible to facilitate inspection and maintenance. Equipment box covers shall be provided with simple secure locking devices, with easily visible markings to indicate locked position. 24V DC LED based lighting arrangement shall be provided in the inverter box for maintenance purpose. Its fail-safe interlocking with the box	Since this requirement is not directly related to Traction motor, please move to correct section.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			cover shall be ensured. Contractor shall submit the detail document for Engineer's review during design stage.		
472	Volume IV, ERTS, Part 1: ERTS-RS	8.8.22 (199 of 492)	Any inspection covers provided shall be robust and designed for quick and easy removal / replacement and have secondary retention to prevent dropping. Inspection openings shall be as large as possible to facilitate inspection and maintenance. Equipment box covers shall be provided with simple secure locking devices, with easily visible markings to indicate locked position. 24V DC LED based lighting arrangement shall be provided in the inverter box for maintenance purpose. Its fail-safe interlocking with the box cover shall be ensured. Contractor shall submit the detail document for Engineer's review	Since this requirement is not directly related to Traction motor, please move to correct section.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			during design stage.		
473	Volume IV, ERTS, Part 1: ERTS-RS	8.8.18, last sentence (199 of 492)	Cleaning frequency shall not be more than one year and it shall be possible to undertake cleaning in-situ.	Cleaning inside the traction motor is not possible in-situ, it has to be done in the work shop at major overhauls. The traction motor needs to be disassembled to be able to clean the inside of the motor.	The Tender Conditions shall prevail.
474	Volume IV, ERTS, Part 1: ERTS-RS	8.8.21, 1st sentence (199 of 492)	AC traction motors used for the traction drive shall comply with the requirements of Relevant standards are IEC 60349-1, 60349-2, IEC 60349-3	IEC 60349-1 is not applicable. This standard is only applicable to rotating electrical machines, other than electronic converter-fed alternating current motors.	The Tender Conditions shall prevail.
475	Volume IV, ERTS, Part 1: ERTS-RS	8.9.3 (200 of 492)	For the commutation and power line filter capacitors, suitable sized and rated discharge resistors shall be fitted to ensure that the total capacitor terminal voltage shall be at a safe working level of 45 V within 2 minutes of removal of the voltage.	Same as other Indian DC project, the following is suggested. <Proposal> For the commutation and power line filter capacitors, suitable sized and rated discharge resistors shall be fitted to ensure that the total capacitor terminal	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				voltage shall be at a safe working level of 50 V within 2 minutes of removal of the voltage.	
476	Volume IV, ERTS, Part 1: ERTS-RS	8.9.3 (200 of 492)	For the commutation and power line filter capacitors, suitable sized and rated discharge resistors shall be fitted to ensure that the total capacitor terminal voltage shall be at a safe working level of 45 V within 2 minutes of removal of the voltage.	Same as other Indian DC project, the following is suggested. <Proposal> For the commutation and power line filter capacitors, suitable sized and rated discharge resistors shall be fitted to ensure that the total capacitor terminal voltage shall be at a safe working level of 50 V within 2 minutes of removal of the voltage.	Corrigendum – 3 is being issued separately.
477	Volume IV, ERTS, Part 1: ERTS-RS	8.10.8 (200 of 492)	Brake resistor shall be naturally cooled and may be mounted under the motor cars. If they are located on the roof, precautions must be taken	Naturally cooled brake resistors will of bigger size and needs more space to accommodate. Having 03 car train we find the shortage of space to accommodate components	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>against overheating.</p> <p>Adequate heat shields shall be provided to protect the car structure. Resistor design shall be based on a non-receptive line.</p>	<p>underslung.</p> <p>Request to update the requirements as Proposed Clause by the Bidder.</p> <p>"Brake resistor shall be naturally or forced cooled and shall be mounted under the motor cars. Adequate heat shields shall be provided to protect the car structure. Resistor design shall be based on a non-receptive line."</p>	
478	Volume IV, ERTS, Part 1: ERTS-RS	8.9.3 (200 of 492)	<p>For the commutation and power line filter capacitors, suitable sized and rated discharge resistors shall be fitted to ensure that the total capacitor terminal voltage shall be at a safe working level of 45 V within 2 minutes of removal of the voltage.</p>	<p>For Passive discharge this requirement is contradicting with Cl. 8.11.7 that require the discharge to 50V within 5 minutes. Passive discharge within 2 mins will have continuous losses in the system (not an energy efficient system). Kindly change the clause suitably.</p> <p>'For the commutation and power</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				line filter capacitors, suitable sized and rated discharge resistors shall be fitted to ensure that the total capacitor terminal voltage shall be at a safe working level of 45 V within 2 minutes 50 V within 5 minutes of removal of the voltage.'	
479	Volume IV, ERTS, Part 1: ERTS-RS	8.12.3 (201 of 492)	The Rolling stock Contractor shall also supply the mating half of the connector (208 nos.), which shall include a full complement of female contacts and approved by the Engineer.	208 numbers of mating connectors may not be required. Supply of number of mating half of connector, at shop side may be restricted to actual requirement at Workshop Line & Inspection Bay Line. Please confirm the quantity. Accordingly, ERTS 8.12.3 may be amended.	The Tender Conditions shall prevail.
480	Volume IV, ERTS, Part 1: ERTS-RS	9.2.2 (205 of 492)	The static type auxiliary inverter shall be of latest metro transit-proven technology (IGBT or latest) with microprocessor based, pulse width modulation	It is not necessarily to have standard output of 230 V, 1 Ph from auxiliary inverter. It can also be made available using separate 1 Phase transformer	The Tender Conditions shall prevail. However, if required the same may

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			<p>control. The auxiliary inverter shall receive input power from a 750 V DC line. The three-output voltage shall be as follows:</p> <p>i. Output 1: 415V 50Hz 3 phase 3 wire</p> <p>ii. Output 2: 230V 50Hz 1 phase</p> <p>iii. Output 3: 110V DC</p> <p>None of the above shall be accessible by passengers.</p>	<p>per coach. This will also reduce train bus and jumpers. We propose to remove Output 2: 230V 50Hz 1φ.</p> <p>Instead, we suggest to state: '230V 50Hz 1φ should be available in each car with galvanic isolation from 415 V ac.'</p>	<p>be appraised during design stage but the decision of the Engineer shall be final and binding on the Contractor.</p>
481	Volume IV, ERTS, Part 1: ERTS-RS	9.2.4, last sentence (205 of 492)	Gasket shall have minimum life of 12 years.	<p>Since gasket itself is made of rubber, please relax the required life.</p> <p><Proposal></p> <p>Gasket shall have minimum life of 4 years.</p>	Corrigendum – 3 is being issued separately.
482	Volume IV, ERTS, Part 1: ERTS-RS	9.2.4, 3rd sentence (205 of 492)	The component cooling system shall be designed to ensure the control electronics temperature inside auxiliary inverter shall not exceeds its maximum temperature rating with sufficient	<p><Proposal></p> <p>The component cooling system shall be designed to ensure the control electronics temperature inside auxiliary inverter shall not</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			margin of at least -20°C under specified conditions after due consideration of proximity effect.	exceeds its maximum temperature rating with sufficient margin of at least -10°C under specified conditions after due consideration of proximity effect.	
483	Volume IV, ERTS, Part 1: ERTS-RS	9.2.9 (206 of 492)	Staggered starting shall be provided between auxiliary power supplies on the train to minimize start up loads. Switching 'off' shall preferably be direct, but consideration will be given to delay circuits to allow air conditioning equipment to cycle off if this is shown to be essential. Under no circumstances, APS over current shall be detected during sequential start of auxiliary loads. The details shall be submitted and finalized during design phase.	Staggered starting function can be implemented by TCMS. However, even if Staggered starting is applied between each APS, the start-up load itself cannot be reduced. The Staggered starting should be applied at load side.	Staggered starting shall be applied at APS level as well as load side of individual APS to minimize start up loads and avoid high inrush currents. The Tender Conditions shall prevail.
484	Volume IV, ERTS, Part 1: ERTS-RS	9.2.9 (206 of 492)	Staggered starting shall be provided between auxiliary power supplies on the train to minimize	Staggered starting function can be implemented by TCMS. However, even if Staggered	Staggered starting shall be applied at APS level as well as load side of individual APS to minimize start up

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>start up loads. Switching 'off' shall preferably be direct, but consideration will be given to delay circuits to allow air conditioning equipment to cycle off if this is shown to be essential. Under no circumstances, APS over current shall be detected during sequential start of auxiliary loads. The details shall be submitted and finalized during design phase.</p>	<p>starting is applied between each APS, the start-up load itself cannot be reduced. The Staggered starting should be applied at load side.</p>	<p>loads and avoid high inrush currents.</p> <p>The Tender Conditions shall prevail.</p>
485	Volume IV, ERTS, Part 1: ERTS-RS	9.2.12, 1st two sentences (207 of 492)	<p>The box for auxiliary inverter shall be such that to avoid any corrosion throughout the service life on any account and the box shall last for the lifetime of the auxiliary inverter unit without needing any attention. The box shall be of stainless steel / anodized aluminum.</p>	<p>We provide Aluminum box which suitably painted to avoid corrosion. Please kindly add to apply Aluminum box with painting as same with other India metro train projects.</p> <p><Proposal></p> <p>The box for auxiliary inverter shall be such that to avoid any corrosion throughout the service life on any account and the box</p>	<p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				shall last for the lifetime of the auxiliary inverter unit without needing any attention. The box shall be of stainless steel / anodized aluminum /Aluminum with paint.	
486	Volume IV, ERTS, Part 1: ERTS-RS	9.2.12, 1st two sentences (207 of 492)	The box for auxiliary inverter shall be such that to avoid any corrosion throughout the service life on any account and the box shall last for the lifetime of the auxiliary inverter unit without needing any attention. The box shall be of stainless steel / anodized aluminum.	We provide Aluminum box which suitably painted to avoid corrosion. Please kindly add to apply Aluminum box with painting as same with other India metro train projects. <Proposal> The box for auxiliary inverter shall be such that to avoid any corrosion throughout the service life on any account and the box shall last for the lifetime of the auxiliary inverter unit without needing any attention. The box shall be of stainless steel / anodized aluminum /Aluminum with paint.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
487	Volume IV, ERTS, Part 1: ERTS-RS	9.4.3, (ii) (209 of 492)	Supply emergency load for at least 90 minutes (with doors open and close every two minutes) in case of failure of battery charger or its supply, with the battery charged to a level as expected during service but not better than 80% of its full capacity, before the voltage level at any device falls below 77V dc.	<p>Bidder proposes to relax requirement to 60 minutes as the durations of 60 mins is sufficient to meet the requirements. Increasing battery capacity for 90 minutes will lead to increased size thereby increasing weight as well.</p> <p>Bidder requests to change the clause as follows: Supply emergency load for at least 9060 minutes (with doors open and close every two minutes) in case of failure of battery charger or its supply, with the battery charged to a level as expected during service but not better than 80% of its full capacity, before the voltage level at any device falls below 77V dc.</p>	The Tender Conditions shall prevail.
488	Volume IV, ERTS, Part 1:	9.3.1 (209 of 492)	The battery shall be charged from the local static battery charger.	In order to ensure the charging effect of the battery, the battery	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS		<p>Two Battery Charger corresponding to two auxiliary-inverter shall be provided for a 3-car trainset. The battery shall be charged from the related APS static battery charger in normal condition. In case of failure of one APS, the battery of faulty APS shall also get charged from the healthy APS. The battery charger with automatic control shall be capable of providing a temperature compensated high rate boost charge or float charge compatible with the characteristic of the Ni-Cd batteries.</p>	<p>and the auxiliary inverter charger is a one-to-one correspondence; If the chargers of two auxiliary inverters correspond to a set of batteries, the charging control strategy is extremely difficult to realize, and the power outage is inevitable in the transformation process.</p> <p>Kindly change the clause suitably.</p> <p>'The battery shall be charged from the local static battery charger. Two Battery Charger corresponding to two auxiliary-inverter shall be provided for a 3-car trainset. The battery shall be charged from the related APS static battery charger in normal condition. In case of failure of one APS, the battery of faulty APS shall also get charged from the healthy APS. The battery</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				charger with automatic control shall be capable of providing a temperature compensated high-rate boost charge or float charge compatible with the characteristic of the Ni-Cd batteries.'	
489	Volume IV, ERTS, Part 1: ERTS-RS	9.4.3, (iii) (210 of 492)	Design of battery shall be suitable for frequent discharge as per load cycle under sleep mode in GoA4 and at train start-up.	Details for sleep mode are required including components/Equipments/Subsystems to be working/active during the sleep mode and overall duration for the entire sleep mode as it will affect the battery sizing.	The Tender Conditions shall prevail.
490	Volume IV, ERTS, Part 1: ERTS-RS	9.4.12, (iv) (211 of 492)	Battery fuses are to mounted in such a way that fuse blown indicator to be visible from outside at the time of maintenance work inspection.	Bidder proposes to allow Fuse status to be shared with driver desk with the help of TCMS. Bidder requests to change the Clause as follows: "Battery fuses are to mounted in such a way that fuse blown indicator to be visible from	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				outside at the time of maintenance work inspection Or Fuse status to be available at Driver desk on TCMS VDU."	
491	Volume IV, ERTS, Part 1: ERTS-RS	9.4.12 (vi) (211 of 492)	The switch shall be lockable by means of a personal lock with a removable key when the switch is in the isolated position.	Bidder recommends to practice LOTO. Kindly clarify the type of personal lock expected.	It may be finalised during design stage. The Tender Conditions shall prevail.
492	Volume IV, ERTS, Part 1: ERTS-RS	10.1.8, opening paragraph (216 of 492)	SIL Compliance TCMS of 3-Car and 6-Car trainset shall be a minimum SIL2 compliant for all vital and safety related control and monitoring functions including but not limited to the following hardware, software and control functions-	Each requirement about SIL2 shall be interrelated with specific calluses in ERTS.	The Tender Conditions shall prevail.
493	Volume IV, ERTS, Part 1: ERTS-RS	10.1.8, opening paragraph (216 of 492)	SIL Compliance TCMS of 3-Car and 6-Car trainset shall be a minimum SIL2 compliant for all vital and safety	Each requirement about SIL2 shall be interrelated with specific calluses in ERTS.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			related control and monitoring functions including but not limited to the following hardware, software and control functions-		
494	Volume IV, ERTS, Part 1: ERTS-RS	10.1.10 (217 of 492)	Signalling Interface TCMS of 3-Car and 6-Car trainset shall have adequate facility and interfaces to communicate with wayside signaling for UTO / and non-UTO modes. It shall be possible to simultaneously operate different trains in a section in GoA2 / GoA4 / GoA4 with attendant without any safety/reliability issue as per IEC 62290 (all parts). The communication protocol between TCMS and On-board Signalling system shall be finalized jointly at the initial design stage.	Please kindly clarify that we understand that the sentence of "in a section in GoA2 / GoA4/GoA4", it should be the GoA2 / GoA3/ GoA4, is it right?	It is GoA2 / GoA4 / (GoA4 with attendant). The Tender Conditions shall prevail.
495	Volume IV, ERTS, Part 1: ERTS-RS	10.1.12 (217 of 492)	All communication protocols, architecture and data acquisition concepts shall be of	Clause may be modified to "All communication protocols, architecture and data acquisition	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>the latest state of the art technology and compliant to international and railway industry standards. The Tenderer shall advise the proposed applicable standards for review. Contractor shall take adequate measures to protect TCMS system from any cyber-attack.</p>	<p>concepts shall be of the latest state of the art technology and compliant to international and railway industry standards. The Tenderer shall advise the proposed applicable standards for review."</p>	
496	Volume IV, ERTS, Part 1: ERTS-RS	10.1.12 (217 of 492)	<p>Applicable Norms and Standards All communication protocols, architecture and data acquisition concepts shall be of the latest state of the art technology and compliant to international and railway industry standards. The Tenderer shall advise the proposed applicable standards for review. Contractor shall take adequate measures to protect TCMS system from any cyber-attack.</p>	<p>As detailed requirement of Cyber Security is captured in ERTS 2.27 of the document, This clause may please be modified as below: "All communication protocols, architecture and data acquisition concepts shall be of the latest state of the art technology and compliant to international and railway industry standards. The Tenderer shall advise the proposed applicable standards</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				for review. Contractor shall take adequate measures to protect TCMS system from any cyber-attack."	
497	Volume IV, ERTS, Part 1: ERTS-RS	10.2.2 (218 of 492)	Ethernet Consist Network (ECN) Ethernet Consist Network with dual-homing ladder-type topology / dual-homing ring-type topology (compliant with IEC 61375-3-4:2014) shall be adopted. The ECN shall maintain redundant active communication links to the ETB. The redundancy shall be maintained at system level (PA/PIS, TCMS/CU & LU, BECU, NVR, EVR, ATC etc.).	Highlighted sentence in red shall be deleted. The ECN shall maintain redundant active communication links to the ETB.	Corrigendum – 3 is being issued separately.
498	Volume IV, ERTS, Part 1: ERTS-RS	10.2.2 (218 of 492)	Ethernet Consist Network (ECN) Ethernet Consist Network with dual-homing ladder-type topology / dual-homing ring-type topology (compliant with IEC 61375-3-4:2014) shall be adopted. The ECN shall maintain redundant	Highlighted sentence in red shall be deleted. The ECN shall maintain redundant active communication links to the ETB.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			active communication links to the ETB. The redundancy shall be maintained at system level (PA/PIS, TCMS/CU & LU, BECU, NVR, EVR, ATC etc.).		
499	Volume IV, ERTS, Part 1: ERTS-RS	10.2.1 (i) (218 of 492)	Ethernet based The network communication technology to be adopted for all TCMS data communication links and subsystem communication interfaces shall be based on Ethernet (100 Base TX or better).	Clause may be modified to "The network communication technology to be adopted for all TCMS data communication links and subsystem communication interfaces shall be mainly based on Ethernet (100 Base TX or better) solution backbone. Different protocols (MVB, CAN etc.) may be used for local communication. The details shall be finalized during design stage."	The Tender Conditions shall prevail.
500	Volume IV, ERTS, Part 1: ERTS-RS	10.2.2 (218 of 492)	Ethernet Consist Network (ECN) Ethernet Consist Network with dual-homing ladder-type topology / dual-homing ring type topology (compliant with IEC 61375-3-	Clause may be modified to "Ethernet Consist Network with dual-homing ladder-type topology (compliant with IEC 61375-3-4) or Ethernet Consist	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			4:2014) shall be adopted. The ECN shall maintain redundant active communication links to the ETB. The redundancy shall be maintained at system level (PA/PIS, TCMS/CU & LU, BECU, NVR, EVR, ATC etc.).	Network with RING Topology (Compliant to IEC 61375-3-4) shall be adopted. Split ring architecture may be provided for PACIS system."	
501	Volume IV, ERTS, Part 1: ERTS-RS	10.2.3, 1st paragraph (218 of 492)	Dual-Homing End Devices (ED) All the End Devices shall support dual-homing type Ethernet connections to ECN via physically independent ports to increase system reliability and availability. Both ports shall be able to communicate to train network simultaneously.	Clause may be modified to "As preference, all the End Devices shall support dual-homing type Ethernet connections to ECN via physically independent ports to increase system reliability and availability. If two ports are not available in control electronics for Doors and HVAC sub-System, having multiple control electronics communicating in Daisy Chain loop, may be connected on Ethernet with two end devices only"	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
502	Volume IV, ERTS, Part 1: ERTS-RS	10.2.3, 2nd paragraph (218 of 492)	All digital and analog IOs interfacing with TCMS (directly or via an interface unit) shall also be fully redundant.	May be modified to "All critical digital and analog IOs interfacing with TCMS (directly or via an interface unit) shall be fully redundant. Any change in above condition shall be subject to review and its acceptance by Engineer, whose decision shall be final and binding."	The Tender Conditions shall prevail.
503	Volume IV, ERTS, Part 1: ERTS-RS	10.2.1 (i) (218 of 492)	Ethernet based The network communication technology to be adopted for all TCMS data communication links and subsystem communication interfaces shall be based on Ethernet (100 Base TX or better).	Bidder proposes to allow compliance to IEC 61375 for the communication. The Bidder proposes to change the Clause as follows: "The network communication technology to be adopted for all TCMS data communication links and subsystem communication interfaces shall be mainly based on Ethernet (100 Base TX or better) solution backbone. Different protocols (MVB, CAN	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				etc.) may be used for local communication. The details shall be finalized during design stage."	
504	Volume IV, ERTS, Part 1: ERTS-RS	10.2.2 (218 of 492)	Ethernet Consist Network (ECN) Ethernet Consist Network with dual-homing ladder-type topology / dual-homing ring type topology (compliant with IEC 61375-3-4:2014) shall be adopted. The ECN shall maintain redundant active communication links to the ETB. The redundancy shall be maintained at system level (PA/PIS, TCMS/CU & LU, BECU, NVR, EVR, ATC etc.).	Bidder requests the Clause may be modified to "Ethernet Consist Network with dual-homing ladder-type topology (compliant with IEC 61375-3-4) or Ethernet Consist Network with RING Topology (Compliant to IEC 61375-3-4) shall be adopted. Split ring architecture may be provided for PACIS system. The ECN shall maintain redundant active communication links to the ETB. The redundancy shall be maintained at system level (PA/PIS, TCMS/CU & LU, BECU, NVR, EVR, ATC etc.). "	Corrigendum – 3 is being issued separately.
505	Volume IV, ERTS, Part 1:	10.2.3,	Dual-Homing End Devices (ED) All the End Devices shall support	The essence of the Clause remaining the same, the Bidder	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS	1st paragraph (218 of 492)	dual-homing type Ethernet connections to ECN via physically independent ports to increase system reliability and availability. Both ports shall be able to communicate to train network simultaneously.	requests the Clause may please be detailed as below: "As preference, all the End Devices shall support dual-homing type Ethernet connections to ECN via physically independent ports to increase system reliability and availability. If two ports are not available in control electronics for Doors and HVAC sub-System, having multiple control electronics communicating in Daisy Chain loop, may be connected on Ethernet with two end devices only,"	
506	Volume IV, ERTS, Part 1: ERTS-RS	10.2.3, 2nd paragraph (218 of 492)	All digital and analog IOs interfacing with TCMS (directly or via an interface unit) shall also be fully redundant.	The Clause may please be modified as below in favour of optimum design. The list of IOs to be redundant may be discussed and agreed at Design stage to the satisfaction	The Tender Conditions shall prevail.

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				<p>of the Engineer.</p> <p>Request to amend as below:</p> <p>"All critical digital and analog IOs interfacing with TCMS (directly or via an interface unit) shall be fully redundant. Any change in above condition shall be subject to review and its acceptance by Engineer, whose decision shall be final and binding."</p>	
507	Volume IV, ERTS, Part 1: ERTS-RS	10.1.14 (218 of 492)	The cables which are intended to be used in emergency circuit for alarms and communication shall have intrinsic fire-resistant properties in compliance with EN 50200 for PH120 and EN 50289.	<p>Based on bidder's experience PH120 cables for communication circuits are not available in the market, however the optimum performance can be achieved by following the standards.</p> <p>Bidder suggests to rephrase the clause as follows:</p> <p>10.1.14 - " The cables which are intended to be used in</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				emergency circuit for alarms and communication shall have intrinsic fire-resistant properties in compliance with EN 50200 for PH120 EN 45545 and EN 50289."	
508	Volume IV, ERTS, Part 1: ERTS-RS	10.5.8 (222 of 492)	Speed Sensor Redundancy Adequate redundancy shall be built in for correct train speed measurements in case of failure of any of the speed sensor. System shall also counter check the speed recorded by the ATP/ATO. For the purpose, the Contractor shall suitably interface with signalling Contractor.	The redundancy in speed sensor is not clear. Failure rate of Speed sensor is quite low and hence double channel / redundant speed sensor will not be required since Trailer cars (two in train) will have each brake free axle during service brake. The speed sensor can be read from other speed sensor in case of failure. The clause may please be changed removing redundancy	The Tender Conditions shall prevail.
509	Volume IV, ERTS, Part 1: ERTS-RS	10.5.8 (222 of 492)	Speed Sensor Redundancy Adequate redundancy shall be built in for correct train speed measurements in case of failure	The redundancy in speed sensor is not clear. Failure rate of Speed sensor is quite low and hence double channel /	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>of any of the speed sensor. System shall also counter check the speed recorded by the ATP/ATO. For the purpose, the Contractor shall suitably interface with signalling Contractor.</p>	<p>redundant speed sensor will not be required since Trailer cars (two in train) will have each brake free axle during service brake. The speed sensor can be read from other speed sensor in case of failure.</p> <p>In view of the above, requested to update the ERTS clause suitably.</p>	
510	Volume IV, ERTS, Part 1: ERTS-RS	10.5.8 (222 of 492)	<p>Speed Sensor Redundancy Adequate redundancy shall be built in for correct train speed measurements in case of failure of any of the speed sensor. System shall also counter check the speed recorded by the ATP/ATO. For the purpose, the Contractor shall suitably interface with signalling Contractor.</p>	<p>The redundancy in speed sensor is not clear. Failure rate of Speed sensor is quite low and hence double channel / redundant speed sensor will not be required since Trailer cars (two in train) will have each brake free axle during service brake. The speed sensor can be read from other speed sensor in case of failure. The clause may please be changed removing redundancy</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
511	Volume IV, ERTS, Part 1: ERTS-RS	10.7.2, (ix) (228 of 492)	VDU Display Information Push Button record: All operations of Train operator including pressing of push buttons etc. shall be recorded with time stamp and be made available on VDU.	Please clarify that push button means hardware button which is pushed by TO from driving console. If this clause mention about button operation on TCMS VDU also, then it shall be reconsidered as there are a lot of button on the VDU which will be used for the screen transition, and it's not realistic.	Corrigendum – 3 is being issued separately.
512	Volume IV, ERTS, Part 1: ERTS-RS	10.7.2, (ix) (228 of 492)	VDU Display Information Push Button record: All operations of Train operator including pressing of push buttons etc. shall be recorded with time stamp and be made available on VDU.	Please clarify that push button means hardware button which is pushed by TO from driving console. If this clause mention about button operation on TCMS VDU also, then it shall be reconsidered as there are a lot of button on the VDU which will be used for the screen transition, and it's not realistic.	Corrigendum – 3 is being issued separately.

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513	Volume IV, ERTS, Part 1: ERTS-RS	10.7.4 (228 of 492)	<p>Editing VDU Screens</p> <p>The format/nos./ contents of VDU screens shall be proposed by the Contractor during design and may have to be changed during the contract based on operational/maintenance requirements. The Contractor shall make such changes as and when required by the Engineer during the contract and also train Employer's engineers to design, review and execute the changes in VDU screens in post contract period. Necessary hardware and software tools shall be provided for each depot.</p>	<p>Though changes in VDU screen shall be made as required by engineer sharing of source code shall not be possible due to IPR rights. May be clarified.</p>	<p>The Tender Conditions shall prevail.</p>
514	Volume IV, ERTS, Part 1:	10.7.4 (228 of 492)	<p>Editing VDU Screens</p> <p>The format/nos./ contents of VDU</p>	<p>Providing Full Access of the software with hardware/software</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS		<p>screens shall be proposed by the Contractor during design and may have to be changed during the contract based on operational/maintenance requirements. The Contractor shall make such changes as and when required by the Engineer during the contract and also train Employer's engineers to design, review and execute the changes in VDU screens in post contract period. Necessary hardware and software tools shall be provided for each depot.</p>	<p>tool to the Employer is difficult for the Bidder due to Intellectual Property rights. In case change in software is required, the Bidder or the Sub-System Vendor would be required to make necessary changes.</p> <p>Bidder proposes to change the Clause as follows: "The format/nos./ contents of VDU screens shall be proposed by the Contractor during design and may have to be changed during the contract based on operational/ maintenance requirements. The Contractor shall make such changes as and when required by the Engineer during the contract. and also train Employer's engineers to design, review and execute the changes in VDU screens in post contract period. Necessary</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				hardware and software tools shall be provided for each depot."	
515	Volume IV, ERTS, Part 1: ERTS-RS	10.7.5 (229 of 492)	<p>VDU Access Control Levels</p> <p>The level of access to distinct screens shall be controlled for the train operator and maintenance personnel. At least three levels shall be defined which shall be user name and password protected. The details shall be reviewed by the Engineer.</p>	<p>Is it possible to clarify the expectation of three level access for VDU?</p> <p>Please kindly clarify whether "three levels" means 1) Test Mode, 2) Operator Mode and 3) Maintenance Mode?</p>	Corrigendum – 3 is being issued separately.
516	Volume IV, ERTS, Part 1: ERTS-RS	10.7.6 (229 of 492)	<p>Test Mode Extension of VDU for 3-Car and 6-Car trainset</p> <p>The TCMS VDU shall be connected to the Ethernet train bus and it shall be possible to simultaneously plug-in multiple laptops at any point on the train bus and replicate the TCMS VDU display. Suitable application software shall be developed to enable replication of TCMS VDU</p>	<p>Please clarify the purpose of this function. If this is the maintenance purpose (i.e.: maintainer wants to check the DIDO condition or any other displayed on the VDU), the maintainer can use the TCMS PTU.</p>	The Tender Conditions shall prevail.

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			along with touch and/or mouse-based interaction. Such additional VDUs shall login as "Test Mode" that shall be provided in addition to the "Operator and "Maintainer" modes of the TCMS.		
517	Volume IV, ERTS, Part 1: ERTS-RS	10.7.8 and 13.11.1 (229 of 492)	<p>10.7.8 - CCTV Display Redundancy</p> <p>Full redundancy shall be available between VDU of TCMS and CCTV. In case of failure of TCMS VDU full functionality of TCMS VDU shall be available in CCTV VDU and vice-versa. CCTV images can be displayed on the TCMS VDU on demand or event generated. The TCMS VDU shall have provision of displaying multiple screens as per the requirements.</p> <p>13.11.1 - The TCMS HMI screen</p>	<p>In clause 10.7.8, it was mentioned that TCMS VDU shall be available in CCTV VDU in case of failure of TCMS VDU and vice versa.</p> <p>However, in 13.11.1 it was stated that separate HMI for CCTV need not to be provided.</p> <p>Please clarify on requirement of separate CCTV HMI.</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>shall be used as CCTV screen on demand or event actuated. The TCMS screen shall have provision to have to show simultaneous multiple views of CCTV/TCMS/PA/PIS. CCTV images can be display on the TCMS VDU on demand or event generated. The TCMS VDU shall have provision of displaying multiple screens as per the requirements. Separate HMI for CCTV need not to be provided. The Contractor shall submit the details for Engineer's review.</p>		
518	Volume IV, ERTS, Part 1: ERTS-RS	10.7.5 (229 of 492)	<p>VDU Access Control Levels The level of access to distinct screens shall be controlled for the train operator and maintenance personnel. At least three levels shall be defined which shall be user name and password protected. The details shall be</p>	<p>Is it possible to clarify the expectation of three level access for VDU? Please kindly clarify whether "three levels" means 1) Test Mode, 2) Operator Mode and 3) Maintenance Mode?</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			reviewed by the Engineer.		
519	Volume IV, ERTS, Part 1: ERTS-RS	10.7.6 (229 of 492)	<p>Test Mode Extension of VDU for 3-Car and 6-Car trainset</p> <p>The TCMS VDU shall be connected to the Ethernet train bus and it shall be possible to simultaneously plug-in multiple laptops at any point on the train bus and replicate the TCMS VDU display. Suitable application software shall be developed to enable replication of TCMS VDU along with touch and/or mouse-based interaction. Such additional VDUs shall login as "Test Mode" that shall be provided in addition to the "Operator and "Maintainer" modes of the TCMS.</p>	Please clarify the purpose of this function. If this is the maintenance purpose (i.e.: maintainer wants to check the DIDO condition or any other displayed on the VDU), the maintainer can use the TCMS PTU.	The Tender Conditions shall prevail.
520	Volume IV, ERTS, Part 1: ERTS-RS	10.7.7 (229 of 492)	<p>VDU Hardware</p> <p>Capacitive-touch screen-based VDU or better shall be provided</p>	Clause may be modified to "Resistive touch screen / Capacitive-touch screen based VDU or better shall be provided	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			as approved by the Engineer. The display screen shall be of coloured Light Emitting Diode (LED) type, suitable for use in rugged railcar environment. VDU shall be equipped with brightness, sharpness, intensity and contrast controls etc.	as approved by the Engineer. The display screen shall be of coloured Light Emitting Diode (LED) type, suitable for use in rugged railcar environment. VDU shall be equipped with brightness, sharpness, intensity and contrast controls etc."	
521	Volume IV, ERTS, Part 1: ERTS-RS	10.7.7 (229 of 492)	VDU Hardware Capacitive-touch screen-based VDU or better shall be provided as approved by the Engineer. The display screen shall be of coloured Light Emitting Diode (LED) type, suitable for use in rugged railcar environment. VDU shall be equipped with brightness, sharpness, intensity and contrast controls etc.	Bidder proposes to change the Clause as follows: "Resistive touch screen / Capacitive-touch screen based VDU or better shall be provided as approved by the Engineer. The display screen shall be of coloured Light Emitting Diode (LED) type, suitable for use in rugged railcar environment. VDU shall be equipped with brightness, sharpness, intensity and contrast controls etc."	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
522	Volume IV, ERTS, Part 1: ERTS-RS	10.8.4 (230 of 492)	<p>Software Versioning</p> <p>Time stamping of date of software(s) used in different sub-systems of the train and their compatibility shall be ensured by TCMS. The details of version of software(s) used in different sub-systems with time of uploading shall be displayed at the TCMS at the time of Power Up (wake up). The system shall not permit loading of incompatible software(s). Manual override in certain cases can be permitted by the Engineer, details to be finalized during design stage.</p>	<p>Restriction to permit loading of Incompatible software shall lead to requirement of manual override in case of uploading of new software versions. Shall it be acceptable.</p>	<p>The Tender Conditions shall prevail.</p>
523	Volume IV, ERTS, Part 1: ERTS-RS	10.11.5, (i), (ii), (iv) (234 of 492)	<p>Single Point Upload/Download Provision</p> <p>i. Single point uploading of software and downloading of</p>	<p>Single point uploading of software can be done through network switch. Request to reword the clause as following</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>faults shall be possible from TCMS nodes and/or via wireless mode in each 3-Car/6-Car train. In-case of sub-supplier's equipment like doors, PIS, HVAC etc. also, single point uploading of software and down loading of faults on unit/car/train basis shall be ensured.</p> <p>ii. The overall time required for uploading the software and downloading fault data for all subsystems shall not be more than 15 minutes each and the same shall be demonstrated. The individual Electronic Door Control Unit (EDCU) shall be connected with dedicated port of TCMS to minimize the time taken for data downloading and uploading of door software.</p> <p>iv. If fault data downloading is interrupted somehow, it should resume from the same point, at</p>	<p>(i) Single point uploading of software and downloading of faults shall be possible from TCMS nodes and/or via wireless mode in each train or through suitable network switch. In-case of sub-supplier's equipment like doors, PIS, HVAC etc. also, single point uploading of software and downloading of faults on unit/car/train basis shall be ensured</p> <p>iv) In case of interruption in downloading data, downloading will start from beginning. Clause may please be change to call for downloading from beginning</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			which it was interrupted.		
524	Volume IV, ERTS, Part 1: ERTS-RS	10.11.5, (ii) (234 of 492)	<p>Single Point Upload/Download Provision:</p> <p>The overall time required for uploading the software and downloading fault data for all subsystems shall not be more than 15 minutes each and the same shall be demonstrated. The individual Electronic Door Control Unit (EDCU) shall be connected with dedicated port of TCMS to minimize the time taken for data downloading and uploading of door software.</p>	<p>If download data size <300Mb process can be completed in 15mins</p> <p>Since the uploading and downloading time is depending on each subsystem and vehicle, please discuss and decide this time in design stage.</p>	The Tender Conditions shall prevail.
525	Volume IV, ERTS, Part 1: ERTS-RS	10.11.5, (v) (234 of 492)	<p>Single Point Upload/Download Provision</p> <p>v. The trip specific data shall be dumped at the end of each trip. This data should be sent via S&T network, for which suitable interface to be ensured with the</p>	Please kindly clarify the expected trip specific data in the ERTS?	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			designated Contractor.		
526	Volume IV, ERTS, Part 1: ERTS-RS	10.11.5, (ii) (234 of 492)	<p>Single Point Upload/Download Provision:</p> <p>The overall time required for uploading the software and downloading fault data for all subsystems shall not be more than 15 minutes each and the same shall be demonstrated. The individual Electronic Door Control Unit (EDCU) shall be connected with dedicated port of TCMS to minimize the time taken for data downloading and uploading of door software.</p>	<p>If download data size <300Mb process can be completed in 15mins</p> <p>Since the uploading and downloading time is depending on each subsystem and vehicle, please discuss and decide this time in design stage.</p>	The Tender Conditions shall prevail.
527	Volume IV, ERTS, Part 1: ERTS-RS	10.11.5, (v) (234 of 492)	<p>Single Point Upload/Download Provision</p> <p>v. The trip specific data shall be dumped at the end of each trip. This data should be sent via S&T network, for which suitable interface to be ensured with the</p>	Please kindly clarify the expected trip specific data in the ERTS?	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			designated Contractor.		
528	Volume IV, ERTS, Part 1: ERTS-RS	10.11.5, (i), (ii) and (iv) (234 of 492)	<p>Single Point Upload/Download Provision</p> <p>i. Single point uploading of software and downloading of faults shall be possible from TCMS nodes and/or via wireless mode in each 3-Car/6-Car train. In case of sub-supplier's equipment like doors, PIS, HVAC etc. also, single point uploading of software and downloading of faults on unit/car/train basis shall be ensured.</p> <p>ii. The overall time required for uploading the software and downloading fault data for all subsystems shall not be more than 15 minutes each and the same shall be demonstrated.</p> <p>iv. If fault data downloading is</p>	<p>Single point uploading of software can be done through network switch. Request to reword the clause as following</p> <p>(i) Single point uploading of software and downloading of faults shall be possible from TCMS nodes and/or via wireless mode in each train or through suitable network switch. In-case of sub-supplier's equipment like doors, PIS, HVAC etc. also, single point uploading of software and downloading of faults on unit/car/train basis shall be ensured</p> <p>iv) In case of interruption in downloading data, downloading will start from beginning. Clause may please be change to call for downloading from beginning</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			interrupted somehow, it should resume from the same point, at which it was interrupted.		
529	Volume IV, ERTS, Part 1: ERTS-RS	10.13.3 (236 of 492)	The event recorder shall have a minimum storage capacity to store 30 days of recording for 300 digital channels and 36 analog channels continuous recording at a sampling rate of 10 samples per second.	Storing signal information through Ethernet is simpler which in turn reduces the number of cables in trainlines and to the panels. So, it is recommended to have only Ethernet based recording instead of having Digital and Analog channel inputs to Event recorder.	The Tender Conditions shall prevail.
530	Volume IV, ERTS, Part 1: ERTS-RS	10.13.1 (236 of 492)	Each DMC shall be fitted with redundant event recorder in addition to the on-board TCMS memory for the requirements as specified in sub-clause 10.12.2 and 10.12.3 above.	As per understanding, each DMC shall have one event recorder and event recorder of DMC2 shall be redundant to event recorder of DMC1. Please confirm.	Yes, but it shall be separate from event recording memory of TCMS in each car. The Tender Conditions shall prevail.
531	Volume IV, ERTS, Part 1:	10.13.10	The memory module used for the storage of data shall be	Bidder proposes to allow Event recorder crash proof Memory	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS	(236 of 492)	removable to allow playback on other common commercially available Windows 10 or higher operating system computer	module data to be downloaded on another healthy Event recorder. The Bidder proposes to change the Clause as follows: "The memory module used for the storage of data shall allow downloading of data on another healthy Event recorder or allow playback on other common commercially available Windows 10 or higher operating system computer"	
532	Volume IV, ERTS, Part 1: ERTS-RS	10.14.1, (i) (237 of 492)	General The contractor shall provide equipment and install the complete system to enable: i. Remote access of TCMS data on trains present in mainline and depot(s).	Please clarify the following conditions. - The number of trains accessing from the central server simultaneously.	As per the number of trains in the contract for Bhopal and Indore separately. Corrigendum is being issued separately, for ERGS-RS sub-clause 10.14.
533	Volume IV, ERTS, Part 1:	10.14.2, (i), 5th sentence	i. Central server To achieve redundancy	The following sentence is unclear, please explain the	Corrigendum – 3 is being issued separately, for ERGS-RS sub-

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS	(237 of 492)	Contractor can provide separate server at Depot and the same can be connected to the Central server.	<p>differences between Central server and separate server.</p> <p>Does the following sentence mean the physical TWO central servers are connecting each other for redundancy? One is the working, the other is backup.</p> <p>"To achieve redundancy Contractor can provide separate server at Depot and the same can be connected to the Central server"</p>	clause 10.14.
534	Volume IV, ERTS, Part 1: ERTS-RS	10.14.2, (i) (237 of 492)	Central server	Please clarify that the storage data period in the central server.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.
535	Volume IV, ERTS, Part 1: ERTS-RS	10.14.1, (i) (237 of 492)	<p>General</p> <p>The contractor shall provide equipment and install the complete system to enable:</p> <p>i. Remote access of TCMS data on trains present in mainline and</p>	<p>Please clarify the following conditions.</p> <p>- The number of trains accessing from the central server simultaneously.</p>	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			depot(s).		
536	Volume IV, ERTS, Part 1: ERTS-RS	10.14.2, (i), 5th sentence (237 of 492)	i. Central server To achieve redundancy Contractor can provide separate server at Depot and the same can be connected to the Central server.	The following sentence is unclear, please explain the differences between Central server and separate server. Does the following sentence mean the physical TWO central servers are connecting each other for redundancy? One is the working, the other is backup. "To achieve redundancy Contractor can provide separate server at Depot and the same can be connected to the Central server"	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.
537	Volume IV, ERTS, Part 1: ERTS-RS	10.14.2, (i) (237 of 492)	Central server	Please clarify that the storage data period in the central server.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.
538	Volume IV, ERTS, Part 1:	10.14.1, (ii) (238 of 492)	ii. Remote downloading of TCMS data (data recorder logs, events	Please clarify the following conditions.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS		logs stored on on-board TCMS memory and event data stored in event recorder) to Central server through wireless communication (Wi-Fi) network of signalling/telecom using maintenance notebook computers. The contractor shall interface with the supplier of Asset and Maintenance management system for data integration. The Contractor shall conduct necessary interface with S&T and shall be responsible for complete set up, commissioning and satisfactory working of the system during DLCMP.	<ul style="list-style-type: none"> - The number of trains accessed from the central server. - The number of terminals accessed to the central server. - The maintenance notebook computer is the same as ten notebook computers described in the clause 10.11.1. 	clause 10.14.
539	Volume IV, ERTS, Part 1: ERTS-RS	10.14.2, (ii), 2nd paragraph (238 of 492)	ii. Wayside Equipment All equipment required within depot(s) and OCC etc. shall be supplied by the Rolling Stock Contractor for places in Bhopal as well as Indore. Any other networking equipment as defined	Please confirm that the wireless communication be used in depot only?	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			in Appendix-TD shall also be in the scope of Rolling Stock Contractor. Further details shall be worked out as approved by the Engineer during design stage.		
540	Volume IV, ERTS, Part 1: ERTS-RS	10.14.2, (iii) (238 of 492)	iii. On-board equipment Any on-board equipment / access point / switches / router / antenna etc. shall be provided by Rolling Stock Contractor. On availability of train in the depot and terminal stations, the recorded data in TCMS shall be transferred to the central / depot server and subsequently to the Asset and Maintenance management system automatically. The data to be recorded in the central / depot server and to be integrated with the Asset and Maintenance management system shall be discussed and finalized in interface with Asset Management system supplier. The details shall	Please clarify that the meaning of "Maintenance management system" is maintenance notebook computer described in the clause 10.14.1ii.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			be submitted for Engineer's review.		
541	Volume IV, ERTS, Part 1: ERTS-RS	10.14.3, (ii) (238 of 492)	ii. High-Integrity data transfer Integrity of the data shall not be affected during remote download and in case of any interruption or otherwise the data shall be suitably secured and retrievable.	TCMS data shall be transmitted via signaling/telecom according to the clause 10.14.1. Therefore, the following requirement is proposed to add to the clause 10.14.3ii. The integrity within signaling / telecom network shall be secured by the signaling / telecom Contractor.	The Tender Conditions shall prevail. Also, refer Corrigendum – 3 being issued separately, for ERGS-RS sub-clause 10.14.
542	Volume IV, ERTS, Part 1: ERTS-RS	10.14.3, (iii) (238 of 492)	iii. Auto resume of downloading Connection failure during data download shall not cause restart of download from the beginning. Rather, all downloads shall pickup from the point where connection was broken.	Please clarify that how long the central server need to keep the disconnected connection. Please clarify that providing auto retry of downloading is OK instead of auto resume.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.
543	Volume IV, ERTS, Part 1:	10.14.1, (ii) (238 of 492)	ii. Remote downloading of TCMS data (data recorder logs, events	Please clarify the following conditions.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS		logs stored on on-board TCMS memory and event data stored in event recorder) to Central server through wireless communication (Wi-Fi) network of signalling/telecom using maintenance notebook computers. The contractor shall interface with the supplier of Asset and Maintenance management system for data integration. The Contractor shall conduct necessary interface with S&T and shall be responsible for complete set up, commissioning and satisfactory working of the system during DLCMP.	<ul style="list-style-type: none"> - The number of trains accessed from the central server. - The number of terminals accessed to the central server. - The maintenance notebook computer is the same as ten notebook computers described in the clause 10.11.1. 	clause 10.14.
544	Volume IV, ERTS, Part 1: ERTS-RS	10.14.2, (ii), 2nd paragraph (238 of 492)	ii. Wayside Equipment All equipment required within depot(s) and OCC etc. shall be supplied by the Rolling Stock Contractor for places in Bhopal as well as Indore. Any other networking equipment as defined	Please confirm that the wireless communication be used in depot only?	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			in Appendix-TD shall also be in the scope of Rolling Stock Contractor. Further details shall be worked out as approved by the Engineer during design stage.		
545	Volume IV, ERTS, Part 1: ERTS-RS	10.14.2, (iii) (238 of 492)	iii. On-board equipment Any on-board equipment / access point / switches / router / antenna etc. shall be provided by Rolling Stock Contractor. On availability of train in the depot and terminal stations, the recorded data in TCMS shall be transferred to the central / depot server and subsequently to the Asset and Maintenance management system automatically. The data to be recorded in the central / depot server and to be integrated with the Asset and Maintenance management system shall be discussed and finalized in interface with Asset Management system supplier. The details shall	Please clarify that the meaning of "Maintenance management system" is maintenance notebook computer described in the clause 10.14.1ii.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			be submitted for Engineer's review.		
546	Volume IV, ERTS, Part 1: ERTS-RS	10.14.3, (ii) (238 of 492)	ii. High-Integrity data transfer Integrity of the data shall not be affected during remote download and in case of any interruption or otherwise the data shall be suitably secured and retrievable.	TCMS data shall be transmitted via signaling/telecom according to the clause 10.14.1. Therefore, the following requirement is proposed to add to the clause 10.14.3ii. The integrity within signaling / telecom network shall be secured by the signaling / telecom Contractor.	The Tender Conditions shall prevail. Also, refer Corrigendum – 3 being issued separately, for ERGS-RS sub-clause 10.14.
547	Volume IV, ERTS, Part 1: ERTS-RS	10.14.3, (iii) (238 of 492)	iii. Auto resume of downloading Connection failure during data download shall not cause restart of download from the beginning. Rather, all downloads shall pickup from the point where connection was broken.	Please clarify that how long the central server need to keep the disconnected connection. Please clarify that providing auto retry of downloading is OK instead of auto resume.	After reconnection, downloading shall start from the file which was interrupted. Duplication of files shall not happen. Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.
548	Volume IV,	10.14.3, (v)	v. Asset and Maintenance	Please clarify the purpose and	It is the requirement of Asset and

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 1: ERTS-RS	(239 of 492)	management system, issue of work orders etc. shall be linked with this software.	role of the "maintenance management system" described in this clause and the "maintenance notebook computers" described in the clause 10.14.1ii.	Maintenance management system (refer to APPENDIX X - Asset Management System in Rolling Stock - ERGS). Corrigendum – 3 is being issued separately, for ERGS-RS clause 10.14
549	Volume IV, ERTS, Part 1: ERTS-RS	10.14.3, (vi) (239 of 492)	vi. The Contractor shall supply the multiuser software(s) required for analysis of the faults and predictions/judgments on likely faults/failures. The specification of the software shall be got approved from the Engineer.	Please confirm that how many user shall be prepared.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.
550	Volume IV, ERTS, Part 1: ERTS-RS	10.14.3, (v) (239 of 492)	v. Asset and Maintenance management system, issue of work orders etc. shall be linked with this software.	Please clarify the purpose and role of the "maintenance management system" described in this clause and the "maintenance notebook computers" described in the clause 10.14.1ii.	It is the requirement of Asset and Maintenance management system (refer to APPENDIX X - Asset Management System in Rolling Stock - ERGS). Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					separately, for ERGS-RS clause 10.14
551	Volume IV, ERTS, Part 1: ERTS-RS	10.14.3, (vi) (239 of 492)	vi. The Contractor shall supply the multiuser software(s) required for analysis of the faults and predictions/judgments on likely faults/failures. The specification of the software shall be got approved from the Engineer.	Please confirm that how many user shall be prepared.	Corrigendum – 3 is being issued separately, for ERGS-RS sub-clause 10.14.
552	Volume IV, ERTS, Part 1: ERTS-RS	10.15.1, (i) (239 of 492)	General The Vehicle Control Circuit shall be suitably designed to ensure that Energy Consumption values at specified points are measured, recorded and made easily retrievable. The accuracy and integrity of these measurements shall be specifically ensured as the Employer intends to use the data for getting carbon credits. The measurements shall be: i. Made independently at Current	The contribution of HVAC loads to size the auxiliary power supply (APS) unit is more than 85% of the rated capacity of the APS. So, the measurement at APS level provides good enough picture of the energy consumed for the HVAC units of the train. Further, the loads other than HVAC on the APS are fixed loads i.e., air compressor and traction auxiliary fans. The consumption of these other loads is constant. Hence, the	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Collector, Inverter Unit, Auxiliary Supply Unit and HVAC levels,</p> <p>ii. Made separately for traction, coasting and regeneration modes for each train,</p> <p>iii. Linked with Crew IDs (in non-UTO mode),</p> <p>iv. Segregable between mainline and depot consumptions,</p> <p>v. Time stamped every 5 seconds,</p> <p>vi. Stored in TCMS memory for 60-day period,</p> <p>vii. Retrievable on VDU as cumulative/integrated values with advanced filtering option.</p>	<p>TCMS can deduct the consumption of these other loads based on their operational status and recorded time of operation (as per clause 10.7.2(vi)), to get the energy consumption figures for HVAC for any specific time period.</p> <p>If energy meters or equivalent provision is made at HVAC unit level, it will mean additional electronics and parts which would lead to not only increase in one time cost, but also increase the LCC, reduce the reliability of complete system (due to frequent interventions) and cost of spares.</p> <p>So, we propose to modify only the sentence highlighted below from the clause 10.15.1 as follows: -</p> <p>The measurements shall be:</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				i. Made independently at Current Collector, Inverter Unit and Auxiliary Supply Unit and HVAC levels,	
553	Volume IV, ERTS, Part 1: ERTS-RS	10.15.3, (i) (240 of 492)	Measurement Accuracy i. Accuracy: All energy measurements shall have accuracy within ± 3 % of the measurements made with Standard Wattmeter and Standard Instrument Transformers connected at appropriate test point in the Vehicle Control Circuit. This shall be validated during type tests.	The energy consumption accuracy could not meet in the low power area. <Proposal> All energy measurements at rated power shall have accuracy within ± 3 % of the measurements made with Standard Wattmeter and Standard Instrument Transformers connected at appropriate test point in the Vehicle Control Circuit. This shall be validated during type tests	The Tender Conditions shall prevail.
554	Volume IV, ERTS, Part 1: ERTS-RS	10.15.3, (i) (240 of 492)	Measurement Accuracy i. Accuracy: All energy measurements shall	The energy consumption accuracy could not meet in the low power area.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			have accuracy within ± 3 % of the measurements made with Standard Wattmeter and Standard Instrument Transformers connected at appropriate test point in the Vehicle Control Circuit. This shall be validated during type tests.	<Proposal> All energy measurements at rated power shall have accuracy within ± 3 % of the measurements made with Standard Wattmeter and Standard Instrument Transformers connected at appropriate test point in the Vehicle Control Circuit. This shall be validated during type tests	
555	Volume IV, ERTS, Part 1: ERTS-RS	10.15.2 (iii), Table, 10th row (240 of 492)	File Format: The Energy Consumption data shall be exportable to Microsoft Excel in the following format: Parameter: Energy Consumed @ HVAC	Will HVAC measurement be permitted by measurement of total power consumed by all HVACs or individual HVAC energy consumption is required.	Energy data of Individual HVAC is required. The Tender Conditions shall prevail.
556	Volume IV, ERTS, Part 1: ERTS-RS	10.16.2 (240 of 492)	RSC VDU The Rolling Stock Controller (RSC) in OCC shall have facility	Please clarify if limited to only monitoring? Controlling would have challenges owing to	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			of full TCMS functionality of any train on his workstation on demand through signalling network. Development of the VDU application in RSC workstation shall be responsibility of Rolling Stock Contractor.	latency, critical function usage, cyber and misuse	
557	Volume IV, ERTS, Part 1: ERTS-RS	10.15.3, (i) (240 of 492)	<p>Measurement Accuracy</p> <p>i. Accuracy:</p> <p>All energy measurements shall have accuracy within ± 3 % of the measurements made with Standard Wattmeter and Standard Instrument Transformers connected at appropriate test point in the Vehicle Control Circuit. This shall be validated during type tests.</p>	<p>The energy consumption accuracy could not meet in the low power area, when seen at the CCD point.</p> <p><Proposal></p> <p>All energy measurements, except at CCD, shall have accuracy within ± 3 % of the measurements made with Standard Wattmeter and Standard Instrument Transformers connected at appropriate test point in the Vehicle Control Circuit. This shall be validated during type tests</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
558	Volume IV, ERTS, Part 1: ERTS-RS	10.16.3 (241 of 492)	<p>OCC GUI</p> <p>Rolling Stock Contractor shall propose a user-friendly graphical user interface in the form of a conceptual schematic/wireframe that shall include page layouts, arrangement of the GUI's content, interface and navigational elements, and a description of how they work together. This proposal shall be submitted to the Engineer for his approval well in advance and shall be jointly agreed with Signalling Contractor for implementation. The Rolling Stock Contractor shall provide detailed information of the TCMS-OCC interface as implemented in at least two recently executed UTO Projects for reference during design stage. The name of such projects shall be indicated by the Tenderer in the bid.</p>	<p>Tender believes that OCC provides the following GUIs.</p> <ul style="list-style-type: none"> a. Rolling Stock Controller (RSC) b. Traffic Controller (TC) c. Information Controller (IC) d. Radio Controller (RC) <p>The relevant controller with Rolling Stock is most likely only the RSC, so does this OCC GUI requirement relevant with RSC?</p>	<p>Rolling stock related GUI for OCC and RSC as mentioned in ERTS-RS 10.16.2 & 10.16.3.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
559	Volume IV, ERTS, Part 1: ERTS-RS	10.16.3 (241 of 492)	<p>OCC GUI</p> <p>Rolling Stock Contractor shall propose a user-friendly graphical user interface in the form of a conceptual schematic/wireframe that shall include page layouts, arrangement of the GUI's content, interface and navigational elements, and a description of how they work together. This proposal shall be submitted to the Engineer for his approval well in advance and shall be jointly agreed with Signalling Contractor for implementation. The Rolling Stock Contractor shall provide detailed information of the TCMS-OCC interface as implemented in at least two recently executed UTO Projects for reference during design stage. The name of such projects shall be indicated by the Tenderer in the bid.</p>	<p>Tender believes that OCC provides the following GUIs.</p> <ul style="list-style-type: none"> a. Rolling Stock Controller (RSC) b. Traffic Controller (TC) c. Information Controller (IC) d. Radio Controller (RC) <p>The relevant controller with Rolling Stock is most likely only the RSC, so does this OCC GUI requirement relevant with RSC?</p>	<p>Rolling stock related GUI for OCC and RSC as mentioned in ERTS-RS 10.16.2 & 10.16.3.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
560	Volume IV, ERTS, Part 1: ERTS-RS	11.2.5 (244 of 492)	The system shall automatically control the temperature and relative humidity throughout the passenger area up to 25°C and relative humidity of 60% RH respectively, for ambient temperatures of 35°C 65% RH and 47°C 33% RH.	Internal temperature requirement at ambient condition 47°C 33% RH conflicts with requirement under the clause 11.2.1 where 44°C Dry Bulb 33% RH is specified for Summer ambient design	Corrigendum – 3 is being issued separately.
561	Volume IV, ERTS, Part 1: ERTS-RS	11.2.10 (245 of 492)	Employer expects that an energy efficient system comparable with the best available in the market shall be provided. Good energy efficiency shall be achieved in cooling and de-humidification operations of the HVAC. Contractor shall furnish energy efficiency ratio (EER) for the offered system. In cooling mode, the Coefficient of performance (COP) of HVAC shall not be less than 2.5 in Summer ambient conditions under all loading conditions from AW0 to AW4 which may be achieved by	Employer expects that an energy efficient system comparable with the best available in the market shall be provided. Good energy efficiency shall be achieved in cooling and de-humidification operations of the HVAC. Contractor shall furnish energy efficiency ratio (EER) for the offered system. In cooling mode, the Coefficient of performance (COP) of HVAC shall not be less than 2.5 in Summer ambient conditions under AW4 loading which may be achieved by	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>utilizing variable frequency control (if required) of compressors or any other control mechanism. The COP shall be validated as per IS8148, ASHRAE 37 or any other relevant standard, as agreed by the Engineer. The Contractor shall submit the record of proven system already functional in any metros with the specified COP.</p> <p>The Contractor shall furnish expected power consumption of the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2, AW3 and AW4 passenger loads.</p>	<p>utilizing variable frequency control (if required) of compressors or any other control mechanism. The COP shall be validated as per IS8148, ASHRAE 37 or any other relevant standard, as agreed by the Engineer. The Contractor shall submit the record of proven system already functional in any metros with the specified COP.</p> <p>The Contractor shall furnish expected power consumption of the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2, AW3 and AW4 passenger loads</p>	
562	Volume IV, ERTS, Part 1: ERTS-RS	11.2.5 (245 of 492)	The system shall automatically control the temperature and relative humidity throughout the passenger area up to 25°C and relative humidity	Internal temperature requirement at ambient condition 47°C 33% RH conflicts with requirement under the clause 11.2.1 where 44°C Dry Bulb 33% RH is specified for	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			of 60% RH respectively, for ambient temperatures of 35°C 65% RH and 47°C 33% RH.	Summer ambient design	
563	Volume IV, ERTS, Part 1: ERTS-RS	11.2.5 (245 of 492)	The system shall automatically control the temperature and relative humidity throughout the passenger area up to 25°C and relative humidity of 60% RH respectively, for ambient temperatures of 35°C 65% RH and 47°C 33% RH.	Internal temperature requirement at ambient condition 47°C 33% RH conflicts with requirement under the clause 11.2.1 where 44°C Dry Bulb 33% RH is specified for Summer ambient design. We understand requirements under 11.2.1 prevails, please confirm.	Corrigendum – 3 is being issued separately.
564	Volume IV, ERTS, Part 1: ERTS-RS	11.2.5 (245 of 492)	The system shall automatically control the temperature and relative humidity throughout the passenger area up to 25°C and relative humidity of 60% RH respectively, for ambient temperatures of 35°C 65% RH	There seems to be a typo in this clause 11.2.5 as the design external Summer condition mentioned in clause 11.2.1 to achieve 25°C / 60%Rh internal conditions is 44°C / 33%Rh and not 47°C / 33%Rh.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			and 47°C 33% RH.	Hence, we propose to correct the clause as follows: - The system shall automatically control the temperature and relative humidity throughout the passenger area up to 25°C and relative humidity of 60% RH respectively, for ambient temperatures of 35°C 65% RH and 47°C 44°C 33% RH.	
565	Volume IV, ERTS, Part 1: ERTS-RS	11.2.8 (245 of 492)	Temperature sensors for fresh air, return air, supply air, condenser inlet and condenser outlet air shall be inbuilt in the HVAC unit. Temperature sensor to monitor ambient condition shall be mounted on car body roof at a suitable distance from HVAC unit so that there shall not be any effect of condenser exhaust air on its readings. All the data shall be logged in TCMS and retrieval on	Temperature sensors at condenser inlet and outlet are never provided in serial configuration in any of the HVAC units for rail application. There is no value addition by adding these sensors on the condenser side. Further these sensors would be exposed to external environment and may have to be frequently replaced due to risk of damage during maintenance	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			demand from TCMS.	<p>(cleaning of condenser coils by high pressure water jet) and also due to pollution (if any sludge accumulate over such sensor, it would give erroneous readings.</p> <p>Hence, we propose to modify the clause as follows: -</p> <p>Temperature sensors for fresh air, return air, supply air, condenser inlet and condenser outlet air shall be inbuilt in the HVAC unit. Temperature sensor to monitor ambient condition shall be mounted on car body roof at a suitable distance from HVAC unit so that there shall not be any effect of condenser exhaust air on its readings. All the data shall be logged in TCMS and retrieval on demand from TCMS.</p>	
566	Volume IV,	11.2.12, (i)	Air Discharge Velocity: - The air	The measurement of air velocity	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 1: ERTS-RS	(245 of 492)	<p>velocities at specified points in the car, as proposed by Contractor and reviewed by Engineer, shall not exceed those set out in EN14750. The air velocity at any point in the car shall not exceed 0.75m/s. The air velocity within ducts shall not exceed 8m/s, shall not cause noise or air movement discomfort to passengers, and shall generally follow internationally accepted practice. Suitable acoustic insulation shall be provided to prevent condenser fan noise from entering the car interior through the fresh air system. The air intake velocity at the re-circulation and exhaust grilles shall not exceed 3 m/s. Details of the Contractor's proposals shall be submitted.</p>	<p>inside the duct is extremely difficult to measure even during the duct mock-up (as requested in clause 11.7.6). This is due to no clear definition of measurement points. Further accessing any of the measurement locations within the duct will create gaps or leaks for the airflow resulting in inaccurate measurements. In addition, we have quantifiable parameters to measure the overall comfort of the passenger inside the saloon (thermal comfort, Acoustic/Noise comfort, etc.). Therefore, such requirement for air velocity inside the duct is not required.</p> <p>Hence, we propose to modify the clause as follows: - Air Discharge Velocity: - The air velocities at specified points in</p>	prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>the car, as proposed by Contractor and reviewed by Engineer, shall not exceed those set out in EN14750. The air velocity at any point in the car shall not exceed 0.75m/s. The air velocity within ducts shall not exceed 8m/s, shall not cause noise or air movement discomfort to passengers, and shall generally follow internationally accepted practice. Suitable acoustic insulation shall be provided to prevent condenser fan noise from entering the car interior through the fresh air system. The air intake velocity at the re-circulation and exhaust grilles shall not exceed 3 m/s. Details of the Contractor's proposals shall be submitted.</p>	
567	Volume IV, ERTS, Part 1:	11.2.14	The method for cleaning the filters and expected life of filter	The method for cleaning the filters and expected life of filter	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS	(246 of 492)	shall be furnished during detail design stage. Minimum expected life of filter provided shall be 5,00,000 kms. Differential pressure measurement across fresh air/return air filter shall be used to send alert to clean/change the filters. Better alternatives may be suggested during design. Suitable 'Automatic filter cleaning machine' with inbuilt drier facility shall be designed and provided by the Contractor in each Depot so that it shall be possible to clean and dry filters of 3-car trainset within two-hour.	shall be furnished during detail design stage. Minimum expected life of filter provided shall be 5,00,000 kms. Suitable 'Automatic filter cleaning machine' with inbuilt drier facility shall be designed and provided by the Contractor in each Depot so that it shall be possible to clean and dry filters of 3-car trainset within two-hour.	
568	Volume IV, ERTS, Part 1: ERTS-RS	11.2.13 (246 of 492)	In the event of the failure of both HVAC on a car, an emergency ventilation system (at least 1 hour with battery supply) shall operate automatically to admit fresh air directly into car to maintain the	The emergency ventilation fans of HVAC unit shall be fed either from emergency inverter inside each HVAC or inside each car or through the APS as mentioned in clause 11.14.1	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>required oxygen level in the fully laden car, in accordance with ASHRAE 62. The induction outside fresh air shall not be less than 10m³/h/passenger, under fully loaded train condition. The emergency ventilation fans in the saloon shall be fed from the 110V DC supply through dedicated inverter provided in each car in the event of non-availability of normal 415V ac supply from single inverter provided in each car. It shall be possible to stop the working of emergency ventilation system in the depot through TCMS when 750V DC supply is not available.</p>	<p>Hence, we propose to modify the clause as follows: - In the event of the failure of both HVAC on a car, an emergency ventilation system (at least 1 hour with battery supply) shall operate automatically to admit fresh air directly into car to maintain the required oxygen level in the fully laden car, in accordance with ASHRAE 62. The induction outside fresh air shall not be less than 10m³/h/passenger, under fully loaded train condition. The emergency ventilation fans in the saloon shall be fed from the 110V DC supply through dedicated inverter provided in each car in the event of non-availability of normal 415V ac supply from single inverter provided in each car. It shall be</p>	

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				possible to stop the working of emergency ventilation system in the depot through TCMS when 750V DC supply is not available.	
569	Volume IV, ERTS, Part 1: ERTS-RS	11.2.15, 1st paragraph (246 of 492)	Tenderers shall indicate the type of filters proposed to be used by them in the bid. However, the air filter elements shall be washable type, disposable type filter will not be permitted. The air filter shall provide effective filtering between scheduled maintenance without causing significant increase to airflow resistance. The expected pressure drop across the filter shall be furnished. Details of suitable instrumentation used for measurement of pressure drop shall be provided in the bid. Two sets of such tools shall be supplied by the Contractor in each depot. Each type / size of filter shall be interchangeable in the fleet.	<p>As requested in clause 11.2.14, "Differential pressure measurement across fresh air/return air filter shall be used to send alert to clean/change the filters.", there is already a request for differential pressure measurement device inside HVAC as a serial part. Therefore, additional pressure measuring device as part of special tools at the depot is not required.</p> <p>Hence, we request to delete the Sr. No. 3 of clause 11.17.1 and we also propose to modify this 11.2.15 clause as follows: - Tenderers shall indicate the type</p>	<p>The Tender Conditions shall prevail.</p> <p>Also, refer Corrigendum – 3 being issued separately, with respect to ERTS sub-clause 11.2.14.</p>

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				<p>of filters proposed to be used by them in the bid. However, the air filter elements shall be washable type, disposable type filter will not be permitted. The air filter shall provide effective filtering between scheduled maintenance without causing significant increase to airflow resistance. The expected pressure drop across the filter shall be furnished. Details of suitable instrumentation used for measurement of pressure drop shall be provided in the bid. Two sets of such tools shall be supplied by the Contractor in each depot. Each type / size of filter shall be interchangeable in the fleet.</p>	
570	Volume IV, ERTS, Part 1: ERTS-RS	11.2.20 (247 of 492)	Employer expects that an energy efficient system comparable with the best available in the market shall be provided. Good energy	Meeting COP requirement of 2.5 Summer ambient conditions of 44°C would be highly challenging. So, this	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>efficiency shall be achieved in cooling and de-humidification operations of the HVAC. Contractor shall furnish energy efficiency ratio (EER) for the offered system. In cooling mode, the Coefficient of performance (COP) of HVAC shall not be less than 2.5 in Summer ambient conditions under all loading conditions from AW0 to AW4 which may be achieved by utilizing variable frequency control (if required) of compressors or any other control mechanism. The COP shall be validated as per IS8148, ASHRAE 37 or any other relevant standard, as agreed by the Engineer. The Contractor shall submit the record of proven system already functional in any metros with the specified COP. The Contractor shall furnish expected power consumption of</p>	<p>requirement to be relaxed. Meeting power consumption & SEC requirement would give more benefit in real field condition.</p> <p>Meeting COP under all loading conditions from AW0 to AW4 is not realistic to demonstrate in Lab condition as at part load condition HVAC will be operational only based on cooling demand. So, part load COP requirement to be removed.</p>	

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			the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2, AW3 and AW4 passenger loads.		
571	Volume IV, ERTS, Part 1: ERTS-RS	11.2.20 (247 of 492)	<p>Employer expects that an energy efficient system comparable with the best available in the market shall be provided. Good energy efficiency shall be achieved in cooling and de-humidification operations of the HVAC. Contractor shall furnish energy efficiency ratio (EER) for the offered system. In cooling mode, the Coefficient of performance (COP) of HVAC shall not be less than 2.5 in Summer ambient conditions under all loading conditions from AW0 to AW4 which may be achieved</p>	<p>Meeting COP requirement of 2.5 Summer ambient conditions of 44°C would be highly challenging. So, this requirement to be relaxed. Meeting power consumption & SEC requirement would give more benefit in real field condition.</p> <p>Meeting COP under all loading conditions from AW0 to AW4 is not realistic to demonstrate in Lab condition as at part load condition HVAC will be operational only based on cooling demand. So, part load COP requirement to be removed.</p>	Corrigendum – 3 is being issued separately.

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			<p>by utilizing variable frequency control (if required) of compressors or any other control mechanism. The COP shall be validated as per IS8148, ASHRAE 37 or any other relevant standard, as agreed by the Engineer. The Contractor shall submit the record of proven system already functional in any metros with the specified COP.</p> <p>The Contractor shall furnish expected power consumption of the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2, AW3 and AW4 passenger loads.</p>		
572	Volume IV, ERTS, Part 1: ERTS-RS	11.2.20 (247 of 492)	Employer expects that an energy efficient system comparable with the best	Meeting COP requirement of 2.5 Summer ambient conditions of 44°C would be highly challenging. So, this	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>available in the market shall be provided. Good energy efficiency shall be achieved in cooling and de-humidification operations of the HVAC. Contractor shall furnish energy efficiency ratio (EER) for the offered system. In cooling mode, the Coefficient of performance (COP) of HVAC shall not be less than 2.5 in Summer ambient conditions under all loading conditions from AW0 to AW4 which may be achieved by utilizing variable frequency control (if required) of compressors or any other control mechanism. The COP shall be validated as per IS8148, ASHRAE 37 or any other relevant standard, as agreed by the Engineer. The</p>	<p>requirement to be relaxed. Meeting power consumption & SEC requirement would give more benefit in real field condition. Meeting COP under all loading conditions from AW0 to AW4 is not realistic to demonstrate in Lab condition as at part load condition HVAC will be operational only based on cooling demand. So, part load COP requirement to be removed.</p> <p>Employer expects that an energy efficient system comparable with the best available in the market shall be provided. Good energy efficiency shall be achieved in cooling and de-humidification operations of the HVAC. Contractor shall furnish</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Contractor shall submit the record of proven system already functional in any metros with the specified COP.</p> <p>The Contractor shall furnish expected power consumption of the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2, AW3 and AW4 passenger loads.</p>	<p>energy efficiency ratio (EER) for the offered system. In cooling mode, the Coefficient of performance (COP) of HVAC shall not be less than 2.0 in Summer ambient conditions under all loading conditions from AW0 to AW4 which may be achieved by utilizing variable frequency control (if required) of compressors or any other control mechanism. The COP shall be validated as per IS8148, ASHRAE 37 or any other relevant standard, as agreed by the Engineer. The Contractor shall submit the record of proven system already functional in any metros with the specified COP. The Contractor shall furnish expected power consumption of the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2, AW3 and AW4</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				passenger loads.	
573	Volume IV, ERTS, Part 1: ERTS-RS	11.2.18 (247 of 492)	Two HVAC units in any car shall be powered from different auxiliary power units. The HVAC units fed by one Auxiliary Power Supply Equipment shall have staggered starting in a sequence to reduce the inrush current load due to simultaneous starting of air-con motors. This may be achieved through PLC of the units and TCMS.	<p>Both HVAC in a car can be powered from a common 3ph 415V bus, which is supplied by both Auxiliary Power Source (APS). So, in case of failure of any one APS, the other APS can power both the HVAC units per car.</p> <p>Hence, we propose to modify the clause as follows: -</p> <p>Two HVAC units in any car shall be powered from different auxiliary power units.The HVAC units fed by one Auxiliary Power Supply Equipment shall have staggered starting in a sequence to reduce the inrush current load due to simultaneous starting of air-con motors. This may be achieved through PLC of the units and TCMS.</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
574	Volume IV, ERTS, Part 1: ERTS-RS	11.2.20 (247 of 492)	Employer expects that an energy efficient system comparable with the best available in the market shall be provided. Good energy efficiency shall be achieved in cooling and de-humidification operations of the HVAC. Contractor shall furnish energy efficiency ratio (EER) for the offered system. In cooling mode, the Coefficient of performance (COP) of HVAC shall not be less than 2.5 in Summer ambient conditions under all loading conditions from AW0 to AW4 which may be achieved by utilizing variable frequency control (if required) of compressors or any other control mechanism. The COP shall be validated as per IS8148, ASHRAE 37 or any other relevant standard, as agreed by the Engineer. The	As per Air Enthalpy method described in ASHRAE 37, the cooling capacity of HVAC is tested under controlled environment where stabilized mixed air temperature (weighted average of temperature and airflow for fresh air and return air) is fed to HVAC unit keeping the fresh air dampers closed. Several parameters are measured as per clause 15.23.1 (III-b). During such tests, the number of operating compressors remain constant. Hence, the COP is only possible to be evaluated under such controlled & uniform environment during unit level tests. As the passenger loads are not defined uniformly i.e., AW0 is no passenger per car, AW1 is 50 seated passengers per car; AW2	Corrigendum – 3 is being issued separately.

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			<p>Contractor shall submit the record of proven system already functional in any metros with the specified COP. The Contractor shall furnish expected power consumption of the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2, AW3 and AW4 passenger loads.</p>	<p>is 50 seated + 145 standing; AW3 is 50 seated + 218 standing passengers per car and AW4 is the design point for HVAC unit as per clause 11.2.1 to 11.2.3. As compressors regulation is not possible to be tested at unit level and COP is defined only for tests at unit level, achieving same target of COP for all the loads is not possible. Recently DMRC has also updated RS17 ERTS w.r.t the same clause as per below. We request MPMRCL to do the same. (only change further done in comparison to modified clause of DMRC RS17 is proposal to remove winter from below highlighted sentence as COP and cooling capacity parameters are not applicable for heating conditions. Instead, power consumption specific to winter conditions can be</p>	

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				<p>requested.)</p> <p>Employer expects that an energy efficient system comparable with the best available in the market shall be provided. Good energy efficiency shall be achieved in cooling and de- humidification operations of the HVAC. Contractor shall furnish Energy Efficiency Ratio (EER) for the offered system. In cooling mode, the Coefficient of Performance (COP) of HVAC shall not be less than 2.5 in Summer ambient conditions under all loading conditions from AW0 to AW4 be at least 2.5 in summer ambient conditions under AW3 loading conditions which may be achieved by utilizing variable frequency control (if required) of compressors or any other</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				control mechanism. The COP shall be validated as per IS 8148, ASHRAE 37 or any other relevant standard, as agreed by the Project Manager. The Contractor shall submit the record of proven system already functional in any metros with the specified COP. The Contractor shall furnish expected COP, cooling capacity and power consumption of the HVACs per car for peak Summer, Monsoon and Winter ambient conditions for AW0, AW1, AW2 and AW3 AW4 passenger loads.	
575	Volume IV, ERTS, Part 1: ERTS-RS	11.6.2 (249 of 492)	Each unit shall be arranged on an integral stainless steel (SUS 316L) frame, removable from the car as a single complete module. The integral frame housing of the unit shall be constructed such that to avoid any corrosion in service on any account and the	Housing material option to be provided with SS304 as this already being used in many Indian Metro projects	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>box shall last for the lifetime of the HVAC unit without needing any attention. HVAC frame/cover shall be suitable for free movement of maintenance personnel without any consequential damage to covers/equipment. The finish of the frame shall match and will be in harmony with the car body finish.</p>		
576	Volume IV, ERTS, Part 1: ERTS-RS	11.3.4, (iv) and (v) (249 of 492)	<p>iv. The dampers shall be reset by the train driver via the TCMS if the system resumes normal.</p> <p>v. The dampers shall be capable of being reset locally from the saloon if remote reset has failed.</p>	<p>Regarding clause 11.3.4 (iv), for external smoke mode, in case of GoA4 operation (without train driver), how does the dampers get reset after no smoke is present? We suggest that fresh air damper should be reset automatically without any manual intervention i.e., by the TCMS once "no smoke sensation" signal is provided by the smoke sensor.</p> <p>Regarding clause 11.3.4 (v), the</p>	Corrigendum – 3 is being issued separately.

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				exact expectation is to be updated as it is contradictory with 11.3.4 (iv). If priority is TCMS based reset for the dampers, then why remote reset is required?	
577	Volume IV, ERTS, Part 1: ERTS-RS	11.6.9 (250 of 492)	<p>Fresh and return air shall be filtered before being passed over the evaporator coil. It shall be possible to remove and replace air filters from inside the cars conveniently without the need for removal of any cable connection. Design shall be such that, fresh and return air filter replacement from inside saloon shall be possible without removing / opening any part of grab pole / rail / handle.</p> <p>In order to promote a safer public transport environment in lieu of pandemics such as SARS, H1N1, COVID-19 etc. provision shall be made for cleaner air by</p>	Fresh and return air shall be filtered before being passed over the evaporator coil. It shall be possible to remove and replace air filters from inside the cars conveniently without the need for removal of any cable connection. Design shall be such that, fresh and return air filter replacement from inside saloon shall be possible without removing / opening any part of grab pole / rail / handle.	The Tender Conditions shall prevail.

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			<p>eliminating considerable amounts of bacteria and viruses (percentage to be decided during design stage) in comparison to the normal air filter. It shall be ensured that the solution provided for the same must have low Life Cycle Cost and ease in maintenance and installation. System shall be proven and certified test results shall be submitted for the same. Complete details shall be submitted for Engineer's review.</p>		
578	Volume IV, ERTS, Part 1: ERTS-RS	11.6.2 (250 of 492)	<p>Each unit shall be arranged on an integral stainless steel (SUS 316L) frame, removable from the car as a single complete module. The integral frame housing of the unit shall be constructed such that to avoid any corrosion in service on any</p>	<p>Housing material option to be provided with SS304 as this already being used in many Indian Metro projects</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>account and the box shall last for the lifetime of the HVAC unit without needing any attention. HVAC frame/cover shall be suitable for free movement of maintenance personnel without any consequential damage to covers/equipment. The finish of the frame shall match and will be in harmony with the car body finish.</p>		
579	Volume IV, ERTS, Part 1: ERTS-RS	11.6.2 (250 of 492)	<p>Each unit shall be arranged on an integral stainless steel (SUS 316L) frame, removable from the car as a single complete module. The integral frame housing of the unit shall be constructed such that to avoid any corrosion in service on any account and the box shall last for the lifetime of the HVAC unit</p>	<p>Housing material option to be provided with SS 304 as this already being used in many Indian Metro projects</p>	<p>The Tender Conditions shall prevail.</p>

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			<p>without needing any attention. HVAC frame/cover shall be suitable for free movement of maintenance personnel without any consequential damage to covers/equipment. The finish of the frame shall match and will be in harmony with the car body finish.</p>		
580	Volume IV, ERTS, Part 1: ERTS-RS	11.6.13 (251 of 492)	<p>The design shall ensure easy cleaning of the drains, evaporator coils, and condenser coils without need for lifting of HVAC unit from the car roof. LP and HP switches, filter replacement, data downloading by PTU, electrical connection cubicle, control panel cubicle etc. shall be easily accessible from inside of saloon to the maintenance personnel, but not to the passengers. There shall be a provision of LED based</p>	<p>The design shall ensure easy cleaning of the drains, evaporator coils, and condenser coils without need for lifting of HVAC unit from the car roof. LP and HP switches, filter replacement, data downloading by PTU, electrical connection cubicle, control panel cubicle etc. shall be easily accessible from inside of saloon to the maintenance personnel, but not to the passengers.</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Maintenance light option with a dedicated switch inside each HVAC mixed air chamber.		
581	Volume IV, ERTS, Part 1: ERTS-RS	11.6.12 (251 of 492)	Fresh air velocity at the HVAC outside grille face shall not be more than 2 m/s to prevent rain water from entering the HVAC along with fresh air. Similarly, mixed air velocity at the evaporator coils shall not be more than 2 m/s to prevent condensate water travelling to heating elements and supply air plenum / ducts.	<p>There are several ways to design the HVAC structure so as to avoid water entering the HVAC through the fresh air inlet. Conversely, it may also happen that despite fresh air velocity less than 2 m/s, there may still be water ingress into the HVAC through fresh air inlet. The main point is to ensure that if any amount of water gets into HVAC, it is arrested and drained properly. Further, we will have water tightness as routine test to ensure there is no water droplets getting carried into the mixed air chamber.</p> <p>Similarly, there are several solutions available to arrest the water droplets in the mixed air such as water eliminator, simple</p>	The Tender Conditions shall prevail.

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				<p>metallic grille over evaporator, etc. The main point which drives water into the mixed air stream is the supply airflow quantity which we are forced to keep high in order to achieve the energy efficiency targets. Due to size constraints for HVAC unit on rail application, the dimension of evaporator cannot be so high to maintain this 2m/s velocity target. Further, it is extremely difficult to define and map the measurement points to meet this 2m/s criteria.</p> <p>Hence, we request to delete this clause.</p> <p>Fresh air velocity at the HVAC outside grille face shall not be more than 2 m/s to prevent rain water from entering the HVAC along with fresh air. Similarly, mixed air velocity at the evaporator coils shall not be</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				more than 2 m/s to prevent condensate water travelling to heating elements and supply air plenum / ducts.	
582	Volume IV, ERTS, Part 1: ERTS-RS	11.6.13 (251 of 492)	The design shall ensure easy cleaning of the drains, evaporator coils, and condenser coils without need for lifting of HVAC unit from the car roof. LP and HP switches, filter replacement, data downloading by PTU, electrical connection cubicle, control panel cubicle etc. shall be easily accessible from inside of saloon to the maintenance personnel, but not to the passengers. There shall be a provision of LED based Maintenance light option with a dedicated switch inside each HVAC mixed air chamber.	<p>It will be extremely difficult to manage accessibility for LP and HP switches from inside the car saloon. As these components are not required to be checked or monitored frequently, we suggest to have accessibility for these switches from the roof.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>The design shall ensure easy cleaning of the drains, evaporator coils, and condenser coils without need for lifting of HVAC unit from the car roof. LP and HP switches, filter replacement, data downloading by PTU, electrical connection</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				cubicle, control panel cubicle etc. shall be easily accessible from inside of saloon to the maintenance personnel, but not to the passengers. There shall be a provision of LED based Maintenance light option with a dedicated switch inside each HVAC mixed air chamber.	
583	Volume IV, ERTS, Part 1: ERTS-RS	11.9.1 (252 of 492)	The Contractor shall provide hermetic scroll compressors (minimum two) with step less VVVF control proven for sufficiently long time in Metro service. Scroll compressor shall be suitable for continuous operation at high ambient temperatures of up to 500C and limited operation at 580C ambient. The compressor shall be provided with Inverter based VVVF drive (to optimize the energy efficiency and improved controls in view of the varying	VVVF drive requirement shall be optional as this increases reliability risk in comparison with part load benefits.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>passenger loads) and complete details of the same shall be provided. Full details of the compressor and its experience in Metro train application, particularly in high temperature, dusty and high humid environment shall be furnished. Unloading of compressor shall be linked with the HP setting.</p> <p>References of the inverter-controlled HVAC system shall be submitted with the bid to verify the proven design and supplies to metro trains.</p>		
584	Volume IV, ERTS, Part 1: ERTS-RS	11.9.1 (252 of 492)	11.9.1 The Contractor shall provide hermetic scroll compressors (minimum two) with step less VVVF control proven for sufficiently long time in Metro service. Scroll compressor shall be suitable for continuous operation at high ambient temperatures of up to 500C and	VVVF drive requirement shall be optional as this increases reliability risk in comparison with part load benefits.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>limited operation at 580C ambient. The compressor shall be provided with Inverter based VVVF drive (to optimize the energy efficiency and improved controls in view of the varying passenger loads) and complete details of the same shall be provided. Full details of the compressor and its experience in Metro train application, particularly in high temperature, dusty and high humid environment shall be furnished. Unloading of compressor shall be linked with the HP setting.</p> <p>References of the inverter-controlled HVAC system shall be submitted with the bid to verify the proven design and supplies to metro trains.</p>		
585	Volume IV, ERTS, Part 1:	11.9.1 (252 of 492)	The Contractor shall provide hermetic scroll compressors	VVVF drive requirement shall be optional as this increases reliability risk in comparison with	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-RS		<p>(minimum two) with step less VVVF control proven for sufficiently long time in Metro service. Scroll compressor shall be suitable for continuous operation at high ambient temperatures of up to 500C and limited operation at 580C ambient. The compressor shall be provided with Inverter based VVVF drive (to optimize the energy efficiency and improved controls in view of the varying passenger loads) and complete details of the same shall be provided. Full details of the compressor and its experience in Metro train application, particularly in high temperature, dusty and high humid environment shall be furnished.</p>	part load benefits.	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Unloading of compressor shall be linked with the HP setting.</p> <p>References of the inverter-controlled HVAC system shall be submitted with the bid to verify the proven design and supplies to metro trains.</p>		
586	Volume IV, ERTS, Part 1: ERTS-RS	11.7.6 (252 of 492)	A model of the proposed duct made of plywood or any other suitable material shall be prepared to evaluate the design parameters, including air velocity from the outlets and air distribution inside the car.	<p>Instead of preparing duct made of any material, we propose MPMRCL to consider test reports of the actual duct with material used in serial production from the previous projects where same duct design has been implemented. If the design of the duct is similar to our past projects, we would prefer to verify the changes through CFD which is also requested in ERTS clause 11.7.9 and 11.7.10.</p> <p>Hence, we request to delete this</p>	<p>This Sub-Clause is being deleted.</p> <p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>clause: -</p> <p>A model of the proposed duct made of plywood or any other suitable material shall be prepared to evaluate the design parameters, including air velocity from the outlets and air distribution inside the car.</p>	
587	Volume IV, ERTS, Part 1: ERTS-RS	11.7.7 (252 of 492)	Adequately sized duct from adjacent AC to the cab shall be routed to the driving cab, control cabinets and driving console. Air turbulator shall be provided in the driving console, signalling cubicles and electrical cabinets to achieve uniform cooling.	<p>Because of the convertible cabin solution from GoA2 to GoA4 configuration requested through ERTS clause 12.2.1.1, it will be difficult to use the Air turbulators installed inside the cabinets in the cabin. Instead, we propose to consider the natural effect of air diffusion (air flows from higher temp. zone to low temp. zone) to maintain acceptable temperature levels inside cubicles and electrical cabinets.</p> <p>Hence, we request to modify this</p>	Corrigendum – 3 is being issued separately.

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				<p>clause as follows: - Adequately sized duct from adjacent AC to the cab shall be routed to the driving cab, control cabinets and driving console. Necessary means shall be considered / provided in the driving console, signalling cubicles and electrical cabinets to achieve uniform cooling.</p>	
588	Volume IV, ERTS, Part 1: ERTS-RS	11.9.1 (252 of 492)	<p>The Contractor shall provide hermetic scroll compressors (minimum two) with step less VVVF control proven for sufficiently long time in Metro service. Scroll compressor shall be suitable for continuous operation at high ambient temperatures of up to 50°C and limited operation at 58°C ambient. The compressor shall be provided with Inverter based VVVF drive (to optimize the energy efficiency and improved controls in view of</p>	<p>If there are 4 compressors per HVAC unit, then there is very little benefit in terms of energy efficiency for part load operation of the train. With 4 compressors performing ON/OFF regulation per HVAC unit during partial loads, we can get almost equal energy efficiency than when we have VVVF drive powered compressors in the HVAC unit. If we take into account the additional cost required for VVVF drive and also this costly</p>	<p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>the varying passenger loads) and complete details of the same shall be provided. Full details of the compressor and its experience in Metro train application, particularly in high temperature, dusty and high humid environment shall be furnished. Unloading of compressor shall be linked with the HP setting.</p> <p>References of the inverter-controlled HVAC system shall be submitted with the bid to verify the proven design and supplies to metro trains.</p>	<p>component's impact resulting in high LCC (due to the fact that these drives don't last for complete life of the compressor i.e., at least 2 VVVF drives would be required during lifetime of the compressor), the end result is negative business case for complete life of the train.</p> <p>Hence, we request to modify this clause as follows (which is followed by several train operators and metro corporations in India): -</p> <p>The Contractor shall provide hermetic scroll compressors (minimum two) with step less VVVF control proven for sufficiently long time in Metro service. Scroll compressor shall be suitable for continuous operation at high ambient temperatures of up to 50°C and</p>	

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				<p>limited operation at 58°C ambient. The compressor shall be provided with Inverter based VVVF drive (to optimize the energy efficiency and improved controls in view of the varying passenger loads) and complete details of the same shall be provided. Full details of the compressor and its experience in Metro train application, particularly in high temperature, dusty and high humid environment shall be furnished. Unloading of compressor shall be linked with the HP setting.</p> <p>References of the inverter-controlled HVAC system shall be submitted with the bid to verify the proven design and supplies to metro trains.</p>	
589	Volume IV, ERTS, Part 1:	11.10.1, last two lines	Cleaning of condenser and evaporator coils should not be	Proposed cleaning interval is 6 months	Corrigendum – 3 is being issued separately.

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	ERTS-RS	(253 of 492)	required earlier than 1.5 lakh-km running. The frequency of cleaning of coils in Bhopal and Indore climate shall be furnished.		
590	Volume IV, ERTS, Part 1: ERTS-RS	11.10.2 (253 of 492)	The condenser fan shall provide for adequate airflow over the coils at the design condition. The fan shall be direct driven by an ac induction motor (3ph 415V ac) rated for continuous duty, with two-stage speed. Inbuilt temperature sensors shall be provided in these motors linked to the TCMS. There shall be separate MCBs for condenser fan and supply air fan. The compressor, unloading device, motors and pressure switches shall be weatherproof of IEC 60529 IP65.	The condenser fan shall provide for adequate airflow over the coils at the design condition. The fan shall be direct driven by an ac induction motor (3ph 415V ac) rated for continuous duty, with two-stage speed. There shall be separate MCBs for condenser fan and supply air fan. The compressor, unloading device, motors and pressure switches shall be weatherproof of IEC 60529 IP65.	Corrigendum – 3 is being issued separately.
591	Volume IV, ERTS, Part 1: ERTS-RS	11.10.1 (253 of 492)	The condenser and evaporator coils shall be of copper refrigerant tubes with copper fins or with pre-	The number of evaporator coils alone do not govern the regulation of cooling capacity. It	Corrigendum – 3 is being issued separately.

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			<p>coated aluminium, mechanically bonded to the tubes, having proven experience in metro applications. The coating shall ensure extended cleaning periodicity and corrosion resistance. In Evaporator there shall be a split feed requiring two coils and expansion valves to regulate the cooling capacity. Condenser fins spacing shall be no closer than 3mm and evaporator fins shall be 2.5 mm or more apart, in order to prevent dirt/dust build up. Condenser and evaporator fins shall be of sufficient strength so that it shall not bend and damage while cleaning. The coils shall have copper alloy stainless steel end plates set in the casing to minimize stress from vibration, expansion and the external pipe couplings. Cleaning of condenser and evaporator coils should not</p>	<p>depends on several other factors such as the number of compressors inside HVAC unit, the type of expansion valve used, the balance of different parameters and components of HVAC system with proper adjustment of refrigerant quantity, etc.</p> <p>Further, based on operational experience in Indian metro cities, it is recommended to clean the heat exchanger coils (especially condenser) every 6 months i.e., ~0.75 lakh-km instead of 1 year i.e., ~1.5 lakh-km.</p> <p>Hence, we request to modify this clause as follows (which is followed by several train operators and metro corporations in India): -</p> <p>The condenser and evaporator</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>be required earlier than 1.5 lakh-km running. The frequency of cleaning of coils in Bhopal and Indore climate shall be furnished.</p>	<p>coils shall be of copper refrigerant tubes with copper fins or with pre-coated aluminium, mechanically bonded to the tubes, having proven experience in metro applications. The coating shall ensure extended cleaning periodicity and corrosion resistance. In Evaporator there shall be a split feed requiring two coils and expansion valves to regulate the cooling capacity. Condenser fins spacing shall be no closer than 3mm and evaporator fins shall be 2.5 mm or more apart, in order to prevent dirt/dust build up. Condenser and evaporator fins shall be of sufficient strength so that it shall not bend and damage while cleaning. The coils shall have copper alloy stainless steel end plates set in the casing to minimize stress from vibration, expansion and</p>	

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				the external pipe couplings. Cleaning of condenser and evaporator coils should not be required earlier than 0.75 4.5 lakh-km running. The frequency of cleaning of coils in Bhopal and Indore climate shall be furnished.	
592	Volume IV, ERTS, Part 1: ERTS-RS	11.10.2 (253 of 492)	The condenser fan shall provide for adequate airflow over the coils at the design condition. The fan shall be direct driven by an ac induction motor (3ph 415V ac) rated for continuous duty, with two-stage speed. Inbuilt temperature sensors shall be provided in these motors linked to the TCMS. There shall be separate MCBs for condenser fan and supply air fan. The compressor, unloading device, motors and pressure switches shall be weatherproof of IEC 60529 IP65.	Compressors are standard component from globally known manufacturer. These compressor casing are at the best rated for IP56 protection. There is no solution available globally which can comply for railway application refrigerant compressors having IP65 protection. Unloading devices such as hot gas bypass valves are not recommended to be used for HVAC units which have multiple compressors per refrigerant circuit and further, HVAC unit	Corrigendum – 3 is being issued separately.

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				<p>with hot gas bypass feature will be very inefficient i.e., the COP will be too bad for unit using this feature.</p> <p>Fan motors also cannot comply to IP65 protection. There are no solutions available globally which can comply to this requirement.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>The condenser fan shall provide for adequate airflow over the coils at the design condition. The fan shall be direct driven by an ac induction motor (3ph 415V ac) rated for continuous duty, with two-stage speed. Inbuilt temperature sensors shall be provided in these motors linked to the TCMS. There shall be separate MCBs for condenser fan and supply air fan. The</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>compressor, unloading device, motors and pressure switches shall be weatherproof of IEC 60529 IP65.</p>	
593	Volume IV, ERTS, Part 1: ERTS-RS	11.10.6 (254 of 492)	<p>Gauge Ports: High and low side gauge connections shall be provided. Each connection shall have a manual shut off valve and a self-sealing connection for a refrigeration service gauge set.</p>	<p>The gauge connections are not required as we shall comply to clause 11.13.18 which requests to use transducers on both HP and LP side. Further we shall install such transducers for both refrigerant circuits. Further, manual shut off valves are not used anymore on HVAC units of present generation. Only the self-sealing type connections are preferred.</p> <p>Hence, we request to delete this clause: -</p> <p>Gauge Ports: High and low side gauge connections shall be provided. Each connection shall have a manual shut off valve and</p>	<p>This Sub-Clause is being deleted.</p> <p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				a self-sealing connection for a refrigeration service gauge set.	
594	Volume IV, ERTS, Part 1: ERTS-RS	11.11.2 (255 of 492)	A sight glass shall be fitted in the refrigerant liquid line to show the refrigerant flow and be easy visible from the saloon area through an inspection hole.	<p>First and foremost, sight glass is not reliable way to know the refrigerant contamination or moisture content or bubbles inside the refrigerant circuit. The sight glass were mainly used by very experienced technicians who knew how to use this part effectively for system fault diagnosis, but as we now have all the diagnosis possible through Portable Test Unit (PTU), the sight glass is not very useful.</p> <p>Further, this part may be useful during detail functional check which is yearly activity recommended in the HVAC maintenance manual. So, the sight glass need not be accessible from inside the</p>	Corrigendum – 3 is being issued separately.

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				<p>saloon.</p> <p>Hence, as first recommendation, we suggest to remove this requirement for sight glass. OR at least have this part's accessibility from the roof.</p> <p>A sight glass shall be fitted in the refrigerant liquid line to show the refrigerant flow and be easy visible on the roof without opening the condenser covers. from the saloon area through an inspection hole.</p>	
595	Volume IV, ERTS, Part 1: ERTS-RS	11.13.3 (256 of 492)	Temperature sensors for the return air and other controls shall be solid state. The controls for the two air conditions shall be coordinated such that as the cooling load reduces, the unit can be unload in stages from full to half capacity to one unit being shut off except for the ventilation	To comply to ERTS clause 11.2.11, the HVAC units need to be independently controlled by dedicated controller. Also, there maybe 4 levels of cooling by using 4 compressors per HVAC unit for temperature regulation with optimum energy efficiency. Further, as we are using	Corrigendum – 3 is being issued separately.

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			blower.	<p>diagonal duct concept to cater the airflow throughout the length of the car, the independent control helps in having better temperature regulation and better passenger comfort. Therefore, it is not recommended to have any kind of co-ordination between the two HVAC units of a car.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>Temperature sensors for the return air and other controls shall be solid state. The controls for the two air conditions shall be coordinated such that as the cooling load reduces, the unit can be unload in stages from full to half capacity to one unit being shut off except for the ventilation blower.</p>	

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596	Volume IV, ERTS, Part 1: ERTS-RS	11.13.11 (256 of 492)	Compressor unloading device shall be provided to cater for part load conditions and relief of high refrigerant pressure due to the ambient temperature exceeding the tunnel temperature.	<p>Unloading devices such as hot gas bypass valves are not recommended to be used for HVAC units which have multiple compressors per refrigerant circuit. Further, HVAC unit with hot gas bypass feature will be very inefficient i.e., the COP will be too bad for unit using this feature.</p> <p>Hence, we request to delete this clause: -</p> <p>Compressor unloading device shall be provided to cater for part load conditions and relief of high refrigerant pressure due to the ambient temperature exceeding the tunnel temperature.</p>	<p>This Sub-Clause is being deleted.</p> <p>Corrigendum – 3 is being issued separately.</p>
597	Volume IV, ERTS, Part 1: ERTS-RS	11.13.12 (256 of 492)	In the event that all conditions revert to normal without malfunction in the system, the unloading device shall be reset	Unloading devices such as hot gas bypass valves are not recommended to be used for HVAC units which have multiple	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			and the system shall load up automatically.	<p>compressors per refrigerant circuit. Further, HVAC unit with hot gas bypass feature will be very inefficient i.e., the COP will be too bad for unit using this feature.</p> <p>Hence, we request to delete this clause: -</p> <p>In the event that all conditions revert to normal without malfunction in the system, the unloading device shall be reset and the system shall load up automatically.</p>	
598	Volume IV, ERTS, Part 1: ERTS-RS	11.13.16 (257 of 492)	The microprocessor shall have extendable memory permitting logging of faults and system events in its memory for sufficiently long durations. The microprocessor shall have suitable interface with TCMS for data communication and display.	There are many controllers which have enough memory to log the faults and exceptional system events for very long time, enough to meet the lifetime of the controller itself. Therefore, we suggest to make this extendable memory requirement	Corrigendum – 3 is being issued separately.

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			<p>Suitable communication shall be provided to permit logged events to be downloaded to a laptop computer.</p>	<p>as optional.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>The microprocessor shall have enough extendable memory to permit permitting logging of faults and system events in its memory for sufficiently long durations. The microprocessor shall have suitable interface with TCMS for data communication and display. Suitable communication shall be provided to permit logged events to be downloaded to a laptop computer.</p>	
599	Volume IV, ERTS, Part 1: ERTS-RS	11.13.23 (257 of 492)	<p>The following faults shall be reported to TCMS.</p> <p>i. Compressor overload thermal cut-out.</p> <p>ii. Ventilation blower failure.</p> <p>iii. Saloon over-temperature</p>	<p>As per clause 11.13.19 (c), there is one return air temperature sensor inside each HVAC unit for temperature control. There is no provision for any sensor near the return air grille which is on</p>	<p>Corrigendum – 3 is being issued separately.</p>

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			(rising at 33°C). A sensor shall be provided in each return air grille.	<p>ceiling panel inside car saloon.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>The following faults shall be reported to TCMS.</p> <p>i. Compressor overload thermal cut-out.</p> <p>ii. Ventilation blower failure.</p> <p>iii. Saloon over-temperature (temperature inside saloon rising at 33°C). A sensor shall be provided in each return air grille.</p>	
600	Volume IV, ERTS, Part 1: ERTS-RS	12.2.10 (271 of 492)	The Emergency Brake Push button (mushroom type) operation shall actuate emergency brakes without interrupting line circuit breakers and current collector. In order to ensure that train is not stalled in the section due to defect in emergency brake application circuit, provision shall be made to	<p>With relation to ERTS 8.1.3* we request to consider the 12.2.10 clause modification as proposed.</p> <p><Proposal></p> <p>The Emergency Brake Push button (mushroom type) operation shall actuate emergency brakes without</p>	Corrigendum – 3 is being issued separately.

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			by-pass the brake loop and drive the train with limited speed in either direction. Separate push button (protected against inadvertent operation) for opening Circuit Breaker shall be provided on driver desk.	interrupting HSCB and current collector. In order to ensure that train is not stalled in the section due to defect in emergency brake application circuit, provision shall be made to by-pass the brake loop and drive the train with limited speed in either direction. Separate push button (protected against inadvertent operation) for opening line circuit breaker shall be provided on driver desk.	
601	Volume IV, ERTS, Part 1: ERTS-RS	12.2.10 (271 of 492)	The Emergency Brake Push button (mushroom type) operation shall actuate emergency brakes without interrupting line circuit breakers and current collector. In order to ensure that train is not stalled in the section due to defect in emergency brake application circuit, provision shall be made to by-pass the brake loop and drive	With relation to ERTS 8.1.3* we request to consider the 12.2.10 clause modification as proposed. <Proposal> The Emergency Brake Push button (mushroom type) operation shall actuate emergency brakes without interrupting HSCB and current	Corrigendum – 3 is being issued separately.

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			<p>the train with limited speed in either direction. Separate push button (protected against inadvertent operation) for opening Circuit Breaker shall be provided on driver desk.</p>	<p>collector. In order to ensure that train is not stalled in the section due to defect in emergency brake application circuit, provision shall be made to bypass the brake loop and drive the train with limited speed in either direction. Separate push button (protected against inadvertent operation) for opening line circuit breaker shall be provided on driver desk.</p>	
602	Volume IV, ERTS, Part 1: ERTS-RS	12.2.13 (271 of 492)	<p>A minimum provision of spare 10% relays, contactors, MCBs terminal blocks and contacts shall be made in the respective circuits and at their locations. These shall be duly wired up to terminal blocks. Sufficient margin may be taken by Contractor during design so that above criteria is met at the end of DLCMP.</p>	<p>According to section 4.14.2(Provision of spares for auxiliary power distribution cabling) of EN50343(ERTS clause 12.5.8), "In installations where spare provisions are functionally required, i.e., electrical cabinets or cubicles, a minimum amount of 10 % spare terminal connections or space available</p>	<p>Corrigendum – 3 is being issued separately.</p>

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				<p>for additional terminal connections should be provided at the date of completion of assembly of the first vehicle."</p> <p>Hence, the ERTS clause is proposed to be amended as: -</p> <p>12.2.13 - "A minimum space provision for 10% relays, contactors, MCBs terminal blocks and contacts shall be made in the respective circuits and at their locations. These shall be duly wired up to terminal blocks. Sufficient margin may be taken by Contractor during design so that above criteria is met at the end of DLCMP.</p>	
603	Volume IV, ERTS, Part 1: ERTS-RS	12.3.1, 1st two sentences (272 of 492)	Electrical contact blocks, mounted on the semi-permanent coupler shall be provided. When the automatic couplers are mechanically coupled, automatic	Using jumper cables in place of electrical contact blocks mounted on the semi-permanent coupler would be a simple, easy to maintain and proven solution.	Corrigendum – 3 is being issued separately.

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			<p>pneumatic coupling shall be affected between the mating couplers</p>	<p>Bidder proposes to change the Clause as follows:</p> <p>Electrical contact blocks, mounted on the semi-permanent coupler shall be provided. Alternately jumper cables can also be provided. When the automatic couplers are mechanically coupled, automatic pneumatic coupling shall be affected between the mating couplers</p>	
604	Volume IV, ERTS, Part 1: ERTS-RS	12.3.7 and 12.4.8 (273 of 492)	<p>12.3.7 - Relays shall have provision to add-on auxiliary contact blocks when mounted on the train. Contractor shall have provision to provide and mount the add-on blocks if required by the Engineer during the DLCMP.</p> <p>12.4.8 - Safety relays (sealed</p>	<p>Clause 12.3.7 asks for relays with add-on auxiliary contact blocks, but as per clause 12.4.8 it asks for sealed type relays were provision of add-on auxiliary contact is not feasible. Kindly clarify</p>	<p>The Tender Conditions shall prevail.</p>

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			<p>type) shall be used for all vital commands and circuits. The contacts of safety critical relays shall be duplicated / repeated only using the same relays. Safety relays shall be those relays which can lead to immobilization of the train. Contractor shall ensure that the failure of safety relays shall be on fail safe side to avoid unsafe conditions.</p>		
605	Volume IV, ERTS, Part 1: ERTS-RS	12.4.15 (275 of 492)	<p>The safety relay shall be rated to achieve the life expectancy for anticipated number of operations in 35 years. The relevant calculations and the list of safety relays shall be submitted to the Engineer during design stage. The other relay and contactor shall be rated to achieve a life expectancy of minimum 15 years before replacement</p>	<p>Relay's life is dependent on the circuit in which it is placed as current, voltages and cycles may vary from circuit to circuit.</p> <p>Bidder requests to change the Clause as follows:</p> <p>12.4.15 The safety relay shall be rated to achieve the life expectancy for anticipated</p>	<p>The Tender Conditions shall prevail.</p>

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			<p>of wear parts, adjustment or testing. The contact rating shall account for the anticipated number of operations over 15 years, system voltage, power factor or time constant of the load, switching current, nature of load separation, any use of contact in series, mounting orientation.</p>	<p>number of operations in 35 years or approved by Engineer during design stage. The relevant calculations and the list of safety relays shall be submitted to the Engineer during design stage. The other relay and contactor shall be rated to achieve a life expectancy of minimum 15 years or approved by Engineer during design stage before replacement of wear parts, adjustment or testing. The contact rating shall account for the anticipated number of operations over 15 years or approved by Engineer during design stage, system voltage, power factor or time constant of the load, switching current, nature of load separation, any use of contact in series, mounting orientation.</p>	
606	Volume IV,	12.4.16	All push buttons and indicators	Push buttons which are	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	(275 of 492)	shall be uniform in style and shall be arranged, size, label properly. As far as possible all push buttons and indicator lamps shall be of the same manufacturer. All push button shall be of push to light type.	necessary for indication, will be aligned during the design phase. We request, the ERTS clause is proposed to amend as: - 12.4.16 All push buttons and indicators shall be uniform in style and shall be arranged, size, label properly. As far as possible all push buttons and indicator lamps shall be of the same manufacturer. All push button (Wherever required) shall be of push to light type.	prevail.
607	Volume IV, ERTS, Part 1: ERTS-RS	12.5.5 (276 of 492)	The minimum cross-sectional area of control cables for connections between equipment shall preferably be 2.5 mm ² . Any deviation from this requirement, in exceptional cases, will be subject to review by Engineer in design stage.	It is proposed that the minimum cross-sectional area of control cables for connections between equipment shall preferably be 1.5 mm ² in place of 2.5 mm ² . (More space is required to accommodate 2.5 mm ² cable in the duct).	Corrigendum – 3 is being issued separately.

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				Accordingly, ERTS 12.5.5 may be amended.	
608	Volume IV, ERTS, Part 1: ERTS-RS	12.4.17 (276 of 492)	All push buttons switch and combination push buttons / indication shall have silver plated terminals and contacts. The contact shall be so designed that they will not weld in service when used within their rating and will not bounce closed while the car is in motion.	Based on bidder's experience, silver coated contacts are enough to meet the performance. We request, the ERTS clause is proposed to amend as: - 12.4.17 All push buttons switch and combination push buttons / indication shall have silver plated terminals and contacts. The contact shall be so designed that they will not weld in service when used within their rating and will not bounce closed while the car is in motion.	The Tender Conditions shall prevail.
609	Volume IV, ERTS, Part 1: ERTS-RS	12.5.5 (276 of 492)	The minimum cross-sectional area of control cables for connections between equipment shall preferably be 2.5 mm ² . Any	According to section 4.5 of EN50343(ERTS clause 12.5.8), The minimum cross-sectional area of control cables for	Corrigendum – 3 is being issued separately.

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			<p>deviation from this requirement, in exceptional cases, will be subject to review by Engineer in design stage.</p>	<p>connections between equipment shall be at least 1 mm². Using a cable with more cross-sectional area will result in more space requirements and increase weight as well. Based on bidder's experience a cable with 1.5 mm² meets all the required performances.</p> <p>Bidder requests to change the Clause as follows: 12.5.5 - "The minimum cross-sectional area of control cables for connections between equipment shall preferably be 1.5 mm². Any deviation from this requirement, in exceptional cases, will be subject to review by Engineer in design stage."</p>	
610	Volume IV, ERTS, Part 1: ERTS-RS	12.7.1 (277 of 492)	All electrical circuits shall be protected by fast acting, 10kA fault current rated MCBs. The	Based on bidder's experience, the fault current in auxiliary supply system is always <6KA.	The Tender Conditions shall prevail.

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			<p>Contractor shall propose a protection scheme for review. The Contractor shall submit a detailed protection scheme including calculations to demonstrate proper segregation and discrimination between the cables, fuses and the traction substation circuit breakers. Calculations shall be submitted to verify proper discrimination between different levels of the protection system.</p>	<p>Bidder requests to change the Clause as follows:</p> <p>12.7.1 All electrical circuits shall be protected by fast acting, 6kA fault current rated MCBs. The Contractor shall propose a protection scheme for review. The Contractor shall submit a detailed protection scheme including calculations to demonstrate proper segregation and discrimination between the cables, fuses and the traction substation circuit breakers. Calculations shall be submitted to verify proper discrimination between different levels of the protection system.</p>	
611	Volume IV, ERTS, Part 1: ERTS-RS	12.10.2 (i) (285 of 492)	A Mode Selector Switch shall be provided on the train operator's console and selection of mode	<p>Bidder requests to change the Clause as follows:</p> <p>"A Mode Selector Switch shall</p>	The Tender Conditions shall prevail.

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			shall be by longitudinal, fore and aft movement.	be provided on the train operator's console and selection of mode shall be by rotary/longitudinal, fore and aft movement."	
612	Volume IV, ERTS, Part 1: ERTS-RS	12.10.6 (286 of 492)	Electric Horn Two electric horns, one having high tone and other low tone, operable from the train operator's console and from OCC shall be provided, located at the front end of the cab, facing forwards. Technical details of the horns shall be submitted for review by the Engineer. IP65 protection shall be provided for electric horns.	Electrically operated pneumatic horn are widely used and proven in almost all the metro projects in the country, you are requested to review and update the clause suitably.	The Tender Conditions shall prevail.
613	Volume IV, ERTS, Part 1: ERTS-RS	12.10.6, 1st sentence (286 of 492)	Electric Horn Two electric horns, one having high tone and other low tone, operable from the train operator's console and from OCC shall be provided, located at the front end	Bidder request change the Clause as follows: "Two electric/Pneumatic horns, one having high tone and other low tone, operable from the train	The Tender Conditions shall prevail.

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			of the cab, facing forwards.	operator's console and from OCC shall be provided, located at the front end of the cab, facing forwards."	
614	Volume IV, ERTS, Part 1: ERTS-RS	13.8.1, (iii) (303 of 492)	Provision shall be made for real time video streaming as well as remote downloading. Provision shall be made to install equal number of LCD panel with LED backlit displays in future by the Employer by simply plug in to the system. Size and location of provisional displays shall be decided during design stage. The wiring and end connector to mount these LCD screen connecting it to the system and mounting arrangement complete in all respect, but masked, shall be provided. Size and location of provisional displays shall be decided during design stage. The Employer shall be able to interface and commission such	There is no space and location for the additional 12 displays to install inside saloon. Kindly remove this statement.	The Tender Conditions shall prevail. The same may be appraised to the Engineer during design stage, however the Engineer's decision shall be final and binding on the Contractor.

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			screens at these locations. The displays shall be commercially available and work on open / commercial protocols. The colour combination of the display content should be such that these may be distinguished by colour blind person.		
615	Volume IV, ERTS, Part 1: ERTS-RS	13.8.1 (xxii), 1st paragraph; 1st two sentences (306 of 492)	<p>Eight programmable coloured LCD with LED backlit based route maps for the respective lines shall be provided above each saloon doors inside the car.</p> <p>The size of LCD DRM (minimum 37 inches) such that it covers the maximum area of door coving panel.</p>	<p>Bidder request to change the clause as follows:</p> <p>Four (04) programmable coloured LCD with LED backlit based route maps for the respective lines shall be provided above each alternate saloon door inside the car and Four (04) nos. sticker coloured route map with protective cover (like polycarbonate etc.) shall be provided on remaining saloon door inside the car. The size of LCD DRM / Sticker shall be</p>	The Tender Conditions shall prevail.

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				such that it covers the maximum area of door coving panel	
616	Volume IV, ERTS, Part 1: ERTS-RS	13.8.4, last paragraph (308 of 492)	The RS Contractor shall also provide the advertisement and live video players in hot standby pair per train. The RS Contractor shall also provide redundant suitable arrangement (video controller/player/servers) in OCC / BCC for transmission of live video contents and stored video contents to be played in the train using CCTV network provided by S&T contractor. S&T contractor shall ensure adequate bandwidth for transmission of data (camera stream / advertisement video / Diagnostic logs etc.).	Please move the scope of Server at OCC/BCC for live video contents to S&T contractor.	The Tender Conditions shall prevail.
617	Volume IV, ERTS, Part 1: ERTS-RS	13.9.1 (v) (309 of 492)	Planned and Unplanned Skip station operation and announcements at appropriate location and station shall also be available. Global skip command	Please clarify whether the Global Skip mean rapid revenue service or only to skip multiple stations like the skip operation?	It shall be capable to perform both functionalities. The Tender Conditions shall

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			<p>shall be provided by the Signalling contractor in the event of multiple station skip implemented in the timetable in a planned manner to cater the operational requirement. The provision shall be flexible enough to enable the Rolling Stock onboard PIS to inform passengers well ahead of time regarding the stations at which the train will not stop. In unplanned skip, Signalling shall provide the information to Rolling Stock before departing from previous station. Details for planned and unplanned skip to be discussed during design stage. Necessary interface with the signalling & train control contractor shall be ensured by the Rolling Stock Contractor to ensure correct announcement in case of skip station. Full details shall be submitted for review by</p>		prevail.

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			the Engineer.		
618	Volume IV, ERTS, Part 1: ERTS-RS	13.9.1 (v) (309 of 492)	Planned and Unplanned Skip station operation and announcements at appropriate location and station shall also be available. Global skip command shall be provided by the Signalling contractor in the event of multiple station skip implemented in the timetable in a planned manner to cater the operational requirement. The provision shall be flexible enough to enable the Rolling Stock onboard PIS to inform passengers well ahead of time regarding the stations at which the train will not stop. In unplanned skip, Signalling shall provide the information to Rolling Stock before departing from previous station. Details for planned and unplanned skip to be discussed during design stage.	Please clarify whether the Global Skip mean rapid revenue service or only to skip multiple stations like the skip operation?	It shall be capable to perform both functionalities. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Necessary interface with the signalling & train control contractor shall be ensured by the Rolling Stock Contractor to ensure correct announcement in case of skip station. Full details shall be submitted for review by the Engineer.		
619	Volume IV, ERTS, Part 1: ERTS-RS	13.10.2, 1st sentence (310 of 492)	Each car shall be provided with at least six surveillance camera devices at appropriate location (two at each side and one at end of the car) to cover the complete passenger saloon area for surveillance including person operating PEA/PAD, Saloon Door detecting, Fire / Smoke detector etc. as specified in ERTS 13.12.8 / TD6.4.1.27.	Based on the saloon length & Width specified in the RFP and bidder's experience on past projects bidder request to rephrase the clause as follows: "Each car shall be provided with at least four surveillance camera devices at appropriate location to cover the maximum passenger saloon area for surveillance"	The Tender Conditions shall prevail.
620	Volume IV,	13.10.14,	Provision shall be made and	Please modify as below	Corrigendum – 3 is being issued

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	ERTS, Part 1: ERTS-RS	1st paragraph (313 of 492)	tested to store relayed CCTV images to dedicated server at OCC and depot in case of emergency or on demand for at least 30 nos. of 3car trains and for minimum 30 days of period. Storage device shall be of SSD type. Separate server for this purpose shall be provided by the contractor. CCTV server for this purpose shall be provided by the Signalling Contractor. The radio communication used for CBTC / CCTV may be used for relaying the images as above. As a minimum, the images should be selectable for a time or time interval as required. Final scheme shall be worked out during design. Necessary coordination with Signaling contractor in relation to TD 6.2.12 shall be ensured.	"Provision shall be made and tested to store relayed CCTV images to dedicated server at OCC and depot in case of emergency or on demand for at least 30 nos. of 3car trains and for minimum 30 days of period. Storage device shall be of SSD type. CCTV server for this purpose shall be provided by the Signalling Contractor. The radio communication used for CBTC / CCTV may be used for relaying the images as above. As a minimum, the images should be selectable for a time or time interval as required. Final scheme shall be worked out during design. Necessary coordination with Signaling contractor in relation to TD 6.2.12 shall be ensured."	separately.
621	Volume IV,	14.4.4	The use of asbestos, lead based	From Eco-design point of view	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	(321 of 492)	pigment paints, lead, urethane foam, polystyrene, and Viton rubber shall not be allowed.	<p>there is no risk in using polyurethane foam. Special care is only to be taken during manufacturing of polyurethane foam.</p> <p>Bidder requests to change the Clause as follows:</p> <p>The use of asbestos, lead based pigment paints, lead, urethane foam, polystyrene, and Viton rubber shall not be allowed.</p>	prevail.
622	Volume IV, ERTS, Part 1: ERTS-RS	14.8.1 (322 of 492)	All fasteners shall be in ISO Metric size. The applied standards shall be in accordance with this document.	Thread size ISO metric size cannot be used in all the places. Hence, Spec can allow "other type of threads also acceptable".	The Tender Conditions shall prevail.
623	Volume IV, ERTS, Part 1: ERTS-RS	14.8.1 (322 of 492)	All fasteners shall be in ISO Metric size. The applied standards shall be in accordance with this document.	Thread size ISO metric size cannot be used in all the places. Hence, Spec can allow "other type of threads also acceptable".	The Tender Conditions shall prevail.

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624	Volume IV, ERTS, Part 1: ERTS-RS	14.19.1, (iii) (325 of 492)	For aluminum car body, friction stir welding (FSW) is to be used.	Proven method of MIG/TIG welding may be approved which is internationally accepted practice for Aluminum cars. This can satisfy the required level of aesthetics and performance requirements.	The Tender Conditions shall prevail.
625	Volume IV, ERTS, Part 1: ERTS-RS	14.10.6, 1st sentence (328 of 492)	In addition, a connection diagram shall be provided inside or adjacent to the terminal box, where provided.	Not compliant. No connection diagram will be placed inside or adjacent to the traction motor connection box	The Tender Conditions shall prevail.
626	Volume IV, ERTS, Part 1: ERTS-RS	14.11.8 (331 of 492)	Enclosures/cubicles shall be provided with Linear Heat Detectors (LHD) or heat detectors (refer ERTS clause 2.20) to protect against any abnormal increase of temperature within the enclosed cubicles which may lead to risk of fire.	Request to correct the ERTS clause reference. ERTS 2.20 is EMC and not related to LHD or heat detectors. <Proposal> Enclosures/cubicles shall be provided with Linear Heat Detectors (LHD) or heat detectors (refer ERTS clause 2.24) to protect against any abnormal increase of	Corrigendum – 3 is being issued separately.

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				temperature within the enclosed cubicles which may lead to risk of fire.	
627	Volume IV, ERTS, Part 1: ERTS-RS	14.11.8 (331 of 492)	Enclosures/cubicles shall be provided with Linear Heat Detectors (LHD) or heat detectors (refer ERTS clause 2.20) to protect against any abnormal increase of temperature within the enclosed cubicles which may lead to risk of fire.	Request to correct the ERTS clause reference. ERTS 2.20 is EMC and not related to LHD or heat detectors. <Proposal> Enclosures/cubicles shall be provided with Linear Heat Detectors (LHD) or heat detectors (refer ERTS clause 2.24) to protect against any abnormal increase of temperature within the enclosed cubicles which may lead to risk of fire.	Corrigendum – 3 is being issued separately.
628	Volume IV, ERTS, Part 1: ERTS-RS	14.12.1 (332 of 492)	Ferrous Materials:	Specification need not provide what type of steel to be used. The requirement of steel grade may vary depending on the application and hence, the specification can be modified to	Corrigendum – 3 is being issued separately.

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				give functional requirement. The spec can add "for reference" to this clause	
629	Volume IV, ERTS, Part 1: ERTS-RS	14.12.1 (ii) (332 of 492)	Stainless Steel other than body-shell- chromium content not less than 17%, carbon content not more than 0.03% -JIS 4305 or equivalent standard. (Stainless Steel - chromium content not less than 17%, carbon content not more than 0.03% - JIS 4305 Latest Version)	Not compliant. We use stainless steel 1.4301 in traction motor and that has a higher carbon content than 0.03 %.	Corrigendum – 3 is being issued separately.
630	Volume IV, ERTS, Part 1: ERTS-RS	14.12.1 (332 of 492)	Ferrous Materials: i. Steel Castings – BS 3100 (grade 592) or equivalent international standard (BS 3100 (grade 592) Latest Version) ii. Stainless Steel other than body-shell- chromium content not	Specification need not provide what type of steel to be used. The requirement of steel grade may vary depending on the application and hence, the specification can be modified to give functional requirement. The spec can add "for reference" to	Corrigendum – 3 is being issued separately.

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			<p>less than 17%, carbon content not more than 0.03% -JIS 4305 or equivalent standard. (Stainless Steel - chromium content not less than 17%, carbon content not more than 0.03% - JIS 4305 Latest Version) iii. Steel (other than stainless steel) used in welded structures shall be corrosion and weather resistant and not inferior to ASTM A36/A36M. The amount of such steel shall be kept to a minimum and shall not be used at all in structural assemblies above the under frames of vehicles constructed substantially of stainless steel, of aluminium, or in exposed areas of passenger</p>	<p>this clause</p>	

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			compartments. (Steel used in welded structures – BS 4360 (WR-50 or WP-50B) Latest Version)		
631	Volume IV, ERTS, Part 1: ERTS-RS	14.12.1, (i) (332 of 492)	Steel Castings – BS 3100 (grade 592) or equivalent international standard (BS 3100 (grade 592) Latest Version)	BS 3100 is withdrawn & replaced by BS EN 10293. Bidder request to update the clause with latest standard BS EN 10293	Equivalent international standard is already mentioned. may be appraised during design stage. The Tender Conditions shall prevail.
632	Volume IV, ERTS, Part 1: ERTS-RS	14.12.2 (i) (332 of 492)	Aluminium alloys shall conform to the composition, strength, quality requirements, and corrosion resistance requirements of EN 458, EN 573 and EN 755 1 to 9. Any exposed unpainted aluminium surfaces in the interior of the vehicle shall have a clear anodic coating thickness of 0.02mm and a minimum coating weight of 0.054 mg/sq.mm. Proper allowance shall be made	It seems that a typo error for the EN 458. It shall be EN 485 instead of EN 458. Kindly confirm.	Corrigendum – 3 is being issued separately.

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			for the effects of fatigue, and for column and plate stability effects. Aluminium alloys used for structural purposes shall be limited to the 5000 and 6000 series of alloys.		
633	Volume IV, ERTS, Part 1: ERTS-RS	14.12.2 (ii) (332 of 492)	Castings Aluminium alloy castings shall conform to the requirements of EN 573 or equivalent. Castings shall be free from blowholes, cracks, shrinkage, and other defects that will prevent the attainment of the required life.	EN 573 is for the wrought product of the Aluminium alloy & not for the Aluminium alloy casting. Bidder proposes to use BS EN 1706 standard for this requirement.	Corrigendum – 3 is being issued separately.
634	Volume IV, ERTS, Part 1: ERTS-RS	14.12.3, 2nd sentence (333 of 492)	Rubbers: All rubber hoses, connecting pipes etc. used in pneumatic circuit and bushings in anti-rollbar shall not be required to be replaced before 5 years or major overhaul which ever later.	Compressor suction hose required to be replaced in every two years. Request to give exception for compressor suction hose.	The Tender Conditions shall prevail.
635	Volume IV,	14.12.3,	All rubber hoses, connecting	Compressor suction hose	The Tender Conditions shall

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	ERTS, Part 1: ERTS-RS	2nd sentence (333 of 492)	pipes etc. used in pneumatic circuit and bushings in antiroll bar shall not be required to be replaced before 5 years or major overhaul which ever later.	required to be replaced in every two years. Request to give exception for compressor suction hose.	prevail.
636	Volume IV, ERTS, Part 1: ERTS-RS	14.17.7 (340 of 492)	<p>14.17.7 Safety Circuits:</p> <p>i. Insofar as practicable safety circuits shall be run direct to apparatus and not to terminal bars. Where it is essential that intermediate terminals be used, (for example, circuits which pass through inter-car jumpers) the terminals shall be covered and separated from others terminals. All safety circuit cables shall be coloured yellow.</p> <p>ii. The Engineer will direct which circuits or sub-circuits shall be designated safety circuits within the meaning of this Clause.</p>	<p>The cables shall be as per EN 50264 and EN50306. We request to use yellow coloured cable markers for safety circuits.</p> <p>We request, the ERTS clause is proposed to amend as: -</p> <p>14.17.7 Safety Circuits:</p> <p>i. Insofar as practicable safety circuits shall be run direct to apparatus and not to terminal bars. Where it is essential that intermediate terminals be used, (for example, circuits which pass through inter-car jumpers) the terminals shall be covered and separated from others terminals.</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>All safety circuit cables shall be appropriately identified by using yellow coloured cable markers coloured yellow.</p> <p>ii. The Engineer will direct which circuits or sub-circuits shall be designated safety circuits within the meaning of this Clause.</p>	
637	Volume IV, ERTS, Part 1: ERTS-RS	14.25.1, 2nd paragraph (344 of 492)	<p>Dry heat test: The dry heat test shall be conducted for class T3 and temperature shall be considered 80oC against 70oC specified in IEC/EN. An extra performance check at 95oC shall also be carried out for 10 minutes over temperature value. LCD/LED display units may be tested into 70oC and an extra performance check at 85oC shall also be carried out for 10 minutes over temperature value.</p>	<p>Brake electronic devices only comply EN standard. That means +70°C permanently and +85°C for max. 10 minutes according to the temperature profile defined in the norm. With a longer time at T>+70°C the functioning of the electronic equipment is not guaranteed</p> <p>This requirement need to be changed to calls for standard IEC clause</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
638	Volume IV, ERTS, Part 1: ERTS-RS	14.25.1, 2nd paragraph (344 of 492)	<p>Dry heat test: The dry heat test shall be conducted for class T3 and temperature shall be considered 80oC against 70oC specified in IEC/EN. An extra performance check at 95oC shall also be carried out for 10 minutes over temperature value.</p> <p>LCD/LED display units may be tested into 70oC and an extra performance check at 85oC shall also be carried out for 10 minutes over temperature value.</p>	<p>Brake electronic devices only comply EN standard. That means +70°C permanently and +85°C for max. 10 minutes according to the temperature profile defined in the norm. With a longer time at T>+70°C the functioning of the electronic equipment is not guaranteed</p> <p>This requirement need to be changed to calls for standard IEC clause</p>	The Tender Conditions shall prevail.
639	Volume IV, ERTS, Part 1: ERTS-RS	14.27.5 (346 of 492)	<p>Sufficient software documentation shall be provided to give the Engineer a full understanding of the software function and operation. Documentation shall be complete, yet clear and concise, and include all modifications up to final acceptance. Documentation</p>	<p>Documents as per EN 50128 will be followed and these documents are not delivered to customer except the software quality plan (SQP) and software maintenance record (SMR). Other details will be put under ESCROW</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			shall include software block diagrams showing signal flow, logic, and hardware interfaces. A top level flow diagram and description of detailed operation shall be provided.		
640	Volume IV, ERTS, Part 1: ERTS-RS	14.28.5 (346 of 492)	Printed circuit board extenders shall be provided for test purposes. The Contractor shall provide detailed maintenance and troubleshooting procedures, including wave-forms at critical locations of the circuitry.	Wave form of electronic circuit is proprietary information. Hence, the details will be put under ESCROW	The Tender Conditions shall prevail.
641	Volume IV, ERTS, Part 1: ERTS-RS	14.27.5 (346 of 492)	Sufficient software documentation shall be provided to give the Engineer a full understanding of the software function and operation. Documentation shall be complete, yet clear and concise, and include all modifications up to final acceptance. Documentation shall include software block	Only standard documents can be provided. Intellectual Property like software block diagrams showing signal flow, logic, and hardware interfaces etc. will not generally be shared by sub-contractor/OEMs. In view of the above, requested to update the ERTS clause suitably.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			diagrams showing signal flow, logic, and hardware interfaces. A top level flow diagram and description of detailed operation shall be provided.		
642	Volume IV, ERTS, Part 1: ERTS-RS	14.27.5 (346 of 492)	Sufficient software documentation shall be provided to give the Engineer a full understanding of the software function and operation. Documentation shall be complete, yet clear and concise, and include all modifications up to final acceptance. Documentation shall include software block diagrams showing signal flow, logic, and hardware interfaces. A top level flow diagram and description of detailed operation shall be provided.	Documents as per EN 50128 will be followed and these documents are not delivered to customer except the software quality plan (SQP) and software maintenance record (SMR). Other details will be put under ESCROW	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
643	Volume IV, ERTS, Part 1: ERTS-RS	14.28.6 (346 of 492)	Printed circuit board extenders shall be provided for test purposes. The Contractor shall provide detailed maintenance and troubleshooting procedures, including wave-forms at critical locations of the circuitry.	Wave form of electronic circuit is proprietary information. Hence, the details will be put under ESCROW	The Tender Conditions shall prevail.
644	Volume IV, ERTS, Part 1: ERTS-RS	14.28.6 (346 of 492)	Printed circuit board extenders shall be provided for test purposes. The Contractor shall provide detailed maintenance and troubleshooting procedures, including wave-forms at critical locations of the circuitry.	Wave form of electronic circuit is proprietary information. Hence, we propose to put details under ESCROW	The Tender Conditions shall prevail.
645	Volume IV, ERTS, Part 1: ERTS-RS	15.1.2, 1st sentence (348 of 492)	In addition to 'mandatory' tests as prescribed in IECs, the engineer may also require any of the prescribed 'optional' tests to be carried out	Traction motor will be tested according to IEC 60349-2	The Tender Conditions shall prevail.

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646	Volume IV, ERTS, Part 1: ERTS-RS	15.6.2, Table 15.1A, SN3 (353 of 492)	Dynamic wheel unloading $\Delta Q/Q < 0.5$	Proposing to accept <0.6 as per past bids.	The Tender Conditions shall prevail.
647	Volume IV, ERTS, Part 1: ERTS-RS	15.6.2, Table 15.1A, SN3 (353 of 492)	Dynamic wheel unloading $\Delta Q/Q < 0.5$	Based on bidders experience Dynamic wheel unloading $\Delta Q/Q < 0.6$ is optimum to meet the performance. Bidder proposes to change the clause as follows: Dynamic wheel unloading $\Delta Q/Q < 0.5$ 0.6.	The Tender Conditions shall prevail.
648	Volume IV, ERTS, Part 1: ERTS-RS	15.10.8 (358 of 492)	One shell out of every 4 bare shells, to be randomly selected by the Engineer, shall be subjected to water tightness test as per an agreed procedure based on IEC 61133.	Bidder propose to rephrase the clause as follows: One shell out of every 4 bare shells, to be randomly selected by the Engineer, shall be subjected to water tightness test as per a mutually agreed procedure based on IEC 61133.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
649	Volume IV, ERTS, Part 1: ERTS-RS	15.14.1 (360 of 492)	The Prototype Saloon to Cab door shall be subjected to an endurance test of one hundred thousand (100,000) operations, during which it shall be demonstrated that no component fails.	As per clause number 1.1.2 " The train shall initially be commissioned and operated in 'GoA2' and shall be progressively commissioned and operated in 'GoA4'." where in GOA 4 Partition saloon to cab door is not required perhaps clause number "15.4.1 (type test for saloon to cab door) can be removed. and suitable solution will be agreed with Engineer during design phase.	The Tender Conditions shall prevail.
650	Volume IV, ERTS, Part 1: ERTS-RS	15.18.1 (363 of 492)	A complete set of brake equipment comprising all items of equipment forming the Brake System shall be assembled and subjected to brake system bed test / dynamometer. These shall include the Brake Controller and interface with ATO equipment and a transceiver to measure force at the push rod of Brake unit. A complete series of tests	Brake system level simulation at basic unit level will be done simulating brake signal interfaces of TCMS/hardware in a dedicated test bench. It is considered as type test. Reservoir is used to simulate brake cylinder volume and corresponding brake cylinder pressure.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>shall be carried out on this rig under all service conditions to demonstrate the function of the brake system as a whole, both in manual and auto modes.</p>	<p>Tread brake unit will be tested for brake force in a dedicated test bench for various pressures and to simulate wear of block/wheel for checking the functionality of automatic slack adjustment.</p> <p>Complete series of test will be done either in manual or auto mode.</p> <p>Combined test bench will increase complexity and limit checking all the functionalities of brake controls and bogie brake apart from being highly expensive.</p> <p>As a standard and best engineering practice, Tread brake unit will always be tested in dedicated test bench for checking the functionality of automatic slack adjustment in series manufacturing.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				The clause may please be suitably changed in line with the above recommendation.	
651	Volume IV, ERTS, Part 1: ERTS-RS	15.18.1 (363 of 492)	A complete set of brake equipment comprising all items of equipment forming the Brake System shall be assembled and subjected to brake system bed test / dynamometer. These shall include the Brake Controller and interface with ATO equipment and a transceiver to measure force at the push rod of Brake unit. A complete series of tests shall be carried out on this rig under all service conditions to demonstrate the function of the brake system as a whole, both in manual and auto modes.	Building a complete set of brake equipment comprising all items of equipment forming the Brake System is as good as building a 3 car trainset. In view of the above, considering practicality, the same test can be performed on 3 car proto trainset. Hence, the clause may please be reviewed and may be revised suitably.	The Tender Conditions shall prevail.
652	Volume IV, ERTS, Part 1: ERTS-RS	15.18.1 (363 of 492)	A complete set of brake equipment comprising all items of equipment forming the Brake System shall be assembled	Brake system level simulation at basic unit level will be done simulating brake signal interfaces of TCMS/hardware in a	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>and subjected to brake system bed test / dynamometer. These shall include the Brake Controller and interface with ATO equipment and a transceiver to measure force at the push rod of Brake unit. A complete series of tests shall be carried out on this rig under all service conditions to demonstrate the function of the brake system as a whole, both in manual and auto modes.</p>	<p>dedicated test bench. It is considered as type test. Reservoir is used to simulate brake cylinder volume and corresponding brake cylinder pressure.</p> <p>Tread brake unit will be tested for brake force in a dedicated test bench for various pressures and to simulate wear of block/wheel for checking the functionality of automatic slack adjustment.</p> <p>Complete series of test will be done either in manual or auto mode.</p> <p>Combined test bench will increase complexity and limit checking all the functionalities of brake controls and bogie brake apart from being highly expensive.</p> <p>As a standard and best engineering practice, Tread</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>brake unit will always be tested in dedicated test bench for checking the functionality of automatic slack adjustment in series manufacturing.</p> <p>The clause may please be suitably changed in line with the above recommendation.</p>	
653	Volume IV, ERTS, Part 1: ERTS-RS	15.18.1 (363 of 492)	<p>A complete set of brake equipment comprising all items of equipment forming the Brake System shall be assembled and subjected to brake system bed test / dynamometer. These shall include the Brake Controller and interface with ATO equipment and a transceiver to measure force at the push rod of Brake unit. A complete series of tests shall be carried out on this rig under all</p>	<p>Brake system level simulation at basic unit level will be done simulating brake signal interfaces of TCMS/hardware in a dedicated test bench. It is considered as type test. Reservoir is used to simulate brake cylinder volume and corresponding brake cylinder pressure.</p> <p>Tread brake unit will be tested for brake force in a dedicated test bench for various pressures and to simulate wear of</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>service conditions to demonstrate the function of the brake system as a whole, both in manual and auto modes.</p>	<p>block/wheel for checking the functionality of automatic slack adjustment.</p> <p>Complete series of test will be done either in manual or auto mode.</p> <p>Combined test bench will increase complexity and limit checking all the functionalities of brake controls and bogie brake apart from being highly expensive.</p> <p>As a standard and best engineering practice, Tread brake unit will always be tested in dedicated test bench for checking the functionality of automatic slack adjustment in series manufacturing.</p> <p>The clause may please be suitably changed in line with the above recommendation.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
654	Volume IV, ERTS, Part 1: ERTS-RS	15.24.2, (i), 1st bullet point (367 of 492)	Air velocities and air flow rates will be measured at the fresh air inlets to the HVAC unit, exhaust air openings, inlets to cubicles and return air inlets for different fresh air damper openings for clean and clogged filters and evaporator coils. Emergency ventilation and any other special air flow requirement shall also be measured for verification. Interior static pressure shall be recorded for all conditions. Measured values should satisfy ERTS, relevant standards and design values.	Air velocities and air flow rates will be measured at the fresh air inlets to the HVAC unit, exhaust air openings, inlets to cubicles and return air inlets for different fresh air damper openings for clean filters and evaporator coils. Emergency ventilation and any other special air flow requirement shall also be measured for verification. Interior static pressure shall be recorded for all conditions. Measured values should satisfy ERTS, relevant standards and design values.	The Tender Conditions shall prevail.
655	Volume IV, ERTS, Part 1: ERTS-RS	15.23.5 (367 of 492)	Starting sequence test.	In order for these tests to be representative of the reality during revenue service, this test has to be done at train level and not at HVAC unit level because the compressors get started only when there is "start	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				authorization" from the TCMS. Hence, we request to delete this clause as follows:- Starting sequence test.	
656	Volume IV, ERTS, Part 1: ERTS-RS	15.24.2, (iii), 1st bullet. 1st arrow point (368 of 492)	Pre-cooling (with full passenger occupancy heat load) – Set temperature should be achieved in 30 minutes.	Pre-cooling (with no passenger occupancy heat load) – Set temperature should be achieved in 30 minutes.	Corrigendum – 3 is being issued separately.
657	Volume IV, ERTS, Part 1: ERTS-RS	15.24.2, (iii), 1st bullet, 2nd arrow and (b) (368 of 492) (iii) Cooling Performance Test: Regulation (doors closed) - Cooling capacity of HVACs shall be sufficiently high to demonstrate 3 complete regulation cycles during the regulation test.	The highlighted content in this clause are contradictory to each other. As per EN 14750-2, thermal performances for regulation tests are evaluated either by considering 3 complete regulation cycles OR by considering 60 mins of continuous operation. When the compressors are regulating i.e., switching	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>..</p> <p>..</p> <p>Ø Acceptance Criteria:</p> <p>..</p> <p>b. In regulation tests, there should not be large variations in interior conditions.</p>	<p>ON/OFF to maintain the desired level of thermal comfort, the variations in interior conditions are bound to happen For. Ex. the humidity inside car will start increasing rapidly once the regulating compressor is OFF and humidity will start decreasing quickly if the regulating compressor is in ON condition.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>(iii) Cooling Performance Test: Regulation (doors closed) - Cooling capacity of HVACs shall be sufficiently high to demonstrate either 3 complete regulation cycles or 60 mins continuous operation during the regulation test.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>Ø Acceptance Criteria:</p> <p>b. In regulation tests, there should not be large variations in interior conditions.</p>	
658	Volume IV, ERTS, Part 1: ERTS-RS	15.25.1, (iv) (369 of 492)	Functional and running tests (to check functioning of working parts and to measure some important performance parameters). These tests shall also include measurement of conditioned air-delivery, fresh air quantity and power consumption.	Functional and running tests (to check functioning of working parts and to measure some important performance parameters).	The Tender Conditions shall prevail.
659	Volume IV, ERTS, Part 1: ERTS-RS	15.24.3 (369 of 492)	Fresh air flow rate shall also be verified by using dummy passengers as per full passenger load and measuring interior CO2 levels with doors closed and doors open-close situation in all different types of cars.	By dummy passengers, we understand that these tests are to be carried out using CO2 bottles or CO2 cylinders for CO2 simulation / generation inside the car saloon. Please confirm. Further, as the duct and HVAC design in all cars is conceptually same, we suggest that CO2	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>tests are carried out only on the car meant for climatic chamber tests.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>Fresh air flow rate shall also be verified by dummy passengers as per full-simulating CO2 using CO2 bottles/cylinders corresponding to the CO2 emitted by AW4 passenger load and measuring interior CO2 levels with doors closed and doors open-close situation in all different types of cars the car meant for climatic chamber tests.</p>	
660	Volume IV, ERTS, Part 1: ERTS-RS	15.25.1, (iv) (369 of 492)	<p>Every roof mounted HVAC package unit shall be subjected to routine test as follows,</p> <p>..</p> <p>..</p> <p>(iv) Functional and running tests</p>	<p>The set-up for performing airflow tests is very complicated and these tests require long time for completion. Normally, such tests are part of type test protocol. Further, the test set-up has to be</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>(to check functioning of working parts and to measure some important performance parameters). These tests shall also include measurement of conditioned air-delivery, fresh air quantity and power consumption.</p> <p>..</p> <p>..</p>	<p>prepared for each HVAC unit and therefore it is very expensive proposition to build the test set-up for every serial HVAC unit. These tests take lot of time and resources without any value addition as HVAC unit configuration is ensured through robust quality control. Considering the required time and resources for such tests, such kind of checks are not feasible to be part of HVAC unit level routine test protocol.</p> <p>Hence, we request to modify this clause as follows: -</p> <p>Every roof mounted HVAC package unit shall be subjected to routine test as follows,</p> <p>..</p> <p>..</p> <p>(iv) Functional and running tests</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				(to check functioning of working parts and to measure some important performance parameters). These tests shall also include measurement of conditioned air delivery, fresh air quantity and power consumption.	
661	Volume IV, ERTS, Part 1: ERTS-RS	15.25.2 (369 of 492)	Complete Car HVAC System Routine Tests (to be done on all cars). i. Preliminary checks and checks before HVAC operation. ii. Checks under HVAC operation conditions a. System operation start; b. Phase check for AC power supply and Polarity check for DC power; c. Airflow checks;	Airflow measurements at car level are also equally complicated as that of at unit level. Normally, such tests are part of type test protocol. Fresh air has to be measured from the roof, whereas supply air measurement has to be done below the diffusers all along the length of the car. These tests take lot of time and resources without any value addition as HVAC unit and duct	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>d. Temperature checks; e. Failure checks (onboard check from TCMS); f. Emergency ventilation; g. Functioning of smoke detection units. h. Damper operation check</p>	<p>configuration are ensured through robust quality control. Considering the required time and resources for such tests, such kind of checks are not feasible to be part of car level routine test protocol.</p> <p>Hence, we request to modify this clause as follows: - Complete Car HVAC System Routine Tests (to be done on all cars).</p> <p>i. Preliminary checks and checks before HVAC operation. ii. Checks under HVAC operation conditions a. System operation start; b. Phase check for AC power supply and Polarity check for DC power; c. Airflow checks; d. Temperature checks;</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>e. Failure checks (onboard check from TCMS);</p> <p>f. Emergency ventilation;</p> <p>g. Functioning of smoke detection units.</p> <p>h. Damper operation check</p>	
662	Volume IV, ERTS, Part 1: ERTS-RS	Appendix TD, TD6.2.18 (417 of 492)	Lead contractor shall be responsible for providing suitable communication link for live streaming via CCTV network from TCMS to OCC/BCC and for live transmission of the advertisements or other data via CCTV network from OCC/BCC to TCMS. The live video stream transmitted from the train to the OCC/BCC shall be suitably buffered for its onward multicast transmission to other terminals/networks. This buffering arrangement in OCC/BCC via CCTV server shall be responsibility of Lead	TCMS and PSSS (CCTV) Network are individual Ethernet Network. It is expected that the Live streaming signal will be transferred from OCC to PSSS Network/ PSSS Network to OCC directly. Kindly confirm.	<p>Transmission shall be done via CCTV network.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Contractor. For live video stream from OCC/BCC to train, the buffering on the train shall be responsibility of RS Contractor.</p> <p>The Rolling Stock Contractor shall provide Live Video Players with buffering capability. The RS Contractor shall also provide the advertisement and live video players in hot standby pair per train. The RS Contractor shall also provide suitable arrangement with adequate redundancy (video controller/player/servers) in OCC/BCC for transmission of live video contents and stored video contents to be played in the train.</p>		
663	Volume IV, ERTS, Part 1: ERTS-RS	Appendix TD, TD6.2.18 (417 of 492)	Lead contractor shall be responsible for providing suitable communication link for live streaming via CCTV network from TCMS to OCC/BCC and for live transmission of the	TCMS and PSSS (CCTV) Network are individual Ethernet Network. It is expected that the Live streaming signal will be transferred from OCC to PSSS Network/ PSSS Network to OCC	Transmission shall be done via CCTV network. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>advertisements or other data via CCTV network from OCC/BCC to TCMS. The live video stream transmitted from the train to the OCC/BCC shall be suitably buffered for its onward multicast transmission to other terminals/networks. This buffering arrangement in OCC/BCC via CCTV server shall be responsibility of Lead Contractor. For live video stream from OCC/BCC to train, the buffering on the train shall be responsibility of RS Contractor.</p> <p>The Rolling Stock Contractor shall provide Live Video Players with buffering capability. The RS Contractor shall also provide the advertisement and live video players in hot standby pair per train. The RS Contractor shall also provide suitable arrangement with adequate</p>	<p>directly. Kindly confirm.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			redundancy (video controller/player/servers) in OCC/BCC for transmission of live video contents and stored video contents to be played in the train.		
664	Volume IV, ERTS, Part 1: ERTS-RS	Appendix TD, TD6.2.10 AND td6.4.1.16 (418 of 492)	<p>TD6.2.10 - Rolling Stock Contractor shall be responsible for development of the GUI (including hardware) for the RS controller (RSC) in the OCC (Operation Control Centre)/BCC (Backup Control Centre). Total number of the distinctively different screens with live buttons (soft) may be at least ten or higher (shall be finalized during design stage).</p> <p>It shall be supplied separately for Bhopal and Indore Metro. Any other GUI(s) in OCC/BCC shall not be the scope of RS contractor.</p> <p>&</p> <p>TD6.4.1.16 - The Rolling Stock</p>	<p>The information transmitted from Train to OCC and information/controls from OCC to train are shown to be handled differently by the two systems, RS & S&T. The GUI of rolling stock controller including hardware provided by RS</p> <p>There's a Rolling stock controller in ATS scope as well. Which system/server will provide data for GUI RSC of RS? Which information and commands are required to managed by ATS?</p> <p>As both systems are located in OCC, Bidder requests customer to put the scope Rolling stock related information and controls</p>	<p>RSC GUI is the responsibility of RS contractor. RS contractor will also provide one central server in OCC and redundant server in depot for Rolling stock related train data (TCMS data and other subsystem data). However, OCC GUI is under the scope of Signalling contractor (RS contractor will provide necessary data and information required). Also, CCTV images will be saved in the server provided by the Signalling contractor.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			contractor and S&T contractor will jointly finalize a list of actionable command and responses for UTO (GoA-4) mode of operation which shall be available at Central Automatic Train Supervision (CATS) system at OCC as well as Local Automatic Train Supervision (LATS) system at SCR. The two contractors shall also finalize the list of alarms and events for Rolling Stock monitoring and troubleshooting which shall be displayed on the Rolling Stock controller monitor and CATS system at OCC as well as on other suitable terminals in depot and on the mainline (to be finalized by the approval of Engineer).	in scope RS and ATS managing the Signalling.	
665	Volume IV, ERTS, Part 1: ERTS-RS	Appendix TD, TD6.3.9 (424 of 492)	12.18.1.1.2 The status of relevant equipment, MCBs etc. shall be relayed to Signalling / OCC and shall have remote control facility	12.18.1.1.2 The status of relevant equipment, MCBs etc. shall be relayed to Signalling / OCC and shall have remote	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			to reset the MCBs as decided by the Engineer during design stage.	control facility to reset the MCBs equipment as decided by the Engineer during design stage.	
666	Volume IV, ERTS, Part 1: ERTS-RS	General	-	Since there are no material to describe speed limitation, please kindly share.	Corrigendum – 3 is being issued separately. Refer ERGS Appendix XIII for speed restriction data, being issued with Corrigendum.
667	Volume IV, ERTS, Part 1: ERTS-RS	General	-	Since there are no material to describe speed limitation, please kindly share.	Corrigendum – 3 is being issued separately. Refer ERGS Appendix XIII for speed restriction data, being issued with Corrigendum.
668	Volume IV, ERTS, Part 2: ERTS-SIG	1.1.6 (8 of 238)	Contractor shall comply to latest standards / functionality that would be published at design stage also MRGR 2020. Decision of Engineer shall be final for S&TC.	Bidder requests employer to confirm the required standards during bidding stage to ensure the standards are relevant and complied	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
669	Volume IV, ERTS, Part 2: ERTS-SIG	1.2, (d) (9 of 238)	d. Station equipment i. Station Control Room equipment ii. Signalling Equipment Room and Signalling Maintenance Room equipment iii. Emergency Stop Plungers and staff protection key switch	Please provide the details of Staff Protection Key switches. Request you to also please provide where and how many SPKS is required.	SPKS quantity shall be one per platform and one at each SCR for all stations. SPKS for both Depots shall be provided as per practices being adopted in other GoA4 Metros. The Tender Conditions shall prevail.
670	Volume IV, ERTS, Part 2: ERTS-SIG	1.2.2.1, (r) (11 of 238)	OCC of MPMRCL for these lines integrates with other lines in Bhopal and Indore lines at Indore OCC.	Bidder understand that the OCC and BCC for each line of this contract are in scope of this contract, and compatibility to be interfaced with integrated OCC. Whereas, the integrated OCC is not in the scope of this contract, please confirm.	OCC proposed at Bhopal shall be for Red line and Purple line, and OCC proposed at Indore shall be for Yellow line. Location of BCC for Bhopal is proposed at Pulbogda Station and BCC for Indore is proposed at Vijaya Nagar Square Station. The Tender Conditions shall prevail.
671	Volume IV,	1.2.2.1 (s)	TCMS information of all trains	Bidder requests the employer to	Refer Telecom TS Chapter 12

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 2: ERTS-SIG	(11 of 238)	shall be transmitted to OCC at Rolling Stock Controller work station in a presentable and understandable format. All equipment needed for this shall be arranged by the S&TC contractor. He shall be co-ordinating with the RST and Telecomm Contractor to achieve this function for same. The information from RST to OCC shall be sent through the CBTC Channel.	clarify, if TCMS data from RST to OCC can be sent through Onboard CCTV communication channel, as TCMS data can overload the mission critical CBTC channel	clause no. 12.1.5 for separate provision of bandwidth proposed for RST TCMS data transmission. The Tender Conditions shall prevail.
672	Volume IV, ERTS, Part 2: ERTS-SIG	1.6.1 (12 of 238)	The Site for the Works shall be in Phases of the Bhopal Metro spread from AIIMS to Karond Circle Station including the Depot and Bhadbhada Square to Ratnagiri Tiraha and the Indore Metro all lines. The location of the common OCC for the two phases	Bidder requests employer to confirm whether OCC for Bhopal at depot for all the phases or two phases. Please confirm will there be any shifting of OCC for Bhopal after 2nd phase.	OCC proposed at Bhopal shall be for Red line and Purple line, and OCC proposed at Indore shall be for Yellow line. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			of Bhopal Metro shall be at Depot. Similarly, the location of the OCC for the Indore Metro shall be at its Depot. The access dates to the Site are referenced in the Key Date Schedules in GS Vol III, Appendix 1.		
673	Volume IV, ERTS, Part 2: ERTS-SIG	1.8.1 (13 of 238)	<p>1.8 Space for Contractors office and storage</p> <p>1.8.1 The Contractor will be provided with suitable space at a suitable place for constructing site office and storage facilities for contractor as well as for Engineer in Depot. The Contractor will construct the site office and storage facility within 4 months of possession of land given by Employer. The space will be available to the Contractor till end of DLCMP for whole of works MPMRCL Contract.</p>	We request you to clarify the space that will be provided for us for construction of site office as well as for store.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
674	Volume IV, ERTS, Part 2: ERTS-SIG	2.1.8 (14 of 238)	<p>The calculation of RAMS requirement will take into consideration only relevant failures. A relevant failure of an item is an independent failure which results in a loss of function of that item caused by: -</p> <p>a. A fault in an equipment or sub-system while operating within its design and environmental specification limits.</p> <p>b. Improper operation, maintenance or testing of the item as a result of contractor supplied documentation.</p> <p>c. Failure of transient and intermittent nature including those with post investigation status as “No fault found”, shall be considered as relevant failure if in the opinion of the Engineer these are attributable to signalling. The decision of Engineer shall be final.</p>	<p>No Fault Found (NFF), and failures due to improper operation are not defined as failures / failure categorization as per ICE 60050 section 191-43-01 & ICE 62278 section 4.5.2.2. Bidder requests the employer that the clause c shall be removed and also, in clause b, the word "Improper operation" shall be removed.</p>	<p>The Tender Conditions shall prevail.</p>

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675	Volume IV, ERTS, Part 2: ERTS-SIG	2.1.3 (14 of 238)	Special considerations shall be made by contractor as the air quality in Bhopal and Indore especially underground is humid and polluted like other places in India hence the Contractor shall ensure that Components of Signalling systems must be compliant but not limited to ISO 9227, ASTM B117, ISO 1461 & EN 12944-6.	Generally, CBTC system complies to the global CENELEC standards. The enclosures / cabinets are meeting to the IP requirements requested by the customer. Bidder requests customer to consider relevant CENELEC standards for Signalling systems.	These standards do not pertain to IP requirements. Corrigendum – 3 is being issued separately.
676	Volume IV, ERTS, Part 2: ERTS-SIG	2.1.8, (c) (14 of 238)	Failure of transient and intermittent nature including those with post investigation status as “No fault found”, shall be considered as relevant failure if in the opinion of the Engineer these are attributable to signalling. The decision of Engineer shall be final.	This is not suitable for RAM calculations as there would be no fault in the system causing these failures, so they will not affect its reliability or availability. Requesting the customer to remove the clause of considering "No fault found" failures to be attributed to signalling.	The Tender Conditions shall prevail.
677	Volume IV, ERTS, Part 2:	2.2.5	2.2.5. The Signalling & Train Control system shall achieve	Bidder would like to bring to the employer's kind notice that	Corrigendum – 3 is being issued separately, with respect to sub-

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	ERTS-SIG	& 2.2.3 (15 of 238)	<p>MTBMA of no less than 7 days per 12 route Km of the line. MTBMA is the average time between maintenance being required on a piece of equipment, sub-system or a system, The equipment shall be clubbed as (a) Trackside ATC (b) On-board ATC (c) ATS (d) CBI including Multi-Section Digital Axle Counter, signal, point machine etc. (e) TWC and MTBMA of 7 days shall be achieved for each group. MTBMA includes both preventive and corrective maintenance. MTBMA shall be achieved separately for Bhopal and Indore projects.</p> <p>2.2.3 Maintenance actions shall include hardware failure requiring a repair or software reboot/reconfiguration/reloading.</p>	<p>Inclusion of preventive maintenance to calculate MTBMA is contradicting with standard procedures and also it is contradicting with clause 2.2.3. requesting employer that preventive maintenance from MTBMA definition in clause 2.2.5 can be removed.</p>	<p>clause 2.2.3.</p>

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678	Volume IV, ERTS, Part 2: ERTS-SIG	IV - 2.3.3 and III Appendix 7, 9.1 (15 of 238)	<p>9.1 Service Affecting Failure (SAF)</p> <p>9.1.1 A failure is considered as SAF when either of the following occurs due to the effect of the failure.</p> <p>a. The arrival of the train at the terminal station is delayed by more than one minute compared to its scheduled time table.</p> <p>b. Missed trip as per time table</p> <p>9.1.2 A single SAF can create multiple numbers of trip delays or missed trips. For calculation of Service Punctuality, the actual number of trip delays and trip losses shall be considered irrespective of the number of SAF.</p> <p>2.3.3 The availability figures shown in Table 2-1 shall be met by the Signalling & train Control</p>	<p>Bidder understands that the clause 2.3.3 delay definition will be applicable for filling the availability performance given in table 2-1. The SAF definition in 9.1 is applicable only for punctuality calculation. Please confirm.</p>	<p>Definition of service affecting failure as mentioned in clause no 9.1.1 (a), (b) shall be applicable for calculation of both service punctuality and availability.</p> <p>However, methodology for calculation of service punctuality and availability shall be different as explained in clause 9.1.2 and 2.3.3 respectively.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>System per 12 route km approx. of the line for three years of operation time. For calculation purpose, only relevant failures viz failure of track detection device, signal, point machine, interlocking, on-board ATC, balise, ATS, bidirectional communication etc. shall be covered. The discretion of determining delay on account of any relevant failure rests solely with the Engineer and shall be final. The delay is calculated by the time lost by the first affected train due to a relevant failure. The determination of delay shall be further developed during DLCMP.</p>		
679	Volume IV, ERTS, Part 2: ERTS-SIG	2.4.2.3 (17 of 238)	<p>The following MTTR shall be achieved:</p> <p>a. 15 minutes for Train-borne equipment;</p> <p>b. 15 minutes for Train detection</p>	<p>Requesting Employer to exclude the Point machine from Trackside equipment MTTR calculations</p>	<p>Corrigendum – 3 is being issued separately.</p>

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			<p>equipment; c. 30 minutes for another trackside equipment; and d. 15 minutes for equipment located in equipment rooms or control rooms.</p>		
680	Volume IV, ERTS, Part 2: ERTS-SIG	2.4.4 (18 of 238)	<p>Service Life: All components, materials, software and other support required to repair and service all Signalling and Train Control and System shall be available for at least 30 years from the Employer's taking over of the Works or Section. The exception to this shall be the central control equipment (Servers & workstation), which shall be available for at least 10 years from the Employer's taking over of the Works or Section, except the monitors, key boards, MMI which shall be available for at</p>	<p>Due to obsolesce of components & technology advancement, service life of all product shall be defined for 10 years from "Take over".</p>	<p>The Tender Conditions shall prevail.</p>

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			least 7 years.		
681	Volume IV, ERTS, Part 2: ERTS-SIG	2.6 (19 of 238)	Cyber Security	<p>We request Employer to adapt this clause 2.6 as per the below provisions:</p> <p>Relevant Standards for compliance:</p> <p>a) IEC 62443; b) ISO 27005</p>	The Tender Conditions shall prevail.
682	Volume IV, ERTS, Part 2: ERTS-SIG	2.6 (19 of 238)	Cyber Security	<p>The Contractors shall propose and execute a secure design lifecycle and implementation methodology covering</p> <p>(a) Security policies, standards and processes which govern the systems</p> <p>(b) Information flows within the system and with other interfacing Contractor's systems indicating ports and services to be used, and its controls</p>	The Tender Conditions shall prevail.

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				<p>(c) Requirements and controls for confidentiality, integrity, availability, authentication.</p> <p>(d) User identification, roles and groups to be used with their access control matrices</p> <p>(e) Security parameters</p> <p>(f) Access rights of files and directories</p> <p>(g) Audit, logging and monitoring controls</p> <p>(h) Deployment of Network Security Protection for prevention, detection and correction</p>	
683	Volume IV, ERTS, Part 2: ERTS-SIG	2.6 (19 of 238)	Cyber Security	The Contractors shall cover the threats landscape like hacking, phishing, wireless signal jamming, physical tampering, damaging critical communication cables or nodes using IEC 62443 or ISO/IEC 27005 Risk Methodology and	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				residual risk should be at acceptable level in line with Authority	
684	Volume IV, ERTS, Part 2: ERTS-SIG	2.6 (19 of 238)	Cyber Security	The Contractors shall engage qualified security Consultant who shall be involved from early stage of design & development within the project and his/her inputs shall be considered for Cybersecurity Assurance Plan before submitted to Engineer for approval.	The Tender Conditions shall prevail.
685	Volume IV, ERTS, Part 2: ERTS-SIG	2.6 (19 of 238)	Cyber Security	The Contractor shall be fully responsible for compliance with cybersecurity standards and implementation of their Cybersecurity Assurance Plan. Any cost associated with implementation of cybersecurity guidelines shall be deemed to be included in the bid proposal	The Tender Conditions shall prevail.
686	Volume IV,	2.6,	Relevant Standards for	Bidder would like to bring to the	Corrigendum – 3 is being issued

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	ERTS, Part 2: ERTS-SIG	2nd paragraph (19 of 238)	compliance: - ISO 13335 ISO 27005 ISO 31000 ISO 15408 ISO 27032 IEC 62443-2 Any other relevant standard	<p>customer's kind notice that referring so many international standards for Cybersecurity Management framework becomes a very open ended requirement. Also, kindly note that, ISO 13335 is obsolete (Not applicable any more) IEC 62443-2 (Its Policies and Procedures) - Scope is very open ended.</p> <p>Therefore, bidder requests customer to modify the requirement close ended as below.</p> <p>"The Contractors shall ensure that the security solution designed and implemented is based on industry standards IEC 62443"and Risk assessment using IEC 62443 or ISO/IEC 27005 Risk Methodology.</p> <p>"Within this requirement we can covering ISMS (Cybersecurity</p>	separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Management system using 62443) and Risk Methodology using (62443 or 27005).	
687	Volume IV, ERTS, Part 2: ERTS-SIG	2.6, 1st paragraph (19 of 238)	The S&TC contractor shall adopt and develop an information security framework, security plan and a thorough SDLC process that integrates risk management for protection against malicious and inadvertent manipulation of data transmitted over ISM bands to maintain the confidentiality, availability and/or integrity of S&TC and wireless data transmission. This plan must be regularly reviewed, updated and accepted through a process of security certification, access control, gateway security, communications security, physical security, accreditations and certifications. The manipulation may be caused by malicious activity like intrusion,	bidder requests customer to amend the clause to have clarity on what Risk methodology to be adopted and as how the residual risk will be agreed as below: "The Contractors shall cover the threats landscape like hacking, phishing, wireless signal jamming, physical tampering, damaging critical communication cables or nodes using IEC 62443 or ISO/IEC 27005 Risk Methodology and residual risk should be at acceptable level in line with Authority".	The Tender Conditions shall prevail.

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			<p>hacking, phishing, wireless signal jamming, physical tampering, damaging critical communication cable or nodes; accident or natural disaster. The S&TC contractor must demonstrate practically, the ability of the system to proactively detect, contain, eradicate and recover from a security breach. The S&TC contractor shall define procedures for assured operations and continuous monitoring of the security controls.</p>		
688	Volume IV, ERTS, Part 2: ERTS-SIG	2.7.3.1 (20 of 238)	<p>Train Type The Signalling and Train Control System shall provide for the safe operation of all Train types including, Train Cosits of</p> <ol style="list-style-type: none"> a. of 3 and 6 cars b. Empty Rakes c. Engineers Train, Tower 	<p>Please clarify, how many different types of trains and please also specify the number of that particular type which should be equipped with CBTC equipments.</p> <p>We understand 3 car trains and 6 car trains will be used as mixed during operation in both the</p>	Corrigendum – 3 is being issued separately.

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			<p>wagons, Light Locomotives. Accident Relief Train or any other special purpose vehicles which may be introduced for operational or maintenance needs.</p>	<p>lines, however this configuration of 3 or 6 car will be defined in depot there is no operation coupling of two trains in the mainline. Is our understanding correct?</p>	
689	Volume IV, ERTS, Part 2: ERTS-SIG	2.8.1 (20 of 238)	<p>Notwithstanding the service capacity requirement above the Signalling and Train Control System shall provide a minimum designed signalled Headway of 90 Seconds & shall be able to achieve operational headway of 120 Seconds using 6-car Trains with 30-second dwells at intermediate stations and a minimum 2-minute layover at the terminal stations (minimum 30-second layover when front crossover is used), The Headway calculation will include PSD Operation time.</p>	<p>Request you to please provide the latest track layout with all speed restriction and speed profiles for analysis of the best possible headway.</p>	<p>Corrigendum – 3 is being issued separately.</p>

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690	Volume IV, ERTS, Part 2: ERTS-SIG	2.7.3.1 (20 of 238)	The Signalling and Train Control System shall provide for the safe operation of all Train types including, Train Cosits of a. of 3 and 6 cars b. Empty Rakes c. Engineers Train, Tower wagons, Light Locomotives. Accident Relief Train or any other special purpose vehicles which may be introduced for operational or maintenance needs.	Bidder requests customer to confirm the number maintenance vehicle that are to be installed with on-board equipment. Also, kindly confirm the vehicle characteristics and battery voltage.	Corrigendum – 3 is being issued separately.
691	Volume IV, ERTS, Part 2: ERTS-SIG	2.10.2.1 (21 of 238)	All Trains shall stop in ATO/ UTO mode within stopping window of +/- 300 mm or less for 99.98% of station stops for each platform. In Depot, Trains shall stop within stopping window of +/- 500 mm	Bidder requests customer to clarify that in clause 2.10.2.1, stopping window of +/- 500 mm is mentioned for depot, whereas in clues 3.33.2.6, the stopping accuracy on stabling lines is required to be in the range of +/- 1m. Please clarify which accuracy is applicable where in	Corrigendum – 3 is being issued separately, with respect to 3.33.2.6.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				the depot.	
692	Volume IV, ERTS, Part 2: ERTS-SIG	2.10.2.3 (22 of 238)	These stopping accuracy requirements shall be achieved with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed.	Please note that this requirement is more dependent on the Rolling Stock characteristics rather than signalling; hence request you to put this under Rolling Stock scope of work or at least joint responsibility of Rolling Stock and Signaling.	These stopping accuracy requirements with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed, shall be achieved jointly by Rolling stock and Signaling contractor. The Tender Conditions shall prevail.
693	Volume IV, ERTS, Part 2: ERTS-SIG	2.10.2.3 (22 of 238)	These stopping accuracy requirements shall be achieved with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed.	Please note that this requirement is more dependent on the Rolling Stock characteristics rather than signalling; hence request you to put this under Rolling Stock scope of work or at least joint responsibility of Rolling Stock and Signaling.	These stopping accuracy requirements with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed, shall be achieved jointly by Rolling stock and Signaling contractor. The Tender Conditions shall prevail.

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694	Volume IV, ERTS, Part 2: ERTS-SIG	2.10.2.3 (22 of 238)	These stopping accuracy requirements shall be achieved with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed.	Please note that this requirement is more dependent on the Rolling Stock characteristics rather than signalling; hence request you to put this under Rolling Stock scope of work or at least joint responsibility of Rolling Stock and Signaling.	These stopping accuracy requirements with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed, shall be achieved jointly by Rolling stock and Signaling contractor. The Tender Conditions shall prevail.
695	Volume IV, ERTS, Part 2: ERTS-SIG	2.10.2.3 (22 of 238)	These stopping accuracy requirements shall be achieved with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed.	We understand this requirement is impossible to demonstrate on the practical approach. We request you to kindly update/remove this requirement.	These stopping accuracy requirements with a 1% soap solution sprayed on the surface of the rails throughout the braking distance at maximum speed, shall be achieved jointly by Rolling stock and Signaling contractor. The Tender Conditions shall prevail.
696	Volume IV, ERTS, Part 2:	2.13,	Electromagnetic environment (EMI and EMC): All equipments	It is recommended that 33 kV power cables are routed in the	It is confirmed that 33KV Cables shall be run on both sides, as such

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	ERTS-SIG	1st paragraph (24 of 238)	should work safely, reliably under electromagnetic & electrostatic interference conditions existing in the mass rapid transit system, which will have the traction voltages as 750V DC and 3 phase 33KV Electrical power cables running along the track. System shall be designed to work under worst fault conditions	opposite side of the track when compared to the signalling cables to have maximum possible separation. Please confirm on this.	signalling equipments which are also provided on both sides, shall meet relevant EMI and EMC requirements on Viaduct. The Tender Conditions shall prevail.
697	Volume IV, ERTS, Part 2: ERTS-SIG	2.13.1 (24 of 238)	2.13.1 The wayside ATP equipment shall conform to CENELEC standards EN50121-2 & 4 and EN50082-2. For radiated Emissions & conducted EMI the system shall meet the requirements of CENELEC standards EN 50081-2.	EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and radio frequency (cartography). Considering this explanation, S&TC alone will not be sufficient	Corrigendum – 3 is being issued separately.

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				<p>to comply to EN50121-2. Relevant S&TC equipment be compliant to EN 50121-3-2 and EN 50121-4. So, request you to confirm is it ok that S&TC equipment compliant to EN 50121-3-2 and EN 50121-4. EN 50081-2 is superseded by EN 61000-6-4. So, S&TC can be complaint to EN 61000-6-4.</p> <p>We request you to modify the standard accordingly</p>	
698	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.1 (24 of 238)	<p>2.14.1 The contractor is required to conduct full EMC tests and the tests to be conducted shall include but not limited to satisfying standards as follows: Overall Compliance: EN50121-1 EN50121-2 EN50121-4</p>	<p>EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and radio frequency</p>	Corrigendum – 3 is being issued separately.

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				<p>(cartography).</p> <p>Considering this explanation, S&TC alone will not be sufficient to comply to EN50121-2.</p> <p>Relevant S&TC equipment be compliant to EN 50121-3-2 and EN 50121-4. So, request you to confirm is it ok that S&TC equipment compliant to EN 50121-3-2 and EN 50121-4</p>	
699	Volume IV, ERTS, Part 2: ERTS-SIG	2.13 (24 of 238)	Electromagnetic environment (EMI and EMC): All equipment should work safely, reliably under electromagnetic & electrostatic interference conditions existing in the mass rapid transit system, which will have the traction voltages as 750V DC and 3 phase 33KV Electrical power cables running along the track. System shall be designed to work under worst fault conditions	It is recommended that 33 kV power cables are routed in the opposite side of the track when compared to the signalling cables to have maximum possible separation. Bidder requests the employer to confirm the same.	<p>It is confirmed that 33KV Cables shall be run on both sides, as such signaling equipments which are also provided on both sides, shall meet relevant EMI and EMC requirements on Viaduct.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
700	Volume IV, ERTS, Part 2: ERTS-SIG	2.13.1 (24 of 238)	2.13.1 The wayside ATP equipment shall conform to CENELEC standards EN50121-2 & 4 and EN50082-2. For radiated Emissions & conducted EMI the system shall meet the requirements of CENELEC standards EN 50081-2.	<p>EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and radio frequency (cartography).</p> <p>Considering the above, S&TC alone will not be sufficient to comply to EN50121-2 and Relevant S&TC equipment be compliant to EN 50121-3-2 & EN 50121-4. Hence, bidder requests customer to confirm that the S&TC equipment shall be compliant to EN 50121-3-2 and EN 50121-4.</p> <p>Also, EN 50081-2 is superseded by EN 61000-6-4. Therefore, S&TC can be complaint to EN</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				61000-6-4. Bidder requests the employer to confirm the same.	
701	Volume IV, ERTS, Part 2: ERTS-SIG	2.13.2 (24 of 238)	ATP onboard equipment shall conform to IEC 571-1, CENELEC standards EN 50155, EN50121-2 & 4, EN50121-3 and EN50082-2. For radiated Emissions & conducted EMI the system shall meet the requirements of CENELEC standards EN 50081-2.	EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and radio frequency (cartography). Considering the above, S&TC alone will not be sufficient to comply to EN50121-2 and Relevant S&TC equipment be compliant to EN 50121-3-2 & EN 50121-4. Hence, bidder requests customer to confirm that the S&TC equipment shall be compliant to EN 50121-3-2 and EN 50121-4.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Also, EN 50081-2 is superseded by EN 61000-6-4. Therefore, S&TC can be complaint to EN 61000-6-4. Bidder requests the employer to confirm the same.	
702	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.1 (24 of 238)	The contractor is required to conduct full EMC tests and the tests to be conducted shall include but not limited to satisfying standards as follows: Overall Compliance: EN50121-1 EN50121-2 EN50121-4	EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and radio frequency (cartography). Considering the above, S&TC alone will not be sufficient to comply to EN50121-2 and Relevant S&TC equipment be compliant to EN 50121-3-2 & EN 50121-4. Hence, bidder requests customer to confirm that the S&TC equipment shall be compliant to EN 50121-3-2	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				and EN 50121-4. Also, EN 50081-2 is superseded by EN 61000-6-4. Therefore, S&TC can be complaint to EN 61000-6-4. Bidder requests the employer to confirm the same.	
703	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.2 (24 of 238)	Specific Standards: (1) Electromagnetic compatibility (EMC) IEC 61000-4-1 (2) Electrostatic Discharge IEC 61000-4-2 (3) Radio Frequency field IEC 61000-4-3 (4) Electrical fast transient/burst IEC 61000-4-4. (5) Surge IEC 61000-4-5 (6) Conducted RF IEC 61000-4-6 (7) Power Frequency magnetic field IEC 61000-4-8 (8) Pulse magnetic field IEC 61000-4-9	Bidder requests employer if below specific standards referred in EN 50121-3-2 and EN 50121-4 can be compliant and standards which are not covered under EN 50121-3-2 and EN 50121-4 can be removed as detailed below. (8) Pulse magnetic field IEC 61000-4-9 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update. (9) Damped oscillatory magnetic	Relevant provisions made in standards IEC 61000 - 4 shall be applicable. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			(9) Damped oscillatory magnetic field IEC 61000-4-10 (10) Voltage dips, short interruptions IEC 61000-4-11 (11) Oscillatory waves IEC 61000-2-12 (12) Harmonics and Inter Harmonics IEC 61000-4-13 (13) Voltage fluctuation IEC 61000-4-14 (14) Conducted disturbance IEC 61000-4-16 (15) Ripple of DC power supply IEC 61000-4-17 (16) Variation of power frequency IEC 61000-4-28 (17) Digital Radio phone IEC (Latest draft)	field IEC 61000-4-10 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update. (10) Voltage dips, short interruptions IEC 61000-4-11 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update. (11) Oscillatory waves IEC 61000-2-12 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update. (12) Harmonics and Inter Harmonics IEC 61000-4-13 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>not relevant to S&TC equipment with respect to EMC, bidder requests employer to update.</p> <p>(13) Voltage fluctuation IEC 61000-4-14 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update.</p> <p>(14) Conducted disturbance IEC 61000-4-16 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update.</p> <p>(15) Ripple of DC power supply IEC 61000-4-17 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				(16) Variation of power frequency IEC 61000-4-28 - NOT Covered in EN 50121-3-2 and EN 50121-4, this standard is not relevant to S&TC equipment with respect to EMC, bidder requests employer to update.	
704	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.2, Table (25 of 238)	2.14.2 Specific Standards: (1) Electromagnetic compatibility (EMC) IEC 61000-4-1 (2) Electrostatic Discharge IEC 61000-4-2 (3) Radio Frequency field IEC 61000-4-3 (4) Electrical fast transient/burst IEC 61000-4-4. (5) Surge IEC 61000-4-5 (6) Conducted RF IEC 61000-4-6 (7) Power Frequency magnetic field IEC 61000-4-8 (8) Pulse magnetic field IEC 61000-4-9	Request your confirmation if below specific standards referred in EN 50121-3-2 and EN 50121-4 can be compliant and standards which are not covered under EN 50121-3-2 and EN 50121-4 can be removed as detailed below. (6) Power Frequency magnetic field IEC 61000-4-8 - Covered in EN 50121-4 So this can be complied for IXL trackside equipment. (7) Pulse magnetic field IEC 61000-4-9 - NOT Covered in EN	Relevant provisions made in standards IEC 61000 - 4 shall be applicable. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>(9) Damped oscillatory magnetic field IEC 61000-4-10</p> <p>(10) Voltage dips, short interruptions IEC 61000-4-11</p> <p>(11) Oscillatory waves IEC 61000-2-12</p> <p>(12) Harmonics and Inter Harmonics IEC 61000-4-13</p> <p>(13) Voltage fluctuation IEC 61000-4-14</p> <p>(14) Conducted disturbance IEC 61000-4-16</p> <p>(15) Ripple of DC power supply IEC 61000-4-17</p> <p>(16) Variation of power frequency IEC 61000-4-28</p> <p>(17) Digital Radio phone IEC (Latest draft)</p>	<p>50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p> <p>(8) Damped oscillatory magnetic field IEC 61000-4-10 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p> <p>(9) Voltage dips, short interruptions IEC 61000-4-11 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p> <p>(10) Oscillatory waves IEC 61000-2-12 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>(11) Harmonics and Inter Harmonics IEC 61000-4-13 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p> <p>(12) Voltage fluctuation IEC 61000-4-14 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p> <p>(13) Conducted disturbance IEC 61000-4-16 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p> <p>(14) Ripple of DC power supply IEC 61000-4-17 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC,</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>request to update.</p> <p>(15) Variation of power frequency IEC 61000-4-28 - NOT Covered in EN 50121-3-2 and EN 50121-4, So this is not relevant to S&TC equipment with respect to EMC, request to update.</p>	
705	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.2.1, (25 of 238)	<p>2.14.2.1 The following specific EMC requirements shall be met by the design of the Signalling and Train Control System:</p> <p>a. Radiated Emissions: As a minimum requirement, the maximum levels of radiated electro-magnetic interference (EMI) of the installation shall not exceed the levels specified in EN50081-2;</p> <p>b. Conducted EMI: The maximum levels of conducted EMI of the installation shall not exceed the levels specified in EN50081-2;</p>	<p>EN 50081-2 is superseded by EN 61000-6-4. So can be complaint to EN 61000-6-4.</p> <p>Is it possible to change the standard?</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			and		
706	Volume IV, ERTS, Part 2: ERTS-SIG	3.25.1 (58 of 238)	3.25 Mimic Overview System for OCC/BCC 3.25.1 The Contractor shall provide suitable display system for OCC/BCC for Signalling as well as Power SCADA system. The technology for the projection system shall be a Laser based video wall display system. The Resolution shall be 1920 x 1080 full HD with 16.7 million colours or Higher; the matrix shall be made of 70-inch cubes.	Request you to provide the number cubes to be supplied as part of contract as it is difficult to estimate the cubes requirement for Power SCADA system. Please note that typical cubes requirement has been asked in the previous metro tender also (Ex: Kolkata Metro, Kanpur Agra Metro, Bangalore Metro, Pune Line 1&2 Metro)	Corrigendum – 3 is being issued separately.
707	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.2.1, (a) and (b) (25 of 238)	The following specific EMC requirements shall be met by the design of the S&TC System: a) Radiated emissions As a minimum requirement, the maximum levels of radiated electro-magnetic interference	EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>(EMI) of the installation shall not exceed the levels specified in EN50081-2;</p> <p>b) Conducted EMI</p> <p>The maximum levels of conducted EMI of the installation shall not exceed the levels specified in EN50081-2; and</p>	<p>radio frequency (cartography).</p> <p>Considering the above, S&TC alone will not be sufficient to comply to EN50121-2 and Relevant S&TC equipment be compliant to EN 50121-3-2 & EN 50121-4. Hence, bidder requests customer to confirm that the S&TC equipment shall be compliant to EN 50121-3-2 and EN 50121-4.</p> <p>Also, EN 50081-2 is superseded by EN 61000-6-4. Therefore, S&TC can be complaint to EN 61000-6-4. Bidder requests the employer to confirm the same.</p>	
708	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.6 (25 of 238)	<p>Conducted Immunity Levels</p> <p>The equipment supplied shall continue to operate correctly with no degradation in performance, when subject to the levels of conducted interference set out in</p>	EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>the European Standard EN50082-2 in the frequency range of 150 kHz to 30 MHz</p>	<p>applied test methods and gives information on typical field strength values at traction and radio frequency (cartography). Considering the above, S&TC alone will not be sufficient to comply to EN50121-2 and Relevant S&TC equipment be compliant to EN 50121-3-2 & EN 50121-4. Hence, bidder requests customer to confirm that the S&TC equipment shall be compliant to EN 50121-3-2 and EN 50121-4.</p> <p>Also, EN 50081-2 is superseded by EN 61000-6-4. Therefore, S&TC can be complaint to EN 61000-6-4. Bidder requests the employer to confirm the same.</p>	
709	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.5, (b), (26 of 238)	As a minimum requirement, the equipment must be immune to field strength of 20V/m in the	Please confirm if it is fine that Immunity requirements is met according to frequency and	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			frequency range of 27 to 2000 MHz	<p>levels as per EN 50121-3-2 and EN 50121-4 standards for relevant signalling equipment as mentioned below.</p> <p>80 MHz to 800 MHz --> 20 V/m rms (On Board) -- EN 50121-3-2</p> <p>80 MHz to 800 MHz --> 10 V/m rms (Trackside) -- EN 50121-4</p> <p>800 MHz to 1 000 MHz --> 20V/m rms (Onboard and Trackside)</p> <p>1 400 MHz to 2 000 MHz --> 10 V/m rms (Onboard and Trackside)</p> <p>2 000 MHz to 2 700 MHz --> 5V/m rms (Onboard and Trackside)</p> <p>5 100 MHz to 6 000 MHz --> 3 V/m (rms) (Onboard and Trackside)</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
710	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.6, (26 of 238)	2.14.6 Conducted Immunity Levels The Equipment supplied shall continue to operate correctly with no degradation in performance, when subject to the levels of conducted interference set out in the European Standard EN50082-2 in the frequency range of 150 kHz to 30 MHz	EN50082-2 is superseded by EN 61000-6-2. So can be complaint to EN 61000-6-2. We request you to modify the standard accordingly	Corrigendum – 3 is being issued separately.
711	Volume IV, ERTS, Part 2: ERTS-SIG	2.14.5, (b) (26 of 238)	Radiated Immunity Levels b) As a minimum requirement, the equipment must be immune to a field strength of 20V/m in the frequency range of 27 to 2000 MHz	Bidder understands that Immunity requirements shall be met according to the frequency and levels as per EN 50121-3-2 and EN 50121-4 standards for relevant signalling equipment as mentioned below. Requesting employer to confirm as below. 80 MHz to 800 MHz --> 20 V/m rms (On Board) -- EN 50121-3-2 80 MHz to 800 MHz --> 10 V/m rms (Trackside) -- EN 50121-4 800 MHz to 1 000 MHz -->	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>20V/m rms (Onboard and Trackside)</p> <p>1 400 MHz to 2 000 MHz --> 10 V/m rms (Onboard and Trackside)</p> <p>2 000 MHz to 2 700 MHz --> 5V/m rms (Onboard and Trackside)</p> <p>5 100 MHz to 6 000 MHz --> 3 V/m (rms) (Onboard and Trackside)</p>	
712	Volume IV, ERTS, Part 2: ERTS-SIG	2.16.1, (27 of 238)	<p>Inter System EMC</p> <p>The Contractor shall ensure that all the Signalling and Train Control equipment are designed and constructed in accordance with the latest issues or versions or revisions of internationally recognised EMC standards, including but not limited to EN50081, EN50082, EN50121, EN50123, IEC571, EN50155, and IEC 61000 to ensure proper</p>	<p>Is it acceptable if relevant S&TC equipment can be compliant to 2016 version of the EN 50121-3-2 and EN 50121-4 for EMC compliance?</p>	<p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			functioning.		
713	Volume IV, ERTS, Part 2: ERTS-SIG	2.18.1, (k), (l), (m) (27 of 238)	2.18.1. Safety-related systems interference k. Use of high-level modulation technique to improve the immunity of the system. l. Use of redundancy codes/check sum, etc. to improve the immunity of the system. m. Use of parallel-check technique to improve the immunity of the signalling system.	Not in signalling EMC scope. Is it possible to remove it from the scope of EMC requirements?	The Tender Conditions shall prevail.
714	Volume IV, ERTS, Part 2: ERTS-SIG	2.16.1 (27 of 238)	The contractor shall ensure that all the Train control & Signalling equipment are designed and constructed in accordance with the latest issues or versions of internationally recognised EMC standards, including but not limited to EN50081, EN50082, EN50121, EN50123, IEC571, EN50155, IEC 61000 to ensure	EN50121-2: Emission of the whole railway system to the outside world. This part sets the emission limits from the railway system to the outside world at radio frequencies. It defines the applied test methods and gives information on typical field strength values at traction and radio frequency (cartography).	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			proper functioning.	<p>Considering the above, S&TC alone will not be sufficient to comply to EN50121-2 and Relevant S&TC equipment be compliant to EN 50121-3-2 & EN 50121-4. Hence, bidder requests customer to confirm that the S&TC equipment shall be compliant to EN 50121-3-2 and EN 50121-4.</p> <p>Also, EN 50081-2 is superseded by EN 61000-6-4. Therefore, S&TC can be complaint to EN 61000-6-4. Bidder requests the employer to confirm the same.</p>	
715	Volume IV, ERTS, Part 2: ERTS-SIG	2.19, (b) (28 of 238)	2.19 - Environmental EMC b. Effect of emission on explosive or volatile/flammable material must be considered. BS6656 (Prevention of inadvertent ignition of flammable atmospheres by radio frequency radiation) and	Not in signalling EMC scope. Is it possible to remove it from the scope of EMC requirements?	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			other related standards must be adhered to.		
716	Volume IV, ERTS, Part 2: ERTS-SIG	2.18.1, (k), (l), (m) (28 of 238)	(k) Use of high-level modulation technique to improve the immunity of the system. (l) Use of redundancy codes/check sum, etc. to improve the immunity of the system. (m) Use of parallel-check technique to improve the immunity of the signalling system.	Bidder understand that these requirements are not applicable for signalling EMC scope. Requesting the employer to confirm.	The Tender Conditions shall prevail.
717	Volume IV, ERTS, Part 2: ERTS-SIG	2.19, (b) (28 of 238)	2.19. Environmental EMC (b) Effect of emission on explosive or volatile / flammable material must be considered. BS6656 (Prevention of inadvertent ignition of flammable atmospheres by radio frequency radiation) and other related standards must be adhered to.	Bidder understand that these requirements are not applicable for signalling EMC scope. Requesting the employer to confirm.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
718	Volume IV, ERTS, Part 2: ERTS-SIG	3.1.8.4 (32 of 238)	3.1.8.4 Initialization of UTO operation after system start-up must be possible without any manual intervention in the Train, or any OCC operator command. Initialization of UTO operation after a global system failure should be possible without manual intervention in each Train, nor shall require OCC operator command to be made for each Train. Transition between UTO and ATO/ATP/RM/ROS modes, must be possible continuously and anywhere on the running line and in the yards.	Kindly remove the highlighted text. It would be useful to inform that the CBTC system has a very high availability and redundancy at almost every level and such a scenario is unlikely to occur. Also, please note that the last reported position is not recorded as Slip and Slide could give erroneous position and result in safety issue.	Corrigendum – 3 is being issued separately.
719	Volume IV, ERTS, Part 2: ERTS-SIG	3.1.8.4 (32 of 238)	Initialization of UTO operation after system start-up must be possible without any manual intervention in the Train, or any OCC operator command. Initialization of UTO operation after a global system failure should be possible without	We understand this requirement in below two parts. 1. Normally initialization of UTO operation after system start must be possible without any manual intervention in the train, or any OCC operator command. This is	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>manual intervention in each Train, nor shall require OCC operator command to be made for each Train. Transition between UTO and ATO/ATP/RM/ROS modes, must be possible continuously and anywhere on the running line and in the yards.</p>	<p>normal procedure after trains wakes up will automatically do initialization test procedure without any manual or OCC intervention.</p> <p>2. After global system failure - Initialization of UTO may require manual intervention or OCC operator command in that particular train depending upon the nature of Failure. May we request you to please modify/update the requirement accordingly.</p>	
720	Volume IV, ERTS, Part 2: ERTS-SIG	3.3.1 (34 of 238)	<p>3.3.1 Minimizing the effects of failure so that the Train service may continue during times of equipment failure is of paramount importance. Consequently, the area of railway affected by the failure of an item of Wayside ATC equipment, which causes the use of RM/ROS mode of operation, shall not be greater than the area</p>	<p>We understand that this RM/ROS operation area shall not be longer than 200m in the normal direction of travel is very less as in other projects/bids in India its nearly more than 400m (Bangalore Metro requirement). Request you to please update the requirement.</p>	<p>Corrigendum – 3 is being issued separately.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>between two adjacent stations or between the halfway points on either side of the station. In any case this RM/ ROS operation area shall not be longer than 200m in the normal direction of travel.</p>		
721	Volume IV, ERTS, Part 2: ERTS-SIG	3.4.2.4 (35 of 238)	<p>3.4.2.4 Advisory indications: The ATC calculates a normal station stopping braking curve from the Station Stopping Point (SSP). When approaching the station, the Train hits the curve and the ATC triggers an audible indication named station braking Announcement. From this point, the Train Operator must apply brakes to the Train following this curve. He will be helped by speed indications on the Driver's MMI (The Advice speed and the Warning Speed). The train operator will brake the</p>	<p>Kindly remove the highlighted part of the requirement as several factors impact this (e.g., definition of low speed, distance from SSP, etc) and there is no value-add considering the operational scenarios of the employer.</p>	<p>"Interventions: The ATC gives few seconds to the train operator to react after warning. If not, the ATC triggers the FSB." shall not be applicable in GoA4 operation. The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>train according to the advice speed. The train speed can stay below the advice speed or between the advice speed and the warning speed. In case the speed goes above the warning speed, an audible warning is triggered. Then, the train operator has a few seconds to react and go back below the warning speed. If not, the intervention is triggered. The design of Driver's MMI shall be submitted for the approval of Engineer.</p> <p>Interventions:</p> <p>The ATC gives few seconds to the train operator to react after warning. If not, the ATC triggers the FSB.</p>		
722	Volume IV, ERTS, Part 2: ERTS-SIG	3.4.2.2 (35 of 238)	If the actual speed exceeds the permitted speed, a warning must be given to the Train operator to enable him to react and avoid	As per the requirement, there shall be 2 sec intervention time required before driver reacts. This reaction time fully depends	The two second intervention time required for Train Operator shall not be applicable in GoA4 operation.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>intervention from Train borne ATC equipment at least 2 sec. before the intervention of the full service brake until the actual speed does not exceed permitted speed, then the Train operator must be capable of selecting release of full service braking. The warning must continue until actual speed does not exceed permitted speed. The full-service brake intervention and emergency brake intervention must be recorded. If the full-service brake fails or is not adequate to stop the Train at the target point, the Train borne equipment must apply the emergency brake.</p>	<p>on the Braking curve which is generated by the system very efficiently and automatically. This intervention of ATC will happen to ensure the safety movement of the train within the allowed speed profile. We request you to modify this 2 sec requirement from the clause.</p>	<p>The Tender Conditions shall prevail.</p>
723	Volume IV, ERTS, Part 2: ERTS-SIG	3.4.7.5 and 3.4.7.6 (37 of 238)	<p>3.4.7.5 S&TC Contractor shall interface with the PSD contractor as per Appendix A11 of these TS. 3.4.7.6 In case the PSD contractor is not available for</p>	<p>We understand that we need to supply, design and install PSD as well within this project. Is our understanding correct?</p>	<p>PSD shall be a separate contract. However, the interface with PSD contractor shall be done by Signaling Contractor. Refer ERTS-SIG APPENDIX A11,</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>interface, the details of the interfacing signals between the signalling & train control system and platform screen door system shall be provided in a manner so that future installation of platform screen door is possible without any requirement of interface with S&TC Contractor. The functionality of platform screen door will be tested at all stations with a simulator which shall be proposed by the contractor and put up for approval of the Engineer. The simulator hardware (4 number) required for demonstrating the functionality of the system will be provided by the signalling contractor and subsequently handed over to the employer regardless of the fact whether PSD contractor is available for interface or not.</p>		<p>2.2.2. The Tender Conditions shall prevail.</p>
724	Volume IV,	3.4.8.2	Main line & depot Point machines	We would like to highlight that in	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 2: ERTS-SIG	(37 of 238)	shall be non-trailable type. Main line point machines shall be used in conjunction with additional external mechanical locking arrangement. For Mainline Point Machine shall be Electric; operating on 3-Phase 380/400 V AC Point or suitable machines shall be capable of operating points with Curved / thick web section with UIC HH 60 (60 kg/m) stock rail and 73 kg/m or 90kg/m thick web section. Generally, 1:9/1:7 turnouts for standard gauge will be used. Nominal Switch opening at Toe will be 160 mm. Depot Point Machine shall be electric; operation on 3-Phase 380/400 V AC or 110V DC.	many previous Metro projects (RVNL Kolkata Line 3&6, Mumbai Metro Line 2A,2B & 7, Nagpur Metro) the requirement for depot point machine was trailable. Therefore, we request you to modify the requirement as follows "Main line Point Machine shall be non-trailable type & depot Point machines shall be trailable. Main line point machines shall be used in conjunction with additional external mechanical locking arrangement. For Mainline Point Machine shall be Electric; operating on 3-Phase 380/400 V AC Point or suitable machines shall be capable of operating points with Curved / thick web section with UIC HH 60 (60 kg/m) stock rail and 73 kg/m or 90kg/m thick web section.	prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>Generally, 1:9/1:7 turnouts for standard gauge will be used. Nominal Switch opening at Toe will be 160 mm. Depot Point Machine shall be electric; operation on 3-Phase 380/400 V AC or 110V DC."</p> <p>Furthermore, as the IRS S 24 specification is related to non trailable point machine therefore request you to restrict the IRS S 24 requirement for Main line point machine only.</p>	
725	Volume IV, ERTS, Part 2: ERTS-SIG	3.4.8.10 (38 of 238)	3.4.8.10 Main line Point machines shall have the ability to work within same performance parameters when they are submerged in water due to flooding.	This requirement is very uncommon and will have a massive cost impact. Kindly delete.	Corrigendum – 3 is being issued separately.
726	Volume IV, ERTS, Part 2:	3.4.8.10 (38 of 238)	Main line Point machines shall have the ability to work within same performance parameters	This requirements leads to high IP rating of the Point Machine which will increase the overall	Corrigendum – 3 being issued separately

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-SIG		when they are submerged in water due to flooding.	cost. This requirement is not there in other bids (Kolkata Metro Bid)	
727	Volume IV, ERTS, Part 2: ERTS-SIG	3.4.9.2.4 (39 of 238)	Resetting of Axle counter shall be finalized during design stage after approval of Engineer.	Bidder understands that for axle counter resetting, proven principle that is offered in many metro systems can be considered.	The Tender Conditions shall prevail.
728	Volume IV, ERTS, Part 2: ERTS-SIG	3.4.14.2.2 (42 of 238)	The design shall ensure loss of either normal or UPS supply will have no effect on the Signalling Equipment operation. Separate transformers shall be provided to step down from the nominal supply voltages for equipment requiring various voltages and separate transformers –rectifiers shall be provided for the D.C equipment.	Bidder understands that as per UPS specification Volume IV, Part 3 - Telecomm Technical Specification: TS-TEL chapter 11 only UPS supply will be available for connection to signalling equipment. Normal supply will only be provided to UPS Input. Therefore, both normal and ups supply will not be directly available to signalling equipment. please confirm	The Tender Conditions shall prevail.
729	Volume IV, ERTS, Part 2:	3.5.1 (42 of 238)	3.5.1 The Signalling and Train Control System shall provide for	Bidder requests employer to remove interlocking VDU from	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-SIG		temporary speed restrictions to be applied from the ATS workstation, and from interlocking VDU at station depending on the existing level of control.	the TSR requirement as the Interlocking VDU will be used under de-graded condition and when only interlocking is in operation.	
730	Volume IV, ERTS, Part 2: ERTS-SIG	3.8.3.3 (45 of 238)	On-board system of Maintenance vehicle shall ensure movement in both directions with GOA-1 and on-board redundancy not required. Provision of MMI shall be for both the cabs.	Request you to please provide the number and particular type of Maintenance vehicle which will be equipped by GOA-1 CBTC equipments.	Corrigendum – 3 is being issued separately.
731	Volume IV, ERTS, Part 2: ERTS-SIG	3.11.2.2 (46 of 238)	3.11.2.2 Cascading of Signal aspects a. Green aspect to violet Aspect: On failure of Green aspect b. Green aspect to violet aspect: On failure of Route Indicator c. Violet aspect to Red: On failure of Violet aspect This shall be finalized during design stage after approval of Engineer.	Generally, in all other Indian metro projects cascading is provided as mentioned below and it is complying to the new GR rules 2020, section 93 of CHAPTER – XII (DRIVERLESS AND UNATTENDED TRAIN OPERATION) 5.11.2.2 Cascading of Signal aspects 1) Green aspect to Red Aspect:	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>On failure of Green aspect</p> <p>2) Green aspect to Red aspect: On failure of Route Indicator</p> <p>3) Violet aspect to Blank: On failure of Violet aspect</p>	
732	Volume IV, ERTS, Part 2: ERTS-SIG	3.11.2.2, (a), (b) and (c) (46 of 238)	<p>3.11.2.2 Cascading of Signal aspects</p> <p>a. Green aspect to violet Aspect: On failure of Green aspect</p> <p>b. Green aspect to violet aspect: On failure of Route Indicator</p> <p>c. Violet aspect to Red: On failure of Violet aspect</p>	<p>Bidder requests the employer to kindly note that generally in all other Indian metro projects cascading is provided as mentioned below and it is complying to the new GR rules 2020, section 93 of CHAPTER – XII (DRIVERLESS AND UNATTENDED TRAIN OPERATION)</p> <p>5.11.2.2 Cascading of Signal aspects</p> <p>1) Green aspect to Red Aspect: On failure of Green aspect</p> <p>2) Green aspect to Red aspect: On failure of Route Indicator</p> <p>3) Violet aspect to Blank: On</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				failure of Violet aspect	
733	Volume IV, ERTS, Part 2: ERTS-SIG	3.16.3 (53 of 238)	3.16.3 In addition to the ATS workstations in each SCR, the SCR's of the stations having a CBI or a CBI field interface unit shall be provided with an interlocking VDU display as a backup. The SCR controller shall be able to operate the interlocking from the interlocking VDU.	Field interface units will be present in all the stations. Bidder requests employer to clarify whether the interlocking VDU needs to be provided in all the stations or only for the stations with points and crossovers.	The Tender Conditions shall prevail.
734	Volume IV, ERTS, Part 2: ERTS-SIG	3.19.1 and 3.19.3 (54 of 238)	3.19.1 - Scheduled regulation, Constant Headway regulation, manual regulation shall be available to regulate the train in the event that a failure causes the loss of Central Control functionality. 3.19.3 - All the ATS functions of central control shall be available for first level of degradation to automatic operation from Local ATS. The local control from the	CBTC based metro systems around the world are preferring to use centralized systems. The metro traffic operation is always managed from OCC with central ATS systems. The nominal mode of operation is automatic with pre-configured timetable. In case of large perturbations and timetable adherence becomes impossible, automatic with constant headway mode shall be used. All the route setting,	The Tender Conditions shall prevail.

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			<p>station will in the first level of degradation work with schedule regulation, in the second level of degradation in the constant headway mode, in third level of degradation in manual mode from the ATS workstation.</p>	<p>station arrival/departures, train re-identifications and turn backs are managed by ATS system in both the above modes. If none of the automatic mode is feasible, the traffic controller at OCC can manage operations in manual mode, for the whole line.</p> <p>In case of central ATS non-availability due to double failure of any system or network components, or in case of need of traffic supervision/management from local operators in the vicinity of stations, this can be achieved through the VDUs provided at each main signalling and cross-over stations. The station controller at each of such station manages operations in manual mode, for the territory under his control.</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Based on the above, we hereby request customer to kindly modify ATS system requirement, by amending automatic local operations. This shall help to eliminate the local redundant servers and improves maintainability of ATS.	
735	Volume IV, ERTS, Part 2: ERTS-SIG	3.29.4.3 and 3.29.4.4 (65 of 238)	3.29.4.3 - The Train shall be dispatched automatically or by manual intervention upon receipt of the Train ready signal. 3.29.4.4 - The System shall distinguish between a Train ready signal in ATP and a Train ready signal in ATO/UTO Mode.	Since CBTC system there exists with a continuous bi-directional communication between on-board and wayside signalling systems indicating the active conditions (readiness) of both systems and specific train ready signal may not be relevant. Bidder requests employer to delete/modify these clauses accordingly.	The Tender Conditions shall prevail.
736	Volume IV, ERTS, Part 2: ERTS-SIG	3.30.3, (b), (d) and (g) (71 of 238)	The system shall generate, as a minimum, the following reports: b. Analytical reports of various	Bidder requests customer to clarify what's TRS breakdown refers to. Please conform how traffic	1) TRS breakdown pertains to Third Rail Traction System 2) Traffic Blocks are requested/granted through ATS

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			<p>unusual occurrences i.e. signal failures, TRS breakdown, rake failure, etc. on a daily, weekly, monthly & yearly basis.</p> <p>d. Total Traffic Blocks granted/refused along with locations, time blocked, and time cleared.</p> <p>g. Department wise booking of delays of Trains</p>	<p>blocks are requested/granted and how this data will be made available to ATS system</p> <p>Please clarify what are the departments and how train delay could be attributed to specific department by ATS system</p>	<p>system only</p> <p>3) Departments are Rolling Stock, Signaling, PSD and Third Rail System etc.</p> <p>4) For detailed interfaces, refer ERGS-S&T Appendix 13.</p> <p>The Tender Conditions shall prevail.</p>
737	Volume IV, ERTS, Part 2: ERTS-SIG	3.33.2.3 (77 of 238)	The maximum speed of operation within depot shall be fixed by on-board ATC and will be finalized during design. A warning system shall alert staff working in workshop/Maintenance areas of approaching vehicles. All RS shall have an appropriate light in front to indicate if in UTO mode. The UTO area needs to be fenced with access control.	Bidder requests customer to confirm that the fencing and access control of the UTO area is not in scope of signalling contractor. Also please confirm that there is no interface of the Access control with the signalling solution.	<p>Access control through SPK is in the scope of Signaling Contractor but fencing is in the scope Depot Civil contractor. Interfacing shall be done with Civil contractor for fencing, for Access of UTO area, SPK status indication shall be available in DCC interlocking VDU.</p> <p>The Tender Conditions shall</p>

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					prevail.
738	Volume IV, ERTS, Part 2: ERTS-SIG	3.33.4.1 (78 of 238)	Equipment for test tracks within the Depot shall be provided as part of the Signalling and Train Control System. The Test Track shall be equipped with full trackside ATP/ATO/UTO systems as per mainline standards for Train tests to be conducted within the limitations of the test track length.	Bidder understand that the Indoor ATP & CBI equipment which will be provided for depot shall be used to control the test track as well.	The Tender Conditions shall prevail.
739	Volume IV, ERTS, Part 2: ERTS-SIG	3.34.3, 2nd sentence (79 of 238)	Redundant radio units shall be provided on Train and wayside for On-board CCTV transmission which shall be different from the radio units used for CBTC transmission.	Bidder understand the requirements as below, "Radio Redundancy shall be provided on train and wayside for onboard CCTV transmission, Radio units used for onboard CCTV transmission shall be different from radio units used for CBTC transmission" Requests employer to confirm / modify the above to have more	The Tender Conditions shall prevail.

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				clarity.	
740	Volume IV, ERTS, Part 2: ERTS-SIG	3.34.2, last two sentences (79 of 238)	For interface between RS/S&TC refer Appendix 13 of Vol III. On board CCTV system at OCC shall include data from all cameras in train including cameras installed at front & rear cab of the train and shall be capable of displaying the same on ATS, Terminal and LVS	Bidder requests the employer to clarify how many simultaneous streams of cameras per train to be transferred to OCC at any point of time.	Refer Vol IV ERTS - Telecomm, Chapter 12, sub-clause 12.1.4. The Tender Conditions shall prevail.
741	Volume IV, ERTS, Part 2: ERTS-SIG	3.34.3, 3rd sentence (80 of 238)	On-board CCTV and CBTC shall each use one of the available ISM bands (2.4 GHZ, 5.8 GHZ).	2.4GHz band is highly polluted and prone to interference, as per latest WPC Notification 18 Oct 2018, 5GHz band is delicensed. Therefore, bidder requests the employer to modify the clause as below, "The Onboard CCTV shall use 2.4 GHz ISM band / 5.4GHz band while CBTC shall use 5.8 GHz ISM band preferably or any other delicensed frequency band	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				by Ministry of Communication."	
742	Volume IV, ERTS, Part 2: ERTS-SIG	3.34.3, 4th sentence (80 of 238)	The data transmission from wayside to OCC may use same switching network, The Network shall be configured such that CBTC traffic will always have priority over VTS traffic.	Bidder requests Employer to confirm if a mutualized/common backbone network (mutualized OFC + Switches etc) can be used for CBTC and onboard CCTV transmission, with CBTC traffic having priority over VTS traffic.	Corrigendum – 3 is being issued separately.
743	Volume IV, ERTS, Part 2: ERTS-SIG	4.4.3.3 (84 of 238)	Development Process of ATS and ATO systems shall be designed, manufactured and validated to Safety Integrity levels as defined in the CENELEC standard EN50126, EN50128 and EN50129 as per the requirements for CBTC systems and shall be SIL2 certified. Further, all potentially unsafe effects of safety-related functions performed by ATS and ATO shall be mitigated by mandatory interaction with SIL4 subsystems	Our understanding is that EN50128 is the only applicable standard. Please amend accordingly by removing EN50126 and EN50129 or clarify the expectation here.	All three CENELEC standards mentioned in TS are applicable for development process of ATS and ATO for SIL2 certification. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			(ATP and CBI).		
744	Volume IV, ERTS, Part 2: ERTS-SIG	4.4.3.3 (84 of 238)	4.4.3.3 Development Process of ATS and ATO systems shall be designed, manufactured and validated to Safety Integrity levels as defined in the CENELEC standard EN50126, EN50128 and EN50129 as per the requirements for CBTC systems and shall be SIL2 certified. Further, all potentially unsafe effects of safety-related functions performed by ATS and ATO shall be mitigated by mandatory interaction with SIL4 subsystems (ATP and CBI)	ATO doesn't have any safety level requirement therefore there is no need to have this SIL2 certification. However, complete ATP is SIL4, which will be supported by proper certification. Request you to kindly modify this requirement.	All three CENELEC standards mentioned in TS are applicable for development process of ATS and ATO for SIL2 certification. The Tender Conditions shall prevail.
745	Volume IV, ERTS, Part 2: ERTS-SIG	4.5.1, (a) (85 of 238)	A list of project submittals shall be delivered as part of the System Safety Management Requirements. The deliverables shall include but not limited to the following: - a. Safety Assurance (RAMS)	Safety Assurance Plan and RAM Plan shall be different deliverables. Bidder requests employer to amend the clause accordingly	Refer ERTS-SIG sub-clause 4.5.1.b and ERGS-S&T Appendix 4 for separate submission. Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Management Plan as defined in GS Vol III Appendix 7.		
746	Volume IV, ERTS, Part 2: ERTS-SIG	4.7.3, (a) (86 of 238)	The Signalling and Train Control System shall conform to IEC 60529 Ed. 2.0 b, to the following levels a. IP 67 for equipment enclosure/cabinet, disconnection box and fibre optic cable splice box to be installed in cable trough, trench floor mounted, track mounted including Point machine, Axle counter, etc.	We understand that IP rating for the wayside outdoor equipment in other Indian bids are IP54 (Kolkata Metro). We request you to kindly update the same.	Corrigendum – 3 is being issued separately.
747	Volume IV, ERTS, Part 2: ERTS-SIG	4.7.3, (a), (c) and (e) (86 of 238)	a. IP 67 for equipment enclosure/cabinet, disconnection box and fibre optic cable splice box to be installed in cable trough, trench floor mounted, track mounted including Point machine, Axle counter, etc. c. IP 65 for trackside Signalling	Point machine and axle counter are part of trackside Signalling equipment. Bidder requests employer to clarify whether IP 65 or IP67 required for Point machine and axle counter (wheel sensor).	Corrigendum – 3 is being issued separately.

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			<p>equipment. e. IP 52 for enclosures to be installed in equipment rooms with inert gas protection.</p>		
748	Volume IV, ERTS, Part 2: ERTS-SIG	4.7.3 (86 of 238)	<p>The Signalling and Train Control System shall conform to IEC 60529 Ed. 2.0 b, to the following levels</p> <p>a. IP 67 for equipment enclosure/cabinet, disconnection box and fibre optic cable splice box to be installed in cable trough, trench floor mounted, track mounted including Point machine, Axle counter, etc.</p> <p>b. IP 67 for external train borne equipment.</p> <p>c. IP 65 for trackside Signalling equipment.</p> <p>d. IP 54 for internal train born equipment.</p>	<p>Bidder requests employer to amend the IP requirement as followed in recent Metro tenders.</p> <p>The Signalling and Train Control System shall conform to IEC 60529 Ed. 2.0 b, to the following levels</p> <p>(1) Trackside equipment: IP code 54;</p> <p>(2) Internal train borne equipment: IP code 52; and</p> <p>(3) External train borne equipment: IP code 67</p> <p>The system shall be provided in a cabinet minimum as per IP30 rating.</p>	Corrigendum – 3 is being issued separately.

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			e. IP 52 for enclosures to be installed in equipment rooms with inert gas protection.		
749	Volume IV, ERTS, Part 2: ERTS-SIG	4.7.3, (c) (87 of 238)	IP 65 for trackside Signalling equipment.	Please allow IP 54 as well in line with other CBTC tenders (e.g., Bangalore Metro, Mumbai Metro, DMRC).	Corrigendum – 3 is being issued separately.
750	Volume IV, ERTS, Part 2: ERTS-SIG	6.9.1.2 (101 of 238)	The Integrated testing & commissioning shall be carried out in the 2 phases, each in 2 stages of commissioning. The first stage of commissioning will provide for ATP & ATO mode of operation. The second stage of commissioning will provide for UTO mode of operation.	The methodology of GoA2 to GoA4 will be provided.	The Tender Conditions shall prevail.
751	Volume IV, ERTS, Part 2: ERTS-SIG	9.2.12.1.2 (117 of 238)	Supervision of Maintenance The responsibility for the provision of supervision of maintenance shall be based on the number of man-months mentioned in) Pricing Document.	We understand that the 7 year comprehensive maintenance period ("STDLCMP") for a section will start immediately after such section is brought in revenue services (i.e., date of	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>The actual utilization of these man-months shall be at the Engineer discretion which may be on date of issuing of the Performance Certificate.</p>	<p>commercial operation ROD). Hence kindly clarify what is "Supervision of Maintenance ". The price for 7 year comprehensive maintenance period is to be mentioned as Lumpsum price in the price schedule. Hence kindly clarify the statement "The responsibility for the provision of supervision of maintenance shall be based on the number of man-months mentioned in) Pricing Document. The actual utilization of these man-months shall be at the Engineer discretion which may be on date of issuing of the Performance Certificate. "</p>	
752	Volume IV, ERTS, Part 2: ERTS-SIG	9.6.4 (123 of 238)	9.6.4 OCC, BCC, DCC, SCR, SMR & SER of station with interlocking logic master unit shall be provided with ATS workstation with diagnostic software. The	Bidder requests customer to clarify whether any other external equipment other than S&TC equipment to be interfaced. Please provide the	For external interfaces, refer Vol III ERGS-S&T Appendix 13. Protocols shall be mutually agreed between respective contractors.

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			maintenance user interface shall include interfaces to external equipment.	details of protocol for external interface, if any.	The Tender Conditions shall prevail.
753	Volume IV, ERTS, Part 2: ERTS-SIG	9.6.7 (124 of 238)	9.6.7 Porting of MMS data and information of S&TC system to centralised Asset management software platform being implemented by MPMRCL. For details of Asset management software shall be decided on latter stage	Bidder requests customer to provide the details of protocol for Asset management system.	Corrigendum – 3 is being issued separately.
754	Volume IV, ERTS, Part 2: ERTS-SIG	10.2.1 (126 of 238)	10.2 Spares List 10.2.1 The Contractor shall submit to the Engineer a list of spares. The list of spares shall include the Employer's list including the quantity mentioned for each item as given in the Pricing Document.	As per clause 10.2.1 the spares to be provided is given in the pricing document. However, we are not able to find the same in the pricing document. Therefore, request you to provide list of contractual spares.	The contractor shall provide the list of spares to be used in DLCMP period. Refer Para 2.16.1.1.c for details. The Tender Conditions shall prevail.
755	Volume IV, ERTS, Part 2: ERTS-SIG	10.8 (126 of 238)	10.8 Special Tools and Test Set up	We request you to provide list of special tools to be provided as in all past metro tenders list of	The contractor shall provide the list of spares to be used in DLCMP period. Refer Para 2.16.1.1.c for

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				special tools is always provided.	details. The Tender Conditions shall prevail.
756	Volume IV, ERTS, Part 2: ERTS-SIG	10.9 (127 of 238)	10.9: Troubleshooting and Maintenance simulator 11.3.4: Lab/Repair Centre shall include a model room comprising of minimum equipment for stations such as testing platform for CBI, ATC and ATS (mentioned in clause 3.2.1) Point Machine, Signals, Axle Counters, Radio network for CBTC etc.	Bidder would like to bring to the customer notice that the requirement of T&M simulator and the Lab/ Repair centre are same. Hence, bidder requests customer to amend the requirement with only T&M simulator or Lab repair facility.	The Tender Conditions shall prevail.
757	Volume IV, ERTS, Part 2: ERTS-SIG	10.9 (127 of 238)	10.9: Troubleshooting and Maintenance simulator 11.3.4: Lab/Repair Centre shall include a model room comprising of minimum equipment for stations such as testing platform	Bidder requests customer to confirm whether these facility needs to be provided separately for Bhopal and Indore or at any one location.	The facility shall be provided separately at Bhopal and Indore. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			for CBI, ATC and ATS (mentioned in clause 3.2.1) Point Machine, Signals, Axle Counters, Radio network for CBTC etc.		
758	Volume IV, ERTS, Part 2: ERTS-SIG	11 (129 of 238)	Chapter 11: Training and Transfer of Technical knowhow.	Kindly clarify at which stage this training and Transfer of Technical knowhow is required to be done.	Refer Vol IV ERTS-SIG sub-clauses 11.1.2, 11.3.1 The Tender Conditions shall prevail. Also, refer Corrigendum – 3 being issued separately for sub-clause 11.1.2.
759	Volume IV, ERTS, Part 2: ERTS-SIG	11.2.2, (b) (129 of 238)	Off shore Training b. The contractor shall provide overall 250 man days of Training for S&TC contract. Distribution of these man days for various courses shall be proposed by the contractor and approved by Engineer/Employer. If the	Kindly confirm the number of days of the expected offshore training and the batch size (i.e., breakup of 250 mandays).	Distribution of these man days for various courses shall be proposed by the Contractor and approved by Engineer/Employer. Refer Vol IV ERTS-SIG sub-clause 11.2.2.b

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Contractor cannot finish the training in 250 man days, the extended period shall be at full cost of the Contractor		The Tender Conditions shall prevail.
760	Volume IV, ERTS, Part 2: ERTS-SIG	11.2.1 and 11.2.2 (129 of 238)	<p>11.2 Scope of Training</p> <p>11.2.1 The Training shall be provided by the Contractor to the Employer's personnel in design, system architecture & manufacturing process and during installation testing and commissioning practices. This shall form the part of off shore Training. Contractor shall also provide Training to the operations and maintenance staff in India.</p> <p>11.2.2 Off shore Training</p> <p>a. Contractor shall submit an offshore Training programme for Signalling and Train Control System in the areas of design and configuration of CBI,</p>	<p>Please note that training is limited only to operation and maintenance part and not the design.</p> <p>Please modify accordingly</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>ATP/ATO/UTO, TWC system, ATS sub-systems, Radio Access points and DCS network.</p> <p>b. The contractor shall provide overall 250 man days of Training for S&TC contract. Distribution of these man days for various courses shall be proposed by the contractor and approved by Engineer/Employer. If the Contractor cannot finish the training in 250 man days, the extended period shall be at full cost of the Contractor</p>		
761	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A2, 3.6 (138 of 238)	The Train Consists may be of two types (3 cars and 3+3 Cars)	<p>1) Bidder understood that in future there can be 6 car convert from 3 cars.</p> <p>2) We understand that bidder</p>	<p>1. In future there can be 6 car convert from 3 cars.</p> <p>2. No immediate plan to convert 3 car to 6 cars trains.</p> <p>3.The 6 cars shall consist DMC-</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>have to consider required hardware only for the 3 car configuration. If the trains are to be coupled as 3+3 cars (6 cars) in future then separate order will be processed for the additional hardwares and efforts. If the coupling needs to be considered with the present contract then please specify the number of trains to be coupled.</p> <p>3) Also, we understand that the 6 cars will consist DMC-TC-DMC : DMC-TC-DMC (service coupling). Please confirm.</p> <p>4) Bidder requests customer to confirm whether the coupling (6 cars) will be a permanent arrangement once coupled or it will be a temporary coupling.</p>	<p>TC-DMC-DMC-TC-DMC. 4.No immediate plan to convert 3 car to 6 cars trains.</p> <p>The Tender Conditions shall prevail.</p>
762	Volume IV,	4.3.4	The ATO/UTO system shall	Bidder requests employer to	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 2: ERTS-SIG	(144 of 238)	accept coasting commands from the ATS system. The ATO/UTO system shall operate the Train within the parameters set by the ATP system. As a Train approaches a station, the ATO/UTO system shall reduce speed and control the stop to within ± 250 mm. When the Train is properly berthed, the ATO/UTO system shall initiate a command to open the Train doors as well as Platform screen doors. In UTO system the Train shall automatically initiate closing of Train doors and Platform screen doors.	confirm the stopping accuracy as the stopping accuracy requirement is contradicting with clause 2.10.2.1	separately.
763	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A2, 7.1.1 (147 of 238)	The S&TC system should have provision of progressive implementation of predictive maintenance. Contractor will design Signalling and Train Control System with suitable transducers to monitor health of	Bidder understands that the bidder needs to ensure the system capability to implement the predictive maintenance system in future. There will separate contract processed for implementing predictive	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			various sub-systems and equipment's. Parameters to be monitored may be voltage, current, failure of any redundancy, tag, receive and transmit level of CBTC and other equipment's present will be submitted as part of bid proposal. All parameters will be transferred to S&TC fault management system where these may be used for predictive maintenance.	<p>maintenance system. Bidder needs to provide the required data and strategy to implement predictive maintenance system in future.</p> <p>Please clarify whether the predictive maintenance system will be part of this contract or it will be processed separately in future as it is not covered in BOQ/ Price schedule.</p>	
764	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A3 (II), 2, (e) (149 of 238)	Appendix A3 - List of Alarms, SI no. 2 Outside Station e) Train passing a signal at danger.	<p>Kindly remove this requirement; CBTC trains will not pass a signal at danger - hypothetical scenario; in RM mode CBTC is not responsible.</p> <p>This is in line with recent CBTC tenders like Mumbai Line 4.</p>	The Tender Conditions shall prevail.
765	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A5, 2.2.1 (151 of 238)	For underground environment, the Contractor shall generally comply with the pertinent	Bidder understands that Underground cable shall comply with international standards for	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			requirements of NFPA 130 or any other similar international standard to which the cables are in use in any passenger carrying railway or metro system.	fire and smoke properties. Below is the list of international standards IEC 60332-1 IEC 60332-3 IEC 60754-1 IEC 61034 IEC 60754-2 ASTM D2843	
766	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A5, 2.2.3.2.1 (152 of 238)	All cables shall be flame retardant and shall comply with the requirements of IEC 331 and for bunched cables of IEC 332: Part 1 & 3 and for flame propagating criteria of US IEEE- 383 with a minimum test short circuit time of five minutes.	Bidder would like to inform that the underground cables will comply to IEC 60332-1 and IEC 60332-3. Flame propagating criteria of IEEE 383 is similar to IEC 60332-3 and all the cables for underground will comply to IEC 60332-3. IEC 60331 is applicable only to emergency circuits so it is not applicable for signalling cables. Request Employer to amend the clause accordingly as this is	Latest international standards in this regard to be complied. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				maintained in other metro also.	
767	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A5, 2.2.3.3 (152 of 238)	<p>The value of the smoke generated of the low voltage power cables shall meet the requirements of IEC 1034.</p> <p>All cable materials shall meet requirements of the US National Bureau of Standard Smoke Chamber Test, used to evaluate plaque materials of constant thickness. (NFPA 258 Smoke Generation of Solid Materials 1982)</p>	Bidder would like to inform that NFPA 258 has been withdrawn and hence, all the underground cables will comply to IEC 61034 for smoke emission. Request Employer to amend the clause accordingly.	<p>Latest international standards in this regard to be complied.</p> <p>The Tender Conditions shall prevail.</p>
768	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A8, 7.5.4 (166 of 238)	The system shall have provision for accommodating additional 25% of I/O cards.	With reference to the latest RDSO/SPN/192/2019 for CBI, Bidder requests customer to amend the requirement with 15%.	The Tender Conditions shall prevail.
769	Volume IV, ERTS, Part 2:	APPENDIX A9, 1:	APPENDIX A9 – Specifications of ATP/ATO/UTO	This standard is applicable to ETCS system, we understand this shall not be applicable to	This is general guidelines for the components Eurobalise, DMI etc.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-SIG	References (173 of 238)	A200 - FRS Functional Requirements Specification for ETCS (European Train Control System) A200/FRSenv.02 ver 00.03 - Environmental Specifications for ETCS (European Train Control System)	CBTC system, which will be provided under this project. We request to remove this applicable standard from the list of standards.	The Tender Conditions shall prevail.
770	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A9, 4.1 (174 of 238)	The system shall conform to IEEE 1474.1 (2004), IEEE 1474.2 (2003), A200 FRS, Functional Requirements Specification for ETCS (European Train Control System) in general.	ETCS related standards are not applicable to CBTC solution, hence please confirm, if ETCS related standards can be removed.	This is general guidelines for the components Eurobalise, DMI etc. The Tender Conditions shall prevail.
771	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A9, 4.11.1 (180 of 238)	4.11.1 Speed Supervision A number of different monitoring curves are to be provided within the ATP System. The audible warning tone for all the different cases below shall be different.	The purpose of audible alarm is to alert the driver. There are already various alarms in the cab of the drivers. To simplify this issue there should be only one type of alarms for this topic. This will keep the driver informed	Being design-built contract, the issue of audible warning shall be finalised during detail design stages. The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				about the warning and driver will also not get confused with different warning tones. Request for the appropriate update in the requirement.	prevail.
772	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A9, 4.11 (181 of 238)	<p>4.11 Operational Requirement 4.11.1 Speed Supervision A number of different monitoring curves are to be provided within the ATP System. The audible warning tone for all the different cases below shall be different.</p> <p>The service brake curve - Issuing of an audible warning Activation of the visual display and application of the service brake</p> <p>The emergency brake curve - Issuing of an audible warning (continuous) Activation of the visual display, application of the</p>	<p>4.11 Operational Requirement 4.11.1 Speed Supervision A number of different monitoring curves are to be provided within the ATP System. The audible warning tone for all the different cases below shall be different.</p> <p>The service brake curve - Issuing of an audible warning Activation of the visual display and application of the service brake</p> <p>The emergency brake curve - Issuing of an audible warning (continuous) Activation of the visual display, application of the</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			emergency brake	emergency brake Request you to remove 'continuous' as there is no need for separate alarms for the service brake and emergency brake.	
773	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A9, 4.11 (181 of 238)	<p>4.11 Operational Requirement 4.11.1 Speed Supervision A number of different monitoring curves are to be provided within the ATP System. The audible warning tone for all the different cases below shall be different.</p> <p>The service brake curve - Issuing of an audible warning Activation of the visual display and application of the service brake</p> <p>The emergency brake curve - Issuing of an audible warning</p>	<p>4.11 Operational Requirement 4.11.1 Speed Supervision A number of different monitoring curves are to be provided within the ATP System. The audible warning tone for all the different cases below shall be different.</p> <p>The service brake curve - Issuing of an audible warning Activation of the visual display and application of the service brake</p> <p>The emergency brake curve -</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			(continuous) Activation of the visual display, application of the emergency brake	<p>Issuing of an audible warning (continuous) Activation of the visual display, application of the emergency brake</p> <p>Request you to remove 'continuous' as there is no need for separate alarms for the service brake and emergency brake.</p>	
774	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A9, 6.4 (184 of 238)	Locked axle detection 6.4.1 Locked axle detection should be provided.	Kindly remove this requirement.	<p>Locked axle detection shall be achieved jointly by RS and S&T contractors.</p> <p>The Tender Conditions shall prevail.</p>
775	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A9, 6.4 (184 of 238)	Locked axle detection 6.4.1 Locked axle detection should be provided.	Kindly remove this requirement - this should be in Rolling-Stock scope.	<p>Locked axle detection shall be achieved jointly by RS and S&T contractors.</p> <p>The Tender Conditions shall</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					prevail.
776	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A9, 7.10 (185 of 238)	The Wayside controller (with hot standby) should be at minimum 2 stations on mainline and one at depot provided only at locations which are housing main interlocking master unit, Contractor shall put forward proposal for the same to Engineer, and decision of Engineer shall be final.	<p>Based on the capacity and the redundancy of the controller, one controller (one ATP & one IXL) shall suffice the entire mainline corridor. Since it is a design-built contract bidder requests employer to consider the architecture according to the system capability.</p> <p>We request to amend the clause as follows, at Bhopal there shall be minimum one ATP wayside controller & one CBI for purple mainline; minimum one ATP wayside controller & one CBI for Red mainline and one wayside controller & one CBI for depot. Similarly, at Indore minimum one ATP wayside controller & one CBI for yellow line and one wayside controller & one CBI for</p>	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				depot.	
777	Volume IV, ERTS, Part 2: ERTS-SIG	APPENDIX A11, 2.2.2 (195 of 238)	2.2 Scope of supply 2.2.2 PSD/PED System: All PSD/PED equipment including wiring up to S&TC System Interface equipment.	Bidder requests employer to clarify, whether All PSD/PED equipment including wiring up to S&TC System Interface equipment is under "PSD/PED contractor" scope.	Corrigendum – 3 is being issued separately.
778	Volume IV, ERTS, Part 2: ERTS-SIG	General (238 of 238)	-	Safety Transmission Protocol based on IEC 61375-2-3 Annex B for communication between TCMS and all other sub-systems shall be maintained to ensure TCMS is SIL2 complied. The statement need to be applied in TS of Signaling part (Volume IV, Part 2 - Signaling Technical Specification – TS-SIG).	Already included in Interface document of Rolling Stock and Signalling. Refer: a) RS Technical Specifications para no. 10.1.8 (pg no. 217 of 492) b) RS Technical Specifications: N1 - Indicative Interface Sheet for Signalling Train Control and Telecommunication Systems (S&T) and Rolling Stock (RST), Interface Specification no. ST/RS-22e. (pg no. 453 of 492). The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					prevail.
779	Volume IV, ERTS, Part 2: ERTS-SIG	General (238 of 238)	-	<p>Safety Transmission Protocol based on IEC 61375-2-3 Annex B for communication between TCMS and all other sub-systems shall be maintained to ensure TCMS is SIL2 complied. The statement need to be applied in TS of Signaling part (Volume IV, Part 2 - Signaling Technical Specification – TS-SIG).</p>	<p>Already included in Interface document of Rolling Stock and Signalling.</p> <p>Refer:</p> <p>a) RS Technical Specifications para no. 10.1.8 (pg no. 217 of 492)</p> <p>b) RS Technical Specifications: N1 - Indicative Interface Sheet for Signalling Train Control and Telecommunication Systems (S&T) and Rolling Stock (RST), Interface Specification no. ST/RS-22e. (pg no. 453 of 492).</p> <p>The Tender Conditions shall prevail.</p>
780	Volume IV, ERTS, Part 3: ERTS-TEL	1.3, 2nd sentence (2 of 279)	There will be one centralized Operation Control Centre (OCC), one Playback and Training Room (PTR), one Depot Control Centre (DCC) and one Back-up Control	We understand that Bhopal & Indore Metro will have a separate OCC, BCC, PTR & DCC. Please confirm if this understanding is correct.	Bhopal & Indore Metro shall have separate OCC, BCC, PTR & DCC etc.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Centre (BCC).		The Tender Conditions shall prevail.
781	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.2 (12 of 279)	All type of switches shall be carrier grade standards and end equipment switches shall be gigabit with all port POE functionality. Outdoor switches shall be Industrial grade.	As per requirement, not all end equipment will be PoE enabled. Hence, as per standard design practices and project's interface requirement, not all end-equipment switches are required to be PoE enabled. Requesting to update the clause accordingly.	The Tender Conditions shall prevail.
782	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.2 (12 of 279)	All type of switches shall be carrier grade standards and end equipment switches shall be gigabit with all port POE functionality. Outdoor switches shall be Industrial grade.	As per our understanding, carrier grade standard refers to a system, or a hardware or software component that is extremely reliable, well tested and proven in its capabilities. Kindly confirm.	The Tender Conditions shall prevail.
783	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.11 (12 of 279)	MPMRCL Corporate Office IT system is not included but OA/IT used for operation staffs based on Depot and stations shall be	It is understood the MPMRCL Corporate Office IT System (OA/IT) shall provide its own network infrastructure including	MPMRCL Corporate Office IT system shall be separate from the OA/IT of Metro. In future, if required this shall be connected

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			included. The MPMRCL (OA/IT) system shall not use or connect with any of the ports of the FOTS-IP.	access and core switches, which shall not use any ports from FOTS-IP. Please mention if the understanding is correct.	with OA/IT system of Metro. The Tender Conditions shall prevail.
784	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.12, (a) (12 of 279)	The Contractor must be aware of several key considerations for deploying synchronization solution in IP networks since different network types have unique characteristics that affect packet delay and delay variation. An effective synchronization solution, which is able to deliver consistent and accurate synchronization across the entire network shall be proposed by the Contractor for Employer/Engineer's approval.	It is understood that by synchronization we mean time synchronization using Network Time Protocol and not frequency synchronization as no circuit based network is being deployed in the MPMRCL. Please mention if the understanding is correct.	The Tender Conditions shall prevail.
785	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.2 (12 of 279)	All type of switches shall be carrier grade standards and end equipment switches shall be gigabit with all port POE	As all PoE port will unnecessary increase the overall cost - we would recommend these for cameras only. Please consider.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			functionality. Outdoor switches shall be Industrial grade.		
786	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.2 (12 of 279)	All type of switches shall be carrier grade standards and end equipment switches shall be gigabit with all port POE functionality. Outdoor switches shall be Industrial grade.	As per our understanding, carrier grade standard refers to a system, or a hardware or software component that is extremely reliable, well tested and proven in its capabilities. Kindly confirm.	The Tender Conditions shall prevail.
787	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.11 (12 of 279)	MPMRCL Corporate Office IT system is not included but OA/IT used for operation staffs based on Depot and stations shall be included. The MPMRCL (OA/IT) system shall not use or connect with any of the ports of the FOTS-IP.	Kindly confirm the requirement of OA/IT system including number of ports required and switch specification.	MPMRCL Corporate Office IT system shall be separate from the OA/IT of Metro. In future, if required this shall be connected with OA/IT system of Metro. The Tender Conditions shall prevail.
788	Volume IV, ERTS, Part 3: ERTS-TEL	2.1.12, (a) (12 of 279)	The Contractor must be aware of several key considerations for deploying synchronization solution in IP networks since different network types have	FOTS-IP System is using TCP/IP protocol for communication and synchronisation purpose to avoid any packet delay & delay	The para itself explains the requirement of consistent and accurate synchronisation across the network.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			unique characteristics that affect packet delay and delay variation. An effective synchronization solution, which is able to deliver consistent and accurate synchronization across the entire network shall be proposed by the Contractor for Employer/Engineer's approval.	variation. An effective synchronisation solution asked in contract clause for synchronisation purpose need to be elaborated.	The Tender Conditions shall prevail.
789	Volume IV, ERTS, Part 3: ERTS-TEL	2.13 (13 of 279)	Time of Day synchronization	It is understood that no subsystem (including TETRA) requires PTP in the network. Hence, Time of Day synchronization will be by using Network Time Protocol. Please elaborate that system which may require PTP. Please mention if the understanding is correct.	PTP may be used for interfacing with other systems (other than Telecomm systems) also the accuracy is better than NTP. The Tender Conditions shall prevail.
790	Volume IV, ERTS, Part 3: ERTS-TEL	2.3.3 (14 of 279)	The Contractor shall design the FOTS-IP with Ethernet patch panels in the station TERs, the CER-OCC and the CER-BCC to	As all the telecom sub-system will use FOTS-IP backbone for data & voice communication, common patch panel will be	This means proper labelling (nomenclature) of the patch panel user wise for identification.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			serve as the demarcation between FOTS-IP and the using system.	provided. Kindly confirm our understanding	The Tender Conditions shall prevail.
791	Volume IV, ERTS, Part 3: ERTS-TEL	2.3.9, (I) (15 of 279)	Preliminary outline of topics, maximum class size and estimated hours of out-of-country training for MPMRCL maintenance personnel	Training for the products/systems which are made in India, or having manufacturing facilities in India, will be conducted in India only. Please mention if the understanding is correct.	Training for the products/systems which are made in India, or having manufacturing facilities in India, shall be conducted in India. The Tender Conditions shall prevail.
792	Volume IV, ERTS, Part 3: ERTS-TEL	2.4.5 (16 of 279)	The core data switches shall be modular and scalable with minimum twelve expansion slots.	Expansion slots is a combination of controller/CPU module, uplink module, downlink module and power supply modules. Please mention if the understanding is correct.	This is Design Build Contract and Contractor shall finalize equipment selection based on final design. Minimum twelve expansion slots are required. The Tender Conditions shall prevail.
793	Volume IV, ERTS, Part 3: ERTS-TEL	2.4.7 (16 of 279)	The Core Network switches shall have passive backplane and independent processing and	Core Switch will have active/passive backplane for seamless data processing	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			switching modules.	between network modules. Kindly confirm	
794	Volume IV, ERTS, Part 3: ERTS-TEL	2.5.7, (c) (i) (18 of 279)	IEEE802.2p	Please re-check the standard name	Corrigendum – 3 is being issued separately.
795	Volume IV, ERTS, Part 3: ERTS-TEL	2.6.1 (18 of 279)	The Contractor shall design the FOTS-IP with pair(s) (A&B) of redundant Gigabit Ethernet switches at each TER for connection by the using systems. Each layer-2 data service connection required by a system will appear on A and B.	It depends upon the end system interface configuration, if it has redundant ports to be connected to L2 switch. Not all end devices come with redundant ports and will be connected to single L2 Switch e.g., PC Laptop. Please mention if the understanding is correct.	The Tender Conditions shall prevail.
796	Volume IV, ERTS, Part 3: ERTS-TEL	2.6.12 (c) (19 of 279)	IF Table Extension MIB: RFC1595	The mentioned RFC 1595, pertains to the SDH/SONET networks and hence, not required in packet-switched IP based network. Request you to remove this sub-clause.	Corrigendum – 3 is being separately

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
797	Volume IV, ERTS, Part 3: ERTS-TEL	2.7.9.1 (19 of 279)	The Contractor shall design the FOTS-IP System with active clustering technologies like VSS (Virtual Supervisor Switching) or equivalent providing high reliability for seamless service switch over of various sub systems during any disaster.	VSS is OEM specific terminology. Please remove the word.	The Tender Conditions shall prevail.
798	Volume IV, ERTS, Part 3: ERTS-TEL	2.6.12 (19 of 279)	The Layer-2 access switches shall support the following management Standards: a. SNMPv1/2/3 b. MIB II: RFC1213 c. IF Table Extension MIB: RFC1595	As per our understanding, RFC 1595 is applicable for SONET/SDH interface type which is not relevant to the scope of current tender. Kindly remove this particular point.	Corrigendum – 3 is being issued separately.
799	Volume IV, ERTS, Part 3: ERTS-TEL	2.7.8 (19 of 279)	The system shall be design with duplicated fiber optic ring structure with necessary protocols.	Kindly clarify the meaning of duplicated optic ring in the requirement.	Dedicated backup path in the ring. The Tender Conditions shall prevail.
800	Volume IV, ERTS, Part 3:	2.7.9.3	The proposed active clustering technology at the core,	Redundant core switch will be installed at geographically	This is design-built contract OEM shall suggest as per design

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL	(20 of 279)	distribution and access layer switches must be supported over geographically diversified locations with an ability for seamless service fail over.	diverse OCC & BCC location. Whereas Distribution & Access Switch will be installed in same Rack at TER of each station & Depot. Kindly confirm our understanding.	Requirements. The Tender Conditions shall prevail.
801	Volume IV, ERTS, Part 3: ERTS-TEL	2.13.8 (26 of 279)	10 (ten) FOTS multimedia converter Layer-3	Use of multimedia converter is design based. The multimedia converter kit will be provided if used in design and part of delivery. Please clarify.	This is design-built contract. OEM shall suggest as per design requirements. This is a tentative reference of design. The Tender Conditions shall prevail.
802	Volume IV, ERTS, Part 3: ERTS-TEL	2.13.9 (26 of 279)	10 (ten) FOTS multimedia converter Layer-2	Use of multimedia converter is design based. The multimedia converter kit will be provided if used in design and part of delivery. Please clarify.	This is design-built contract. OEM shall suggest as per design requirements. This is a tentative reference of design. The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					prevail.
803	Volume IV, ERTS, Part 3: ERTS-TEL	3.1.1 (a) & (b) (30 of 279)	(a) In the Depot Administration Building (CER-OCC), the fully redundant Master TDS is referred to as primary and secondary. (b) In the Station (CER-BCC) the fully redundant Back-up Master TDS is referred to as primary and secondary	As per these clauses, redundant Master Clock is required at both OCC & BCC. Is our understanding correct?	Refer ERTS-TEL sub-clause 3.1.1 (c) The Tender Conditions shall prevail.
804	Volume IV, ERTS, Part 3: ERTS-TEL	3.1.1 (c) (30 of 279)	Redundant feature like two Master clock is interlinked by means of redundant link to achieve full redundancy, new technology interfaces like PTP 1588v2, free run accuracy better than 1x10-9 etc. for redundant Master clock.	There is no requirement of PTP in any system including FOTS and TETRA. Requirement of PTP may kindly be removed.	PTP may be used for interfacing with other systems (other than Telecomm systems) also the accuracy is better than NTP. The Tender Conditions shall prevail.
805	Volume IV, ERTS, Part 3: ERTS-TEL	3.1.1 (b) (30 of 279)	In the Station (CER-BCC) the fully redundant Back-up Master TDS is referred to as primary and	As per understanding, the requirement of Redundant Master Clock is at in CER - BCC. In the clause it is mentioned as	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			secondary.	"In the Station (CER-BCC)", Kindly update the clause accordingly.	
806	Volume IV, ERTS, Part 3: ERTS-TEL	3.2.6 & 1.4.1 (31 of 279)	The Contractor shall design the TDS to achieve an availability of 99.999% for NTP service to subsystem users assuming a mean-time-to-restore of 1-hour.	Both clauses are contradictory. Kindly clarify. As per standard practice, MTTR should be 4 hours	The Tender Conditions shall prevail for 3.2.6 Corrigendum – 3 is being issued separately for 1.4.1
807	Volume IV, ERTS, Part 3: ERTS-TEL	3.2.4 (31 of 279)	The contractor shall design the Master TDS on basis of internal quartz oscillator such that during loss of GNSS reception, the Master clock accuracy is better than 1×10^{-9} (deviation of $86 \mu\text{s}/24\text{h}$), and Master TDS to maintain the time-of-day within 10mS per 24-hours.	We understand that the free-run (holdover) accuracy of Master TDS on the basis of internal quartz oscillator shall be better than 1×10^{-9} (deviation of $\mu\text{s}/24\text{h}$), which is much better than 10ms time deviation. As such we request you to amend this clause to: The contractor shall design the Master TDS on basis of internal quartz oscillator such that during loss of GNSS reception, the	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Master clock accuracy is better than 1×10^{-9} (deviation of $86 \mu\text{s}/24\text{h}$).	
808	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.3 (31 of 279)	The Contractor shall design the TDS to provide NTPv4 per IETF RFC 5905.	IETF RFC 5905 is backward compatible to NTP v3, hence we request to amend this clause to: The Contractor shall design the TDS to provide NTPv3 & NTPv4 per IETF RFC 5905.	Corrigendum – 3 is being issued separately.
809	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.5 (31 of 279)	The Contractor shall design the TDS to provide all display clocks and NTP service to automatically provide GNSS time-of-day corrected to Bhopal/Indore time without human intervention.	We understand that Indian Standard time (IST) is the time zone observed throughout India, with a time offset of UTC+05:30. Bhopal/Indore time is not a defined time zone. Hence, we request you to amend this clause to: The Contractor shall design the TDS to provide all display clocks and NTP service to	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				automatically provide GNSS time-of-day corrected to Indian Standard time (IST) without human intervention.	
810	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.7 (31 of 279)	The Contractor shall design the TDS system so that the database(s) at the OCC are continually updated at the BCC during OCC operations.	<p>We understand that the reference Clause 3.3.7 is not relevant to Master Clock System. Hence, we request to amend this clause to:</p> <p>The Contractor shall design the entire TDS system so that it is possible to update system configuration / system firmware on need basis during future operations.</p>	Corrigendum – 3 is being issued separately.
811	Volume IV, ERTS, Part 3: ERTS-TEL	3.2.4 (31 of 279)	The contractor shall design the Master TDS on basis of internal quartz oscillator such that during loss of GNSS reception, the Master clock accuracy is better than 1×10^{-9} (deviation of $86 \mu\text{s}/24\text{h}$), and Master TDS to	We understand that the free-run (holdover) accuracy of Master TDS on the basis of internal quartz oscillator shall be better than 1×10^{-9} (deviation of $\mu\text{s}/24\text{h}$), which is much better	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			maintain the time-of-day within 10mS per 24-hours.	than 10ms time deviation. As such we request you to amend this clause to: "The contractor shall design the Master TDS on basis of internal quartz oscillator such that during loss of GNSS reception, the Master clock accuracy is better than 1×10^{-9} (deviation of $86 \mu\text{s}/24\text{h}$)."	
812	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.3 (31 of 279)	The Contractor shall design the TDS to provide NTPv4 per IETF RFC 5905.	IETF RFC 5905 is backward compatible to NTP v3. Hence, we request to amend this clause to: "The Contractor shall design the TDS to provide NTPv3 & NTPv4 per IETF RFC 5905."	Corrigendum – 3 is being issued separately.
813	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.5 (31 of 279)	The Contractor shall design the TDS to provide all display clocks and NTP service to automatically provide GNSS time-of-day	We understand that Indian Standard time (IST) is the time zone observed throughout India, with a time offset of UTC+05:30.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			corrected to Bhopal/Indore time without human intervention.	<p>Bhopal/Indore time is not a defined time zone.</p> <p>Hence, we request you to amend this clause to:</p> <p>"The Contractor shall design the TDS to provide all display clocks and NTP service to automatically provide GNSS time-of-day corrected to Indian Standard time (IST) without human intervention."</p>	
814	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.7 (31 of 279)	The Contractor shall design the TDS system so that the database(s) at the OCC are continually updated at the BCC during OCC operations.	<p>We understand that the reference Clause 3.3.7 is not relevant to Master Clock System.</p> <p>Hence, we request to amend this clause to:</p> <p>"The Contractor shall design the entire TDS system so that it is possible to update system configuration / system firmware on need basis during future</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				operations."	
815	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.11.5 (32 of 279)	The Contractor shall design the TDS NMS to report, TDS failure of back-up battery.	Reference Clause 3.3.11.5 is not clear, no requirement of battery backup is seen anywhere except in case of NMS hardware. Hence, we request to amend this clause to: The Contractor shall design the TDS NMS to report the power supply failure.	Corrigendum – 3 is being issued separately.
816	Volume IV, ERTS, Part 3: ERTS-TEL	3.3.11.5 (32 of 279)	The Contractor shall design the TDS NMS to report, TDS failure of back-up battery.	Reference Clause 3.3.11.5 is not clear, no requirement of battery backup is seen anywhere except in case of NMS hardware. Hence, we request to amend this clause to: "The Contractor shall design the TDS NMS to report the power supply failure."	Corrigendum – 3 is being issued separately.
817	Volume IV, ERTS, Part 3:	3.5.2 (34 of 279)	The Contractor shall design the TDS with slave clocks of high	Please amend the clause to:	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL		quality and blending into the architecture of the area in which they are located. All slave clocks shall be programmable both for 12 hours and 24 hours (Hour:Minute). The contractor shall design the TDS with the following display clocks. The exact location shall be determined during the design.	The Contractor shall design the TDS with slave clocks of high quality and blending into the architecture of the area in which they are located. All digital slave clocks shall be programmable both for 12 hours and 24 hours (Hour:Minute). The contractor shall design the TDS with the following display clocks. The exact location shall be determined during the design.	
818	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (a) (34 of 279)	Two hours-minutes analog display clocks in IP65 or better ceiling or wall mounted housing 500mm to 600mm or larger on each station platform with operating temperature of 10°C to 60°C 95% RH.	We understand that: Two hours-minutes analog display clocks in IP65 or better ceiling or wall mounted housing with 600mm dial diameter or larger on each station platform with operating temperature of 10°C to 60°C 95% RH. Please confirm our understanding.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
819	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (b) (34 of 279)	Two hours-minutes analog display clocks in IP65 or better ceiling or wall mounted housing 500mm to 600mm or larger on each station concourse with operating temperature of 10°C to 60°C 95% RH.	We understand that: Two hours-minutes analog display clocks in IP65 or better ceiling or wall mounted housing with 600mm dial diameter or larger on each station concourse with operating temperature of 10°C to 60°C 95% RH. Please confirm our understanding.	Corrigendum – 3 is being issued separately.
820	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (c) (34 of 279)	One hours-minutes analog display clock in IP65 or better ceiling or wall mounted housing 500mm to 600mm or larger at each station entrance with operating temperature of 10°C to 60°C 95% RH.	We understand that: One hours-minutes analog display clock in IP65 or better ceiling or wall mounted housing with 600mm dial diameter or larger at each station entrance with operating temperature of 10°C to 60°C 95% RH. Please confirm our understanding.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
821	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2 (c) (34 of 279)	One hours-minutes analog display clock in IP65 or better ceiling or wall mounted housing 500mm to 600mm or larger at each station entrance with operating temperature of 10°C to 60°C 95% RH.	Kindly confirm the requirement of analog display clock for entrance marked for future development. Also confirm minimum quantity of analogue clock for entrance in each station.	Corrigendum – 3 is being issued separately.
822	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, 1st paragraph (34 of 279)	The Contractor shall design the TDS with slave clocks of high quality and blending into the architecture of the area in which they are located. All slave clocks shall be programmable both for 12 hours and 24 hours (Hour:Minute). The contractor shall design the TDS with the following display clocks. The exact location shall be determined during the design.	Please amend the clause to: The Contractor shall design the TDS with slave clocks of high quality and blending into the architecture of the area in which they are located. All digital slave clocks shall be programmable both for 12 hours and 24 hours (Hour:Minute). The contractor shall design the TDS with the following display clocks. The exact location shall be determined during the design.	Corrigendum – 3 is being issued separately.
823	Volume IV,	3.5.2, (a)	Two hours-minutes analog	We understand that:	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(34 of 279)	display clocks in IP65 or better ceiling or wall mounted housing 500mm to 600mm or larger on each station platform with operating temperature of 10°C to 60°C 95% RH.	Two hours-minutes analog display clocks in IP65 or better ceiling or wall mounted housing with 600mm dial diameter or larger on each station platform with operating temperature of 10°C to 60°C 95% RH. Please confirm our understanding.	separately.
824	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (b) (34 of 279)	Two hours-minutes analog display clocks in IP65 or better ceiling or wall mounted housing 500mm to 600mm or larger on each station concourse with operating temperature of 10°C to 60°C 95% RH.	We understand that: Two hours-minutes analog display clocks in IP65 or better ceiling or wall mounted housing with 600mm dial diameter or larger on each station concourse with operating temperature of 10°C to 60°C 95% RH. Please confirm our understanding.	Corrigendum – 3 is being issued separately.
825	Volume IV,	3.5.2, (c)	One hours-minutes analog	We understand that:	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(34 of 279)	display clock in IP65 or better ceiling or wall mounted housing 500mm to 600mm or larger at each station entrance with operating temperature of 10°C to 60°C 95% RH.	One hours-minutes analog display clock in IP65 or better ceiling or wall mounted housing with 600mm dial diameter or larger at each station entrance with operating temperature of 10°C to 60°C 95% RH. Please confirm our understanding.	separately.
826	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (p) (35 of 279)	One hours-minutes analog display clock in IP4 or better wall mounted housing 350mm or larger in each depot office room (all Depot buildings)	Typo error, kindly change IP4 to IP54	Corrigendum – 3 is being issued separately.
827	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (p) (35 of 279)	One hours-minutes analog display clock in IP4 or better wall mounted housing 350mm or larger in each depot office room (all Depot buildings)	We understand that: One hours-minutes analog display clock in IP54 or better wall mounted housing with 400mm dial diameter in each depot office room (all Depot	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>buildings).</p> <p>Please confirm our understanding.</p>	
828	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (q) (35 of 279)	<p>One hours-minutes analog display clock in IP54 or better wall mounted housing 600mm or larger in Depot Administration Building lobby room.</p>	<p>We understand that:</p> <p>One hours-minutes analog display clock in IP54 or better wall mounted housing with 600mm dial diameter or larger in Depot Administration Building lobby room.</p> <p>Please confirm our understanding.</p>	Corrigendum – 3 is being issued separately.
829	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (t) (35 of 279)	<p>Automatic turn on / turn off illumination feature at selected hours for Analogue slave clock, Illumination shall be evenly distributed across the dial diameter in the analogue clock by means of LEDs. All clocks shall</p>	<p>We understand that Automatic turn on / turn off illumination feature at selected hours for outdoor Analogue slave clock shall be required, Illumination shall be evenly distributed across the dial diameter in the</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			support PoE /PoE+ for illumination and synchronization.	<p>analogue clock by means of LEDs. All clocks shall support PoE /PoE+ for illumination and synchronization.</p> <p>Please confirm our understanding.</p>	
830	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (v) (35 of 279)	Outdoor Facade clocks, 1, 2 meter diameter shall have IP65 rating.	<p>Please share BoQ / specification for façade clock.</p> <p>We understand that the façade clock design shall be as per station architecture and aesthetics, as such we request below technical specification for facade clock:</p> <ol style="list-style-type: none"> 1. Synchronised Motor Movement 2. Illumination tube or LED in background with illumination switch 3. Hands driven by power supply 	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>240V AC, consumption less than 25VA.</p> <p>4. Temperature Range: -30 to +55 deg. C</p> <p>5. Internal battery to keep internal time.</p> <p>6. Skeleton dials.</p> <p>8. 1-2 mtr Dia of Dial.</p> <p>9. Should be from same TDS OEM Make.</p> <p>Please confirm our understanding. BOQ to be confirmed.</p>	
831	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2 (v) (35 of 279)	Outdoor Façade clocks, 1, 2 meter diameter shall have IP65 rating.	Kindly confirm the location of Outdoor Façade Clock and also minimum quantity of Façade clock.	<p>Locations of Outdoor Façade clocks shall be decided during design Stage.</p> <p>The Tender Conditions shall prevail.</p>
832	Volume IV,	3.5.2 (n)	One hours-minutes-seconds	Kindly confirm the quantity of	Refer Volume V drawings for

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(35 of 279)	digital display clock in IP54 or better wall mounted housing with 55mm or more character height in each manned small workshop room at depot	manned small workshop room at depot.	details of the rooms. The Tender Conditions shall prevail.
833	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2 (p) (35 of 279)	One hours-minutes analog display clock in IP4 or better wall mounted housing 350mm or larger in each depot office room (all Depot buildings)	Please confirm the IP rating and also Kindly confirm the quantity of manned small workshop room at depot.	Corrigendum – 3 is being issued separately.
834	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (p) (35 of 279)	One hours-minutes analog display clock in IP4 or better wall mounted housing 350mm or larger in each depot office room (all Depot buildings)	We understand that: One hours-minutes analog display clock in IP54 or better wall mounted housing with 400mm dial diameter in each depot office room (all Depot buildings). Please confirm our	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				understanding.	
835	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (q) (35 of 279)	One hours-minutes analog display clock in IP54 or better wall mounted housing 600mm or larger in Depot Administration Building lobby room.	We understand that: One hours-minutes analog display clock in IP54 or better wall mounted housing with 600mm dial diameter or larger in Depot Administration Building lobby room. Please confirm our understanding.	Corrigendum – 3 is being issued separately.
836	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (t) (35 of 279)	Automatic turn on / turn off illumination feature at selected hours for Analogue slave clock, Illumination shall be evenly distributed across the dial diameter in the analogue clock by means of LEDs. All clocks shall support PoE /PoE+ for illumination and synchronization.	We understand that Automatic turn on / turn off illumination feature at selected hours for outdoor Analogue slave clock shall be required, Illumination shall be evenly distributed across the dial diameter in the analogue clock by means of LEDs. All clocks shall support PoE /PoE+ for illumination and	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>synchronization.</p> <p>Please confirm our understanding.</p>	
837	Volume IV, ERTS, Part 3: ERTS-TEL	3.5.2, (v) (35 of 279)	Outdoor Facade clocks, 1, 2 meter diameter shall have IP65 rating.	<p>Please share BoQ / specification for façade clock.</p> <p>We understand that the façade clock design shall be as per station architecture and aesthetics, as such we request below technical specification for facade clock:</p> <ol style="list-style-type: none"> 1. Synchronised Motor Movement 2. Illumination tube or LED in background with illumination switch 3. Hands driven by power supply 240V AC, consumption less than 25VA. 4. Temperature Range: -30 to 	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>+55 deg. C</p> <p>5. Internal battery to keep internal time.</p> <p>6. Skeleton dials.</p> <p>8. 1-2 mtr Dia of Dial.</p> <p>9. Should be from same TDS OEM Make.</p> <p>Please confirm our understanding.</p> <p>BOQ to be confirmed.</p>	
838	Volume IV, ERTS, Part 3: ERTS-TEL	3.10.2 (38 of 279)	For each of the NTP interfaces, The Contractor shall record the seconds of error from GNSS referenced time for each of the servers and workstations after NTP connection of 24-hours.	This clause should be removed because it is applicable for other sub-systems.	The Tender Conditions shall prevail.
839	Volume IV, ERTS, Part 3: ERTS-TEL	3.10.3 (38 of 279)	For TDS display clocks in stations and depot buildings, The Contractor shall include in the test plan requirement of manual offset	We understand that, by default the NTP uses Coordinated Universal Time (UTC) to synchronize computer clock	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>of Master TDS (for instance the time zone) and for each display clock, record the time required for the display clock to acquire the offset time. Then, reset the Master TDS.</p>	<p>times and the offset values in terms of time zone shall be defined at client side (Server/workstation or Clocks). Hence, we request to amend this clause to:</p> <p>For TDS display clocks in stations and depot buildings, The Contractor shall include in the test plan requirement of manual offset of Master TDS (for instance the time zone) and for each display clock, record the time required for the display clock to acquire the offset time.</p>	
840	Volume IV, ERTS, Part 3: ERTS-TEL	3.10.2 (38 of 279)	<p>For each of the NTP interfaces, The Contractor shall record the seconds of error from GNSS referenced time for each of the servers and workstations after NTP connection of 24-hours.</p>	<p>The recording of the seconds of error from GNSS referenced time for each of the servers and workstations is not feasible. Kindly update the clause accordingly.</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
841	Volume IV, ERTS, Part 3: ERTS-TEL	3.10.3 (38 of 279)	For TDS display clocks in stations and depot buildings, The Contractor shall include in the test plan requirement of manual offset of Master TDS (for instance the time zone) and for each display clock, record the time required for the display clock to acquire the offset time. Then, reset the Master TDS.	<p>We understand that, by default the NTP uses Coordinated Universal Time (UTC) to synchronize computer clock times and the offset values in terms of time zone shall be defined at client side (Server/workstation or Clocks). Hence, we request to amend this clause to:</p> <p>For TDS display clocks in stations and depot buildings, The Contractor shall include in the test plan requirement of manual offset of Master TDS (for instance the time zone) and for each display clock, record the time required for the display clock to acquire the offset time.</p>	Corrigendum – 3 is being issued separately.
842	Volume IV, ERTS, Part 3: ERTS-TEL	4.1.1, 1st sentence (40 of 279)	The Contractor shall design the end-to-end IP Telephone System to provide the Metro railway staffs	Kindly provide the minimum boq.	Since this is design-built contract, the Contractor may propose suitable equipment with BOQ as

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			with telephone voice communications between locations equipped with telephone sets in the line.		per the location (chapter four) specified. The requirements of the Telecom equipment shall be appraised during design stages. The Tender Conditions shall prevail.
843	Volume IV, ERTS, Part 3: ERTS-TEL	4.1.4 (40 of 279)	The Contractor shall design the Telephone System with voice recording for all OCC telephone calls and BCC telephone calls by the Voice Recording System (VRS) so that all operational calls will be recorded.	Kindly confirm, the voice recording at OCC, BCC shall be record all the conversation of all Controller or we have to record all the conversation at OCC, BCC like admin users+ Controllers etc.	Corrigendum – 3 is being issued separately.
844	Volume IV, ERTS, Part 3: ERTS-TEL	4.1.4 (40 of 279)	The Contractor shall design the Telephone System with voice recording for all OCC telephone calls and BCC telephone calls by the Voice Recording System (VRS) so that all operational calls will be recorded.	Kindly confirm, the voice recording at OCC, BCC shall be record all the conversation of all Controller or we have to record all the conversation at OCC, BCC like admin users+ Controllers etc.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
845	Volume IV, ERTS, Part 3: ERTS-TEL	4.1.1 (40 of 279)	<p>The Contractor shall design the end-to-end IP Telephone System to provide the Metro railway staffs with telephone voice communications between locations equipped with telephone sets in the line. It shall be a highly reliable State of the art, non-blocking, IP PBX Telephone network for voice, facsimile and data communication services throughout the MPMRCL, Bhopal and Indore Metro Lines.</p> <p>2 IP PBX network shall be equipped with IP PBX switches, line and trunk interface units and different types of telephone sets for telephone communication. The solution should also support software for virtualization.</p>	<p>Two independent IPBX has to be considered as per the TS clause. One for Bhopal Metro and One for Indore Metro. Kindly clarify our understating is correct.</p>	<p>For Bhopal Metro and Indore Metro separate IPBX shall be installed.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
846	Volume IV, ERTS, Part 3: ERTS-TEL	4.1.4 (40 of 279)	The Contractor shall design the Telephone System with voice recording for all OCC telephone calls and BCC telephone calls by the Voice Recording System (VRS) so that all operational calls will be recorded.	As per Clause, operation calls have to be recorded for all OCC and BCC location. Please confirm calls landing at Station SCR is not a requirement. Kindly clarify.	Corrigendum – 3 is being issued separately.
847	Volume IV, ERTS, Part 3: ERTS-TEL	4.3.1 (42 of 279)	The Contractor shall design a logical extension numbering plan.	kindly elaborate in detail for logical extension numbering.	Since this is design-built contract, the Contractor may propose suitable numbering plan and shall be finalised in design stages. The Tender Conditions shall prevail.
848	Volume IV, ERTS, Part 3: ERTS-TEL	4.2.3 (42 of 279)	The Contractor shall design the Telephone System to achieve an availability of 99.99% for telephone service from any telephone to any telephone assuming a meantime-to-restore of 1-hour.	kindly confirm, at each locations like stations, OCCs, BCCs, depot are required independent system in hot-standby redundancy? Or one centralized system at OCC/BCC to meet the 99.99% availability.	Since this is design-built contract, the Contractor may propose suitable Telephone system to meet tender conditions. The Tender Conditions shall

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					prevail.
849	Volume IV, ERTS, Part 3: ERTS-TEL	4.3.1 (42 of 279)	The Contractor shall design a logical extension numbering plan.	kindly elaborate in detail for logical extension numbering.	Since this is design-built contract, the Contractor may propose suitable numbering plan and shall be finalised in design stages. The Tender Conditions shall prevail.
850	Volume IV, ERTS, Part 3: ERTS-TEL	4.3.6.5 (43 of 279)	The Contractor shall design the TEL NMS to report any TEL power supply problem	As this feature can achieve by Centralized FRS system, we are requesting you to amend the same or remove from the telephone system. As there is no provision under tel NMS	Corrigendum – 3 is being issued separately.
851	Volume IV, ERTS, Part 3: ERTS-TEL	4.3.6.5 (43 of 279)	The Contractor shall design the TEL NMS to report any TEL power supply problem	As this feature can achieve by Centralized FRS system, we are requesting you to amend the same or remove from the telephone system. As there is no provision under tel NMS	Corrigendum – 3 is being issued separately.
852	Volume IV,	4.3.19.2	12 push button keypad,	Kindly modify this clause as IP	These Telephone instruments are

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(44 of 279)	supporting ISDN BRI (2B+D) signalling	telephone does not support the ISDN BRI (2B+D) signalling	for direct line connection of PSTN. The Tender Conditions shall prevail.
853	Volume IV, ERTS, Part 3: ERTS-TEL	4.3.19.2 (44 of 279)	12 push button keypad, supporting ISDN BRI (2B+D) signalling	Kindly modify this clause as IP telephone does not support the ISDN BRI (2B+D) signalling	These Telephone instruments are for direct line connection of PSTN. The Tender Conditions shall prevail.
854	Volume IV, ERTS, Part 3: ERTS-TEL	4.3.18 (44 of 279)	The Contractor shall design the Telephone System with suitable interface for 30 tielines with Telephone System provided by others at the future Metro Rail Station at any other place. The details of the interface will be decided later in the design.	Since proposed solution is Centralized (OCC and BCC), Tie line connections are possible from OCC or BCC location Provision of 30 tie lines will be available at OCC or BCC location only. Please confirm our understanding.	OCC proposed at Bhopal shall be for Red line and Purple line, and OCC proposed at Indore shall be for Yellow line. Location of BCC for Bhopal is proposed at Pulbogda Station and BCC for Indore is proposed at Vijaya Nagar Square Station. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
855	Volume IV, ERTS, Part 3: ERTS-TEL	4.3.23, (h) (46 of 279)	The Telephone Network Management Systems shall support for integration with other systems.	Integration with other system means "FRS system" for sending Critical SNMP traps. Please confirm our understanding.	Integration / Interfacing of the TEL system with FOTS, TDS, PAS, FRS, VRS, TETRA, PSTN and any Telephone exchange as indicated in 4.3.18 is envisaged. The Tender Conditions shall prevail.
856	Volume IV, ERTS, Part 3: ERTS-TEL	4.5.3 (49 of 279)	The Contractor shall design the Telephone System to provide only robust telephone sets and no consumer quality telephone sets.	our understanding here for the robust telephone set is proven track record in Railway or similar environment kindly confirm.	The Tender Conditions shall prevail.
857	Volume IV, ERTS, Part 3: ERTS-TEL	4.5.3 (49 of 279)	The Contractor shall design the Telephone System to provide only robust telephone sets and no consumer quality telephone sets.	our understanding here for the robust telephone set is proven track record in metro Rail environment with high MTBF value kindly confirm.	The Tender Conditions shall prevail.
858	Volume IV, ERTS, Part 3: ERTS-TEL	4.9.14. (54 of 279)	Install copper pair telephone wiring and RJ11 jack from RJ11 jack at OCC Chief Controller Desk to PSTN copper pair	For IP phone RJ45 jack is require. Please amend the clause accordingly	RJ11 Provision is for direct line PSTN telephone connection. The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			demarcation.		prevail.
859	Volume IV, ERTS, Part 3: ERTS-TEL	4.9.15 (54 of 279)	Install copper pair telephone wiring and RJ11 jack from RJ11 jack at BCC Chief Controller Desk to PSTN copper pair demarcation.	For IP phone RJ45 jack is require. Please amend the clause accordingly	RJ11 Provision is for direct line PSTN telephone connection. The Tender Conditions shall prevail.
860	Volume IV, ERTS, Part 3: ERTS-TEL	4.9.12 (54 of 279)	The Contractor shall install wall mounted or desktop type standard feature IP telephones in remote rooms at locations with quantities determined by the Final Design including: 4.9.12.1. Depot r. Depot Administration Building Equipment Rooms 4.9.12.3. Stations Non-Interlocking f. All Equipment Rooms 4.9.12.4. Stations Interlocking a. All Equipment Rooms 4.9.12.5. Stations Terminal	Kindly define the term "All Equipment rooms". In station Telecom Equipment Room (TER) and Signalling Equipment Rooms (SER) are considered, Other then these two rooms any additional rooms needs to be considered as "Equipment room"? Please provide the details accordingly.	This is design-built contract, which includes all standard metro equipment Rooms. The quantity shall be quantified by the Tenderer/ Contractor and submitted for approval during final design stages. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			a. All Equipment Rooms		
861	Volume IV, ERTS, Part 3: ERTS-TEL	4.9.12 (54 of 279)	The Contractor shall install wall mounted or desktop type standard feature IP telephones in remote rooms at locations with quantities determined by the Final Design including: 4.9.12.1. Depot n. Depot Staff Housing	Please provide the location and telephone quantity of Depot Staff housing.	This is design-built contract, which includes all standard metro equipment Rooms. The quantity shall be quantified by the Tenderer/ Contractor and submitted for approval during final design stages. The Tender Conditions shall prevail.
862	Volume IV, ERTS, Part 3: ERTS-TEL	5.1 (57 of 279)	Functions of EHPS	Kindly provide the minimum quantity of the telephone sets, controller requirement under this chapter.	This is design-built contract. Quantities to be calculated as per locations mentioned in TS. The Tender Conditions shall prevail.
863	Volume IV, ERTS, Part 3: ERTS-TEL	5.5.2 (c) (61 of 279)	Locations of Emergency Help Points An Emergency Help Point Telephone above the	Kindly confirm "maintenance walkway" is applicable only in tunnel. Is there any maintenance walkway in elevated station	This provision is for Underground sections. The Tender Conditions shall

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			<p>maintenance walkway so that every point on the maintenance walkway is within view of at least one</p> <p>Emergency Help Point Telephone but not more than 250m between Emergency Help Point Telephones.</p>	(viaduct)?	prevail.
864	Volume IV, ERTS, Part 3: ERTS-TEL	5.6.3.3 (63 of 279)	Multiple button boxes ganged together are not acceptable.	More than one button box should not be ganged together. Please confirm our understand is correct.	The Tender Conditions shall prevail.
865	Volume IV, ERTS, Part 3: ERTS-TEL	6 (68 of 279)	CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM	<p>General: Video Analytics</p> <p>In the specification it is ambiguous about the type of analytics required. From some of the clauses it is coming out as server based analytics is required and in some of the clauses it comes out as Edge based analytics required. Kindly confirm.</p>	<p>This is design-built contract, the Contractor shall propose as per the best industry practice, may use suitable technology to meet our requirement</p> <p>The Tender Conditions shall prevail.</p>

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866	Volume IV, ERTS, Part 3: ERTS-TEL	6 (68 of 279)	CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM	General: Video Analytics In the specification it is ambiguous about the type of analytics required. From some of the clauses it is coming out as server based analytics is required and in some of the clauses it comes out as Edge based analytics required. Kindly confirm.	This is design-built contract, the Contractor shall propose as per the best industry practice, may use suitable technology to meet our requirement The Tender Conditions shall prevail.
867	Volume IV, ERTS, Part 3: ERTS-TEL	6.1.1.4, (e) (69 of 279)	e. 100% of AFC fare gates (facing direction), TVMs, TOMs and EFOs with video analytics for i. unattended baggage detection ii. slip/fall detection	We understand from the clause that it has been asked to cover the entry and exterior of mentioned location. Please confirm.	The Tender Conditions shall prevail.
868	Volume IV, ERTS, Part 3: ERTS-TEL	6.1.27, 6.3.3, 6.3.4, 6.3.5 (72 of 279)	Clause 6.1.27 The Contractor shall design each Operations CCTV workstation using an industrial PC, rack mounted, in a telecom equipment room, connected to a KVM extender –	IPC are expensive and Commercial PCs are used in all other projects. So please change it to Commercial grade PC. Also, 1 Hour restoration is only	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>6.3.3 The Contractor shall design the CCTV System to achieve an availability of 99.95% for camera to monitor video assuming a mean-time-to-restore of 1-hour.</p> <p>6.3.4 The Contractor shall design the CCTV System to achieve an availability of 99.95% for camera to video storage device assuming a mean-time-to-restore of 1-hour.</p> <p>6.3.5 The Contractor shall design the CCTV System for a service life of 12 years with recommended maintenance. – Normally service life of CCTV is 5-7 years, please consider the same in tender.</p>	<p>possible with O&M operator deployment. If not please change it to 4 hours excluding travel time.</p>	
869	Volume IV, ERTS, Part 3: ERTS-TEL	6.2.1.4 c/e/f (73 of 279)	Security CCTV monitoring, recording, retrieval and control functions will include SR-OCC and SR-BCC for all stations. Security CCTV monitoring, recording, retrieval and control	As per your tender requirement, various video analytics has been asked like Facial recognition, Unattended baggage detection, Slip/fall detection, License Plate Capture.	This is design-built contract, the Contractor shall propose as per the best industry practice, may use suitable technology to meet our requirement

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>functions will include SSO for that station only. The Security CCTV for Stations will provide views of:</p> <p>(c) 100% of station public entrances and public exits with fixed cameras with video analytics for ...</p> <p>(e) 100% of AFC fare gates (facing direction), TVMs, TOMs and EFOs with video analytics for ...</p> <p>(f) 100% of PSD doors from fixed cameras on platform with video analytics for ...</p>	<p>Considering the crowded metro environments particularly in India, these analytics will not perform well in such environments if these shall be rule oriented pixel based analytics running at the Edge i.e., camera. Pixel based analytics has many drawbacks and it usually triggers false alarm due to shadow, light variation, weather variation, rain, plant or wind variations etc and has significantly less accuracy resulting in high false positive rate and triggering much more false alarms. Such Edge based analytics work well in controlled, less crowded environments. In addition, analytics like Facial recognition requires significant processing and computing power limiting the number of analytics that can be run at the Edge on the camera besides the</p>	<p>The Tender Conditions shall prevail.</p>

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				<p>performance. That is the reason Facial recognition is generally considered through server based architecture based on machine learning. In metro environments, we would recommend to use such machine learning based analytics which has far more accuracy (+90%) and works at the server level. Considering Server based analytics also implies that user is not bound with camera and they have flexibility to add any analytics at any camera even in the case of camera replacement or additional analytic behaviour requirement in future.</p> <p>Based on above, we would request to kindly consider all Analytics dedicated to machine learning server based analytics</p>	

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				only and Not edge based.	
870	Volume IV, ERTS, Part 3: ERTS-TEL	6.2.1.4, (bb) (77 of 279)	bb. View of each station exterior entrance with one PTZ camera 10m high with video analytics for i. camera tampering detection ii. unattended baggage detection	Clause 6.2.1.4 (t) & (bb) are contradictory, we understand that two PTZ Camera shall be considered for covering all possible entrances to station as per Clause no. 6.2.1.4(t). Hence, update the clause 6.2.1.4(bb) as "View of station exterior entrance with PTZ Camera...".	The Tender Conditions shall prevail.
871	Volume IV, ERTS, Part 3: ERTS-TEL	6.2.1.4, (cc) (77 of 279)	cc. 100% view of floor of interior of each station lift with one fixed camera with video analytics for i. camera tampering detection ii. unattended baggage detection	We understand from the clause that view of floor of interior of each station lift will be covered with Lift camera itself which will be placed inside Lift. Please confirm.	The Tender Conditions shall prevail.
872	Volume IV, ERTS, Part 3: ERTS-TEL	6.2.1.19 (79 of 279)	The Security CCTV shall have a video analytic for facial recognition in crowded area including real-time video analytic to capture a face with real-time comparison to database of	Kindly provide detailed specifications of Facial Recognition Software	Being design-built contract, the software shall be proposed by the Contractor. The Tender Conditions shall

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			minimum 50,000 stored records		prevail.
873	Volume IV, ERTS, Part 3: ERTS-TEL	6.2.1.18 (79 of 279)	The Security CCTV shall have a video analytic to detect motion of a prescribed size, direction and velocity and provide alarm.	Object velocity is more related to the traffic monitoring application of moving vehicles like Car, trucks on the Road for RLVD or Overspeed like applications which is not relevant for surveillance in metro type crowded environment. We would like to request you to kindly remove the same to enable a level playing field for all OEMs.	The Tender Conditions shall prevail.
874	Volume IV, ERTS, Part 3: ERTS-TEL	6.2.1.22 (80 of 279)	The Security CCTV shall have an automated response system for the video analytics.	Kindly clarify and define required functionality of automated response system for the video analytics.	Alarm should reach to the nominated security persons. The Tender Conditions shall prevail.
875	Volume IV, ERTS, Part 3: ERTS-TEL	6.3.3 & 1.4.1 (83 of 279)	The Contractor shall design the CCTV System to achieve an availability of 99.95% for camera to monitor video assuming a	Both clauses are contradictory. Kindly clarify. As per standard practice, MTTR should be 4 hours	Corrigendum – 3 is being issued separately for 1.4.1.

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			<p>mean-time-to-restore of 1-hour. & The System shall be designed such that the MTTR figures for restoring the operation of the System from fault condition shall not be more than four hours (excluding time of travel).</p>		
876	Volume IV, ERTS, Part 3: ERTS-TEL	6.7, (k) (90 of 279)	All cameras shall have 0° - 70°C manufacture's storage temperature rating	Storage temperature is at which we can store the device in controlled environment and operating temperature is range at which where we can operate the device in field. Our offered product is complies to the operating temperature range of 0°C - 50°C as per tender. In real environmental conditions, storage temperature and operating temperature variation is generally considered within 10°C. Considering storage temperature requirement in a	The Tender Conditions shall prevail.

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				controlled environment and local weather conditions, request you to kindly accept 0°C-60°C as storage temperature for all cameras for a level playing field for all OEMs.	
877	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.1, (d) (90 of 279)	d. All CCTV cameras shall have the same H.264 or H.265 compression dual stream to match rest of CCTV System	H.264 is an old legacy technology with all reputed camera OEM's offer H.265 Video Compression which provides lesser network band width & lesser storage calculations without compromising any image quality. With cameras to be deployed in the metro environment here at multiple stations, it will have drastic impact in reducing bandwidth & storage requirements while retaining the same image quality. We would like to request that the requirement be changed to offer minimum H.265 video	The Tender Conditions shall prevail.

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				compression.	
878	Volume IV, ERTS, Part 3: ERTS-TEL	6.6.7 (90 of 279)	6.6.7. The Contractor shall design the video storage system at the CER-OCC and CER-BCC to record only the video camera-feeds-with-metadata and archived video-with metadata selected by the OCC, SR and BCC operators.	Please confirm the number of cameras to be viewed at the OCC & BCC for doing storage estimation	Being design-built contract, this is in scope of the Contractor to propose as per Design Requirements. The Tender Conditions shall prevail.
879	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.1, (bb) (91 of 279)	All CCTV cameras shall have feature to secure Telnet command.	Every OEM follows different architecture and process to secure their camera devices. Motorola/Pelco follow global Cybersecurity standards while complying with NDAA security requirements. Accordingly, we use SSH protocol (instead of Telnet) which uses encrypted format that is more secure and adheres to Cybersecurity requirements as compared to standard Telnet that uses plain text and is less secure. Given	Corrigendum – 3 is being issued separately.

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				the impetus on Cybersecurity requirements, most camera OEM's have upgraded to latest SSH secure protocol instead of legacy Telnet. We would like to request to kindly consider and accept SSH protocol instead of Telnet.	
880	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.2, (d) (91 of 279)	All Fixed Box indoor cameras shall have 4:1 minimum manually adjustable zoom lens suitable for the view of the specific camera installation location.	<p>Motorized adjustable lens has many advantages against Manually adjustable zoom lens. Some of the inherent advantages are as below:</p> <ul style="list-style-type: none"> a) Operator can remotely adjust the lens from MMI based on their requirement without physically going at site b) it has less wear & tear c) it has more power options <p>The motorized camera lens has many such technical advantages and also provides cost benefit on commercial front from</p>	The Tender Conditions shall prevail.

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				<p>implementation and operational perspective. Hence, we would like to request to consider motorized adjustable lens in place of manual adjustable lens.</p> <p>Considering the metro environment and past metro experience,</p> <p>i) Mostly horizontal view is required with coverage of 50-60 meters from cameras, which can be fulfilled by 3-12mm (Motorized adjustable lens)</p> <p>ii) in tunnel area, more vertical view is required with coverage of more than 70 -80 meters from cameras, which can be fulfilled by 9-40mm (Motorized/manual adjustable lens)</p> <p>Hence, we request you please</p>	

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				accept 3-12mm lens for 80% of the Quantity and 9-40mm lens for 20% of the Quantity for tunnel application.	
881	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.2, (g) (91 of 279)	All Fixed Box indoor cameras shall use CS or C lens mount	<p>Integrated lens has multiple functional & technical advantages in comparison to CS or C Mount lens like Operator client has option to remotely change the lens size with zoom and focus through MMI without going on actual site, less wear and tear, more power options, less installation time etc. In addition, this option is less expensive than CS or C mount lens due to physical structural nature of this camera.</p> <p>Many Metros in India are considering this approach for its inherent technical and commercial benefits. Hence, we</p>	The Tender Conditions shall prevail.

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				would like to request to kindly accept Bullet camera for 80% Quantity with integrated Auto varifocal motorized zoom lens size instead of C/CS Mount lens with 3-12mm lens.	
882	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.2, (d) (91 of 279)	All Fixed Box indoor cameras ...	Tender has asked for 2MP resolution CCTV Camera which is quite old/dated technology resolution, and it is almost on the verge of obsolescence. Most OEM's have upgraded their cameras to higher resolution for better operational performance. Metro requirement is based on long term project, where product needs to be deployed & maintained for long term basis requiring many years of support. In addition, due to latest smart codec and compression technologies available at camera level, it will not have much impact on bandwidth,	The Tender Conditions shall prevail.

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				storage or other costing. For such critical long term operational deployment, we request you to please consider QHD Camera 2560*1440 pixel as minimum configuration instead of legacy/dated 2MP resolution option.	
883	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.3, (d) (92 of 279)	All Outdoor and Tunnel cameras shall have 4:1 minimum manually adjustable zoom lens suitable for the view of the specific camera installation location.	Considering the metro environment and past metro experience, in Tunnel area more vertical view is required. Accordingly, we would like to request you to kindly confirm for 9-40 mm lens to be considered for this application requirement to avoid any ambiguity in the same.	The Tender Conditions shall prevail.
884	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.4, (d) (92 of 279)	All Fixed Dome Indoor cameras shall have 4:1 minimum manually adjustable zoom lens suitable for the view of the specific camera installation location.	Considering the metro environment and past metro experience, in most of the metro areas more horizontal view is required. Accordingly, we would	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				like to request you to kindly confirm for 3-12 mm lens to be considered for this application to avoid any ambiguity in the same.	
885	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.4 (92 of 279)	IP Fixed Dome Indoor Camera	Considering the metro application is a critical environment that has continuous operations in day and most part of the night, we highly recommend to consider IR in all Fixed Cameras (i.e., Fixed indoor, Tunnel, Dome Indoor, Dome outdoor). IR enables the camera to capture the image even in poor lighting conditions/darkness. So whenever there is scenario that the lux level is less or total darkness, IR will be automatically turn on and camera will provide clear images in Mono mode.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				We would like to request kindly add minimum 50 meter IR in all fixed Cameras (i.e., Fixed indoor, Tunnel, Dome indoor, Dome outdoor).	
886	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.5 (92 of 279)	IP Fixed Dome Outdoor Camera	Considering the metro application is a critical environment that has continuous operations in day and most part of the night, we highly recommend to consider IR in all Fixed Cameras (i.e., Fixed indoor, Tunnel, Dome Indoor, Dome outdoor). IR enables the camera to capture the image even in poor lighting conditions/darkness. So whenever there is scenario that the lux level is less or total darkness, IR will be automatically turn on and camera will provide clear images in Mono mode.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				We would like to request kindly add minimum 50 meter IR in all fixed Cameras (i.e., Fixed indoor, Tunnel, Dome indoor, Dome outdoor).	
887	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.4, (d) (92 of 279)	All Fixed Dome Indoor cameras ...	Tender has asked for 2MP resolution CCTV Camera which is quite old/dated technology resolution, and it is almost on the verge of obsolescence. Most OEM's have upgraded their cameras to higher resolution for better operational performance. Metro requirement is based on long term project, where product needs to be deployed & maintained for long term basis requiring many years of support. In addition, due to latest smart codec and compression technologies available at camera level, it will not have much impact on bandwidth,	The Tender Conditions shall prevail. Bidder may offer better product over and above Tender Condition provided the Tender Conditions are met.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				storage or other costing. For such critical long term operational deployment, we request you to please consider QHD Camera 2560*1440 pixel as minimum configuration instead of legacy/dated 2MP resolution option.	
888	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.5, (d) (93 of 279)	All Fixed Dome Outdoor cameras shall have 4:1 minimum manually adjustable zoom lens suitable for the view of the specific camera installation location.	Considering the metro environment and past metro experience, in most of the metro areas more horizontal view is required. Accordingly, we would like to request you to kindly confirm for 3-12 mm lens to be considered for this application to avoid any ambiguity in the same.	The Tender Conditions shall prevail.
889	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.5, (d) (93 of 279)	All Fixed Dome Outdoor cameras ...	Tender has asked for 2MP resolution CCTV Camera which is quite old/dated technology resolution, and it is almost on the verge of obsolescence. Most OEM's have upgraded their	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>cameras to higher resolution for better operational performance. Metro requirement is based on long term project, where product needs to be deployed & maintained for long term basis requiring many years of support. In addition, due to latest smart codec and compression technologies available at camera level, it will not have much impact on bandwidth, storage or other costing. For such critical long term operational deployment, we request you to please consider QHD Camera 2560*1440 pixel as minimum configuration instead of legacy/dated 2MP resolution option.</p>	
890	Volume IV, ERTS, Part 3: ERTS-TEL	6.7.5, (g) (93 of 279)	g) Housing and Mount shall be stainless steel or powder coated corrosion resistant intended for outdoor environment	We highly recommend to add IP 66 and IK10 vandal resistant certification for Housing so that it should be safe to use in areas	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>where vandalism situation can happen anytime. All reputed OEMs provide the same. We request the specification be updated to:</p> <p>Enclosure Protection: IP 66, NEMA-4x or better, IK10</p>	
891	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.1.2. (105 of 279)	The Contractor shall design the station PAS to have three speaker zones selectable by type of pre-recorded message by an OCC Controller, BCC Controller and SCR Controller. The selectable speaker zones will be a. platforms only	our understanding is different announcements are required in different platforms, hence more than three zones are require, please amend the clause accordingly.	<p>Being design-built contract, this is in the scope of the Contractor to design after SPL study and as per the requirement of the station platform area.</p> <p>The Tender Conditions shall prevail.</p>
892	Volume IV, ERTS, Part 3: ERTS-TEL	7 (106 of 279)	CHAPTER 7: PUBLIC ADDRESS SYSTEM (PAS)	Is there controller redundancy is required on station level?	<p>Controller Redundancy is not envisaged.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
893	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.1.9 (106 of 279)	The PAS for stations will include a function for recording and editing pre-recorded announcements from the OCC or BCC.	Kindly clarify the phrase "editing pre-recorded announcements". Is it mean to change the properties of pre-recorded audio files. Kindly clarify.	The Tender Conditions shall prevail.
894	Volume IV, ERTS, Part 3: ERTS-TEL	Chapter 7 and 8 (106 of 279)	General	As per industry standard, common server & Workstation for PIDS and PA systems as both the systems are Integrated one will be used. Also, the ATS interface for PIDS messages and PA announcements will be at a single equipment. Kindly Confirm	Being design-built contract, this is in the scope of the Contractor to design as per the requirement of the PIDS/PAS systems. The Tender Conditions shall prevail.
895	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.1.4 (106 of 279)	The Contractor shall design the PAS with a mute function for the FPS sounder during PAS station announcements.	PA system cannot have control over the FPS sounder to mute as it shall be provided by the Fire contractor. Kindly delete the clause from TS.	The Tender Conditions shall prevail.
896	Volume IV, ERTS, Part 3:	7.1.2.1 (107 of 279)	The Contractor shall design the Station PAS to achieve a	Please update with the practical scenario	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL		<p>minimum Sound Pressure Level 1.5m above floor of</p> <p>a. 95dB SPL on platforms</p> <p>b. 90dB SPL on concourse public area and station entrances</p> <p>c. 80dB SPL on non-public areas</p>	<p>The Contractor shall design the Station PAS to achieve an Average Sound Pressure Level 1.5m above floor of</p> <p>a. 95dB (+/-3dB) SPL on platforms</p> <p>b. 90dB (+/-3dB) SPL on concourse public area and station entrances</p> <p>c. 80dB (+/-6dB) SPL on non-public areas</p>	
897	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.3.9. (108 of 279)	The Contractor shall design the PAS with a pair of servers, primary and back-up at the CER-OCC and a second back-up server at the CER-BCC.	we understand that the two servers are required. Main server will be installed at CER-OCC and Back-up at CER- BCC. Please confirm	The Tender Conditions shall prevail.
898	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.3.15. (108 of 279)	The Contractor shall design the PAS for stations to mute only nearby-to-microphone loudspeakers, not entire	Individual loudspeaker muting is not possible in analog speaker please amend accordingly.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			loudspeaker zone, to prevent acoustical feedback		
899	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.3.7 (108 of 279)	The Contractor shall design the Station PAS with audio amplifier IP controllable with alarm to PAS NMS for abnormal variance of 100Volt speaker line.	We understand that the Audio Controller will send the alarm data to PAS NMS instead of audio amplifier. Kindly confirm.	Being design-built contract, this is in the scope of the Contractor to design as per the requirement of the PAS system. The Tender Conditions shall prevail.
900	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.3.13 (108 of 279)	The Contractor shall design the PAS for stations with a background music feature from the OCC pre-empted by live or pre-recorded announcements.	Kindly clarify the requirement of background music feature from the OCC pre-empted by live.	Pre-empted feature in PAS system for emergency announcements shall be required. The Tender Conditions shall prevail.
901	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.3.8 (108 of 279)	The Contractor shall design the Station PAS with user-scheduled automatic checks of 100Volt speaker lines capable of reporting to PAS NMS an open or shorted speaker transformer and an open	100Volt speaker lines always capable of giving Open and short circuit fault for speaker circuit line not for speakers and transformers. It is requested to kindly amend the clause as	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			or shorted speaker.	below: 7.1.3.8. The Contractor shall design the Station PAS with automatic checks of 100Volt speaker lines capable of reporting to PAS NMS an open or short circuit fault.	
902	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.3.15 (108 of 279)	The Contractor shall design the PAS for stations to mute only nearby-to-microphone loudspeakers, not entire loudspeaker zone, to prevent acoustical feedback.	Muting of individual or nearby loudspeakers only in a conventional 100Volt speaker line is not possible, only complete zone muting is possible. However, audio level adjustment is an another feature which can prevent acoustical feedback. Kindly amend the clause accordingly as. 7.1.3.15. The Contractor shall design the PAS for stations to mute loudspeaker zone or adjust the audio level gain to prevent acoustical feedback.	The Tender Conditions shall prevail.
903	Volume IV, ERTS, Part 3:	7.1.4.5. (111 of 279)	The Contractor shall design each PAS workstation using an	Industrial PC may not be required, please amend the	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL		industrial PC, rack mounted, in the CER, connected to a KVM extender.	clause accordingly.	
904	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.5.1 (111 of 279)	PAS desktop controllers with microphone will be provided for: a. OCC Chief Controller b. OCC Traffic Controller-1 c. OCC Traffic Controller-2 d. BCC Chief Controller e. BCC Traffic Controller-1 f. BCC Traffic Controller-2 g. SCR Station Controller h. Crew Controller Room at terminal stations	We understand that "Desktop controllers with microphone" in the requirement is referring to "microphone console with zone selection mentioned buttons". Kindly confirm.	The Tender Conditions shall prevail.
905	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.5.2 (111 of 279)	The Station PAS desktop controllers for OCC and BCC shall be capable of selecting and displaying a. any one station b. all stations	We understand Station PAS desktop controllers mentioned in this requirement is referring to "HMI with microphone". Kindly confirm.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			c. platform zones only d. concourse zones only e. all zones		
906	Volume IV, ERTS, Part 3: ERTS-TEL	7.2.3.1 (114 of 279)	The Contractor shall design the Depot PAS to achieve a minimum Sound Pressure Level 1.5m above floor of a. 90dB SPL outdoors stabling areas b. 90dB SPL indoors of workshop areas c. 80dB SPL indoors of non-public areas	Please update with the practical scenario The Contractor shall design the Depot PAS to achieve an Average Sound Pressure Level 1.5m above floor of • 90dB(+/-3dB) spL outdoors stabling areas • 90dB(+/-3dB) spL, indoors of workshop areas • 80dB(+/-6dB) spL indoors of non-public areas	The Tender Conditions shall prevail.
907	Volume IV, ERTS, Part 3: ERTS-TEL	7.2.4.6 (115 of 279)	The Contractor shall design the Depot PAS with user-scheduled automatic checks of 100Volt speaker lines capable of reporting to PAS NMS an open or shorted speaker transformer and an open	100Volt speaker lines always capable of giving Open and short circuit fault for speaker circuit line not for speakers and transformers. It is requested to kindly amend the clause as below: 7.2.4.6. The Contractor	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			or shorted speaker.	shall design the Depot PAS with automatic checks of 100Volt speaker lines capable of reporting to PAS NMS an open or short circuit fault.	
908	Volume IV, ERTS, Part 3: ERTS-TEL	7.2.4.14.3. (116 of 279)	The Contractor shall design the Depot PAS NMS with similar functionality as the PAS NMS for stations.	We understand that the Network Management System of PAS is common for Station PAS and Depot PAS please confirm	Tender condition shall prevail
909	Volume IV, ERTS, Part 3: ERTS-TEL	7.1.1.4 and 7.3.10 (119 of 279)	7.1.1.4 - The Contractor shall design the PAS with a mute function for the FPS sounder during PAS station announcements. 7.3.10 PAS / FPS – for muting of FPS fire alarm sounder during PAS announcement	We understand from the clause that it has been asked that the mute function of FPS sounder during PAS announcements will be done by FPS Contractor. Kindly Confirm.	Interface with FPS shall be done by S&T contractor. The Tender Conditions shall prevail.
910	Volume IV, ERTS, Part 3: ERTS-TEL	7.5.3.2 (120 of 279)	The spare Station PAS OCC/BCC desktop controller shall be fully loaded with	Spare Workstation is required for Station or OCC/BCC. Kindly Clarify	As per required specification, spare workstations to be provided. Refer clause no 7.5.3.1 for stations and 7.5.3.2 for OCC/BCC of

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			application software and driver software so that it can replace a failed OCC/BCC PAS desktop controller by simple plug-and-play replacement		Chapter -07 of Telecom TS. The Tender Conditions shall prevail.
911	Volume IV, ERTS, Part 3: ERTS-TEL	7.9.8.9 (125 of 279)	CHAPTER 7: PUBLIC ADDRESS SYSTEM (PAS) 7.9.8.9 - The Contractor shall interconnect the PAS to the Telephone System for PA announcements from telephones in accordance with the approved PAS / TEL Interface Specification.	Please confirm telephone line interface is Analog or IP?	Being design-built contract, this is in the scope of the Contractor to design and fulfil the interface requirements (hard or soft interface) of the PAS-TEL system. The Tender Conditions shall prevail.
912	Volume IV, ERTS, Part 3: ERTS-TEL	7.9.8.6 (125 of 279)	The Contractor shall provide and install speakers and speaker wiring in the PSD if speakers are designed for PSD in accordance with the approved Interface Specification.	Installing speakers in PSD are not foreseen, hence Speakers are provided in the station areas to meet the SPL of TS requirement. Kindly confirm.	Being design-built contract, this is in the scope of the Contractor to design after SPL study and as per the requirement of the station platform area. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
913	Volume IV, ERTS, Part 3: ERTS-TEL	8.2.5 & 1.4.1 (127 of 279)	The Contractor shall design the PIDS to achieve an availability of 99.975% between OCC PIDS workstation and station PIDS sign assuming a mean-time-to-restore of 1-hour.	Both clauses are contradictory. Kindly clarify. As per standard practice, MTTR should be 4 hours	Corrigendum – 3 is being issued separately, for 1.4.1.
914	Volume IV, ERTS, Part 3: ERTS-TEL	8 (127 of 279)	CHAPTER 8: PASSENGER INFORMATION DISPLAY SYSTEM (PIDS)	LED Pitch not mentioned. As per our experience in other Metro projects we suggest 8mm pitch. Please confirm with the same or mention required pitch.	This is design-built contract, the Contractor shall propose as per the best industry practice and finalized in Design Stage. The Tender Conditions shall prevail.
915	Volume IV, ERTS, Part 3: ERTS-TEL	8 (127 of 279)	CHAPTER 8: PASSENGER INFORMATION DISPLAY SYSTEM (PIDS)	Dimensions of the display are not mentioned.	This is design-built contract, the Contractor shall propose as per the design requirement mentioned in clause 8.2.2 and 8.2.3 of chapter 8 of Telecomm TS. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
916	Volume IV, ERTS, Part 3: ERTS-TEL	8.2.3 (127 of 279)	The Contractor shall design the PIDS so that a person on the concourse with 6/15 vision can read a PIDS display from 90% of the public area of the concourse.	Please share the maximum viewing distance and viewing angle of display equipment.	This is design-built contract, the Contractor shall propose as per the design requirement mentioned in clause 8.2.2 and 8.2.3 of chapter 8 of Telecomm TS. The Tender Conditions shall prevail.
917	Volume IV, ERTS, Part 3: ERTS-TEL	8.4.1 (129 of 279)	PIDS workstations will be provided for: a. SCR b. OCC Chief Controller c. OCC Assistant Chief Controller d. OCC Passenger Communication Controller-1 e. OCC Passenger Communication Controller-2 f. BCC Chief Controller g. BCC Asst Chief Controller h. BCC Passenger Communications Controller-1	For operation point of view integrated workstation for PAS and PIDS is recommended please amend the relevant clauses	This is design-built contract, the Contractor shall propose as per the design requirement mentioned in clause 8.4.1 and 8.4.2 of chapter 8 of Telecomm TS. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			i. BCC Passenger Communications Controller-2		
918	Volume IV, ERTS, Part 3: ERTS-TEL	8.5.3.6 (131 of 279)	The S&TC equipment at each station shall invoke the station PIDS control equipment to clear the designated row of the train arrival/ departure information on the corresponding PIDS display boards subsequent to a train departure.	We understand that ATS interface with PIDS/PA will be at central level (OCC and BCC). Central PIDS/PA server shall further trigger the intimation to station PIDS/PAS equipment to display ATS messages. Please confirm.	This is design-built contract, the Contractor shall propose as per the design requirement mentioned in clause 8.5.3.7 and 8.5.7 of chapter 8 of Telecomm TS. The Tender Conditions shall prevail.
919	Volume IV, ERTS, Part 3: ERTS-TEL	8.5.5 (131 of 279)	PIDS / PSD – for coordination of passenger information sign installation if installed on platform screen doors	Kindly clarify & define the Interface requirement & scope of the individual contractors.	Refer Appendix 13 of ERGS-S&T. The Tender Conditions shall prevail.
920	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.2. (132 of 279)	The Contractor shall design the PIDS displays to provide single sided and double-sided displays at public areas on platforms, concourses and entrances of stations, sized and located for optimal viewing by the public.	Please share details of passenger interchange location details	Refer Vol V [Tender Drawings] for details. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			PIDS for entrances is required for Passenger Interchange location tentatively for 10 stations.		
921	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.8.2. (132 of 279)	The Contractor shall design the PIDS display signs with IP66 rating for Station.	This clause in contradict to clause 8.6.8.1 please delete this	Corrigendum – 3 is being issued separately.
922	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.8.1 and 8.6.8.2 (132 of 279)	8.6.8.1 - The Contractor shall design the PIDS display signs with IP64 rating for Station. 8.6.8.2 - The Contractor shall design the PIDS display signs with IP66 rating for Station.	Which IP rating is expected? IP64 or IP66 or both We can provide IP66 as higher IP rating	Corrigendum – 3 is being issued separately.
923	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.9.2 and 8.6.10.2 (132 of 279)	8.6.9.2 - Platform display sign second line of text shall be train hours-minutes to arrive, train departure time and destination alternating green or red color English languages. 8.6.10.2 - Concourse display sign second line of text shall be train arrival time, train departure time and destination in alternating	Text color expected is red or green. Is multi color expected?	Being design-built contract, this shall be finalised in design stages. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			green and red color English languages.		
924	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.9.2 (132 of 279)	Platform display sign second line of text shall be train hours-minutes to arrive, train departure time and destination alternating green or red color English languages.	Kindly clarify whether both Red & green color will be considered if yes then what will be condition for showing the different colours.	Being design-built contract, this shall be finalised in design stages. The Tender Conditions shall prevail.
925	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.8.1 and 8.6.8.2 (132 of 279)	8.6.8.1 - The Contractor shall design the PIDS display signs with IP64 rating for Station. 8.6.8.2 - The Contractor shall design the PIDS display signs with IP66 rating for Station.	IP Rating mentioned in the clause 8.6.8.1 and 8.6.8.2 are different but not classified on the locations. Kindly update the location details accordingly.	Corrigendum – 3 is being issued separately.
926	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.2 (132 of 279)	The Contractor shall design the PIDS displays to provide single sided and double-sided displays at public areas on platforms, concourses and entrances of	We understand following display type as per the TS requirement. Kindly confirm. 1. Double sided display - at Platform	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			stations, sized and located for optimal viewing by the public. PIDS for entrances is required for Passenger Interchange location tentatively for 10 stations.	2. Single sided display - at concourse 3. Single sided display - at interchange station entrance	
927	Volume IV, ERTS, Part 3: ERTS-TEL	8.6.7 (132 of 279)	The Contractor shall design the PIDS display signs with SMD LED light sources forming the characters and without LCD screen.	As per TS requirement SMD LED display types are mentioned. Requirement of LCD display is not available. Kindly Confirm.	The Tender Conditions shall prevail.
928	Volume IV, ERTS, Part 3: ERTS-TEL	8.8.1 (133 of 279)	1 (one) for each installed PIDS Workstation for OCC	Please amend the clause as "one for each type installed PIDS Workstation for OCC"	The Tender Conditions shall prevail.
929	Volume IV, ERTS, Part 3: ERTS-TEL	8.8.2 (133 of 279)	1 (one) for each installed PIDS Workstation for Station Control Room	Please amend the clause as "one for each type installed PIDS Workstation for Station Control Room"	The Tender Conditions shall prevail.
930	Volume IV, ERTS, Part 3: ERTS-TEL	8.8.5 (134 of 279)	1 (one) for each installed PIDS OCC Server	Please amend the clause as "one for each type installed PIDS OCC Server"	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
931	Volume IV, ERTS, Part 3: ERTS-TEL	8.10.5.5 (135 of 279)	The Contractor shall provide, install and connect the passenger information displays on platform screen doors if designed in accordance with the PIDS/PSD Interface Specification.	Kindly clarify & define the Interface requirement & scope of the individual contractors.	Refer Appendix 13 of ERGS-S&T for interface requirements. The Tender Conditions shall prevail.
932	Volume IV, ERTS, Part 3: ERTS-TEL	Chapter 8 (136 of 279)	-	Please provide the BOQ and detailed technical specification of PIDS Display.	Being design-built contract, this is in scope of the Contractor to propose as per Design Requirements. The Tender Conditions shall prevail.
933	Volume IV, ERTS, Part 3: ERTS-TEL	9.1.11 (137 of 279)	The Contractor shall design the Radio System architecture of Master Switch Office (MSO) in Depot and BTS in station site. Also, shall have hot redundancy in Master Switch Office (MSO) and BTS levels without interrupting any type of Radio services.	1. OCC shall be located at Depot location for both Bhopal & Indore Metro with backup site at BCC. Please confirm the BCC location for each Metro. 2. In order to do coverage analysis and decide the BTS locations, please share the	Alignment drawings are uploaded, BCC locations shall be identified from the same. Distances may be extracted from the alignment drawing (Auto CAD). The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				distance between OCC & BCC and share the geo coordinates for OCC/ Depot/ stations & track route.	
934	Volume IV, ERTS, Part 3: ERTS-TEL	9.1.11 (137 of 279)	The Contractor shall design the Radio System architecture of Master Switch Office (MSO) in Depot and BTS in station site. Also, shall have hot redundancy in Master Switch Office (MSO) and BTS levels without interrupting any type of Radio services.	MSO is a vendor specific architecture based on centralised architecture. In modern communication systems distributed architectures are adopted as they provide key benefits during design and support phase of typical metro. Some of the key benefits are <ol style="list-style-type: none"> 1. No central point of failure 2. Fault tolerant system 3. Easy scalability In India, Mumbai Metro Line 2_7, Nagpur Metro, Pune Metro Line 1_2 and Bengaluru Metro Reach 5 are using Radio System with distributed architecture and other metro organisations are also tendered for radio system	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				allows both central and distributed architectures like Jaipur Metro, Delhi Metro and Ahmedabad Metro among others. Therefore, we request you to kindly allow distributed architecture also.	
935	Volume IV, ERTS, Part 3: ERTS-TEL	9 (137 of 279)	CHAPTER 9: RADIO SYSTEM (RADIO)	Even with failure of one Base Station, the Radio coverage for any Train shall not be affected and the coverage to the SCR/OCC/BCC Radio shall not be affected. Hence there has to be overlapping coverage design for these areas. Please consider overlapping coverage.	Corrigendum – 3 is being issued separately.
936	Volume IV, ERTS, Part 3: ERTS-TEL	9 (137 of 279)		Radio Tower details are not mentioned. Kindly provide.	This is design-built contract, the Contractor shall propose number of towers after coverage study. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
937	Volume IV, ERTS, Part 3: ERTS-TEL	9.1.8 (137 of 279)	The Contractor shall design the Radio System for swiftly calling trains from Radio Desktop Controllers and Radio Control Workstations using the permanent rake number.	Radio Desktop Controller will not get Rake Id Details. Hence kindly amend the clause as "The Contractor shall design the Radio System for swiftly calling trains from Radio Desktop Controllers and Radio Control Workstations using the permanent rake number."	The Tender Conditions shall prevail.
938	Volume IV, ERTS, Part 3: ERTS-TEL	9.1.11 (137 of 279)	The Contractor shall design the Radio System architecture of Master Switch Office (MSO) in Depot and BTS in station site. Also, shall have hot redundancy in Master Switch Office (MSO) and BTS levels without interrupting any type of Radio services.	MSO is a vendor specific architecture based on centralised architecture. In modern communication systems distributed architectures are adapted as they provide key benefits during design and support phase of typical metro. Some of the key benefits are 1. No central point of failure 2. Fault tolerant system 3. Easy scalability In India, Mumbai Metro Line 2_7, Nagpur Metro, Pune Metro Line	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>1_2 and Bengaluru Metro Reach 5 are using Radio System with distributed architecture and other metro organisations are also tendered for radio system allows both central and distributed architectures like Jaipur Metro, Delhi Metro and Ahmedabad Metro among others. Therefore, we request you to kindly allow distributed architecture also.</p>	
939	Volume IV, ERTS, Part 3: ERTS-TEL	9.1.11 (137 of 279)	9.1.11. The Contractor shall design the Radio System architecture of Master Switch Office (MSO) in Depot and BTS in station site. Also, shall have hot redundancy in Master Switch Office (MSO) and BTS levels without interrupting any type of Radio services.	<p>MSO is a vendor specific architecture based on centralised architecture. In modern communication systems distributed architectures are adapted as they provide key benefits during design and support phase of typical metro. Some of the key benefits are</p> <ol style="list-style-type: none"> 1. No central point of failure 2. Fault tolerant system 	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>3. Easy scalability</p> <p>In India, Mumbai Metro Line 2_7, Nagpur Metro, Pune Metro Line 1_2 and Bengaluru Metro Reach 5 are using Radio System with distributed architecture and other metro organisations are also tendered for radio system allows both central and distributed architectures like Jaipur Metro, Delhi Metro and Ahmedabad Metro among others. Therefore, we request you to kindly allow distributed architecture also.</p>	
940	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.1 (138 of 279)	Radio Desktop Controller	<p>As per our calculation below are the number of Radio Desktop controller required at stations/ depot/ OCC/ BCC. Please confirm if this understanding is correct.</p> <p>Per Stations - 3 Per Depot - 10</p>	<p>This is design-built contract, the Quantities to be calculated as per requirements during Design Stage.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Per OCC - 15 Per BCC - 12	
941	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.1.1 (138 of 279)	<p>The Contractor shall design the Radio System with Radio Desktop Controllers for the following locations. The exact quantity shall be determined by The Contractor during the design.</p> <p>a. Depot OCC Traffic Controller positions</p> <p>b. BCC Traffic Controller positions</p> <p>p. Station Control Rooms</p> <p>q. Station Security Offices</p> <p>r. Depot OCC Third Rail Power Controllers</p> <p>s. Depot OCC Auxiliary System Controllers</p> <p>t. Depot OCC Passenger Communication Controllers</p> <p>w. BCC Passenger</p>	Please provide the quantity of each type of position so that we can calculate the exact number of Radio Desktop Controllers.	<p>This is design-built contract, the Quantities to be calculated as per requirements during Design Stage.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>Communication Controllers</p> <p>aa. Terminal Stations Crew Controller's Room</p> <p>z. Station Crew Controller's Room</p> <p>bb. Signaling Maintenance Room of Interlocking Stations</p> <p>gg. Station Manager Office</p> <p>ee. BCC SR Metro Security positions</p>		
942	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.1.1 (138 of 279)	<p>The Contractor shall design the Radio System with Radio Control Workstations for the following locations.</p> <p>c. Depot OCC Traffic Controllers</p> <p>d. Depot OCC Passenger Communication Controllers</p> <p>e. BCC Traffic Controllers</p> <p>h. BCC Passenger Communication Controllers</p>	Please provide the quantity of each type of position so that we can calculate the exact number of Radio Control Workstations	<p>This is design-built contract, the Quantities to be calculated as per requirements during Design Stage.</p> <p>The Tender Conditions shall prevail.</p>
943	Volume IV,	9.2.1 (z)	Station Crew Controller's Room	In order to calculate the quantity	This is design-built contract, the

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(139 of 279)		of Radios Desktop Controller in crew controller room, please confirm the number of crew controller rooms for each line.	Quantities to be calculated as per requirements during Design Stage. The Tender Conditions shall prevail.
944	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.1 (aa) (139 of 279)	Terminal Stations Crew Controller's Room	Please advise, if the Radio Desktop Controller at crew controller (end of each line) is same as Radio desktop controller at Terminal Station. If not, please advise the qty of Terminal station in order to calculate the Radio Desktop Controller.	Refer sub-clause 9.2.1.1 for details of the systems. The Tender Conditions shall prevail.
945	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.2 (140 of 279)	Radio Control Workstation	As per our calculation below are the number of Radio Control Workstation for each metro OCC - 4 BCC - 4	This is design-built contract, the Quantities to be calculated as per requirements during Design Stage. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
946	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.3.2 (141 of 279)	Each Radio Maintenance Workstation shall be supplied with its own monitor and the Radio Maintenance Workstation shall be a laptop configuration.	Please confirm if we need to provide laptop or workstation with monitor for Radio Maintenance.	Corrigendum – 3 is being issued separately.
947	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.3.4 (141 of 279)	The purposes of the Radio Maintenance Workstation in the Signaling and Rolling Stock Workshops are...	Please confirm, if we need to consider additional radio maintenance system for Signaling and Rolling Stock Workshop in addition to below mentioned locations - Depot CER - Depot Comm. Maintenance Workshop - BCC CER	The Tender Conditions shall prevail.
948	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.3.4 (141 of 279)	The purposes of the Radio Maintenance Workstation in the Signaling and Rolling Stock Workshops are a. Monitor the health of the low-speed data through the TETRA	The Signaling and Rolling Stock are critical parts of Metro Railway Operations which play a direct role in the operation of the whole network. As they operate independently and have their	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>radio system for Signaling and Rolling Stock.</p> <p>b. Access to the low-speed data ports of the TETRA radio system for configuration and diagnosis of Signaling and Rolling Stock.</p> <p>c. Radio Maintenance Workstation in the Signaling and Rolling Stock Workshops shall be prohibited from configuring talk groups or other functions.</p> <p>d. The Contractor may provide method other than Radio Maintenance Workstation to provide the functionality for the Signaling and Rolling Stock Workshops.</p>	<p>own dedicated system to do the configuration/diagnosis and also monitor their health. As such, radio system doesn't have the capability to do critical changes or monitoring for signaling/rolling stock system. Hence request you to please remove this requirement.</p>	
949	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.5 (142 of 279)	Mobile Radio in Maintenance Vehicles	In order to calculate the quantity of Vehicle Radios, please provide the number of Maintenance vehicles to be consider.	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
950	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.5.1 (142 of 279)	The Contractor shall design the Radio System with one dash mount mobile radio, antenna and power supply if required in each end of each Maintenance Vehicle: a. Any vehicle provided by Depot Equipment Contract. b. Diesel Shunter Vehicle provided by Depot Equipment Contract. c. Rail Relief Vehicle provided by Depot Equipment Contract.	Please provide the Quantity details for "Any vehicle", so that this will be considered in BOQ of Radio equipment in license items.	Corrigendum – 3 is being issued separately.
951	Volume IV, ERTS, Part 3: ERTS-TEL	9.2.6, (g) (142 of 279)	Other slow speed data that may be required for the Signaling System	Kindly mentioned the requirement of "other slow speed data", Since Tetra has limited bandwidth and used for vital voice and data communication.	Being design-built contract, this shall be finalised in design stages. The Tender Conditions shall prevail.
952	Volume IV, ERTS, Part 3: ERTS-TEL	9.3.2 (143 of 279)	The Radio System shall provide two-way handheld radio coverage inside buildings of the Depot	Please provide the depot drawings for doing the RF coverage analysis.	Refer Volume V [Tender Drawings] for details.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			complex		The Tender Conditions shall prevail.
953	Volume IV, ERTS, Part 3: ERTS-TEL	9.3.3 (144 of 279)	The Radio System shall provide two-way handheld radio coverage on all exterior areas of the depot complex	Please provide the depot drawings for doing the RF coverage analysis.	Refer Volume V [Tender Drawings] for details. The Tender Conditions shall prevail.
954	Volume IV, ERTS, Part 3: ERTS-TEL	9.3.4 (144 of 279)	The Radio System shall provide two-way handheld radio coverage at all stations	Please provide the stations drawings for doing the RF coverage analysis.	Refer Volume V [Tender Drawings] for details. The Tender Conditions shall prevail.
955	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.5 (146 of 279)	The Contractor shall design the RADIO NMS to report loss of link with TCMS.	The loss of link with TCMS is shown on train radio system and RCW. Kindly allow the provision of this and modify clause accordingly.	Corrigendum – 3 is being issued separately.
956	Volume IV, ERTS, Part 3:	9.5.4.6 (146 of 279)	The Contractor shall design the RADIO NMS to report loss of link	The loss of link with rolling stock public address is shown on train	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL		with Rolling Stock public address system	radio system and RCW. Kindly allow the provision of this and modify clause accordingly.	
957	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.5 (146 of 279)	The Contractor shall design the RADIO NMS to report loss of link with TCMS.	The loss of link with TCMS is shown on train radio system and RCW. Kindly allow the provision of this and modify clause accordingly.	Corrigendum – 3 is being issued separately.
958	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.6 (146 of 279)	The Contractor shall design the RADIO NMS to report loss of link with Rolling Stock public address system	The loss of link with rolling stock public address is shown on train radio system and RCW. Kindly allow the provision of this and modify clause accordingly.	Corrigendum – 3 is being issued separately.
959	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.3 (146 of 279)	The Contractor shall design the wayside cables with LSZH and rodent protection except for the leaky coax antenna.	The cables used in Outdoor at-grade section will be FRLS with UV resistance and rodent protection. Only cables in UG and indoor section will be LSZH with rodent protection. Kindly Confirm.	Corrigendum – 3 is being issued separately.
960	Volume IV,	9.5.4.5	9.5.4.5. The Contractor shall	The loss of link with TCMS is	Corrigendum – 3 is being issued

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(146 of 279)	design the RADIO NMS to report loss of link with TCMS.	shown on train radio system and RCW. Kindly allow the provision of this and modify clause accordingly.	separately.
961	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.6 (146 of 279)	9.5.4.6. The Contractor shall design the RADIO NMS to report loss of link with Rolling Stock public address system	The loss of link with rolling stock public address is shown on train radio system and RCW. Kindly allow the provision of this and modify clause accordingly.	Corrigendum – 3 is being issued separately.
962	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.11 (147 of 279)	The Contractor shall design the RADIO NMS to report failure of any tunnel antenna component including BDAs and combiners.	Only the active devices can be monitored using its own NMS. Please revise the clause to state "Failure reporting of any active tunnel antenna component including BDA is required using its own NMS"	Corrigendum – 3 is being issued separately.
963	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.7 (147 of 279)	The Contractor shall design the RADIO NMS to report loss of link with train radio in Rolling Stock with rake number and train radio number.	As the Radio system is interfaced with ATS to show the details on rake number and train number on Radio Control Workstation. The losses of link will be shown in Radio Control	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Workstation.	
964	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.20 (147 of 279)	9.5.20. The Contractor shall design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the OCC.	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system. and expansion up to 15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage. The Tender Conditions shall prevail.
965	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.8 (147 of 279)	The Contractor shall design the RADIO NMS to report loss of link with PAS for announcements from a radio to the stations PAS.	Radio - PAS interface will be achieved through Telephone system, Hence the PAS announcement failure alarm will not be able to report to RADIO NMS. Kindly amend the clause accordingly.	Being design-built contract, this shall be finalised in design stages The Tender Conditions shall prevail.
966	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.8 (147 of 279)	The Contractor shall provide a calculation of availability as part of the design. The calculation will	Statement is incomplete. Kindly provide the complete statement of "The RAM study will be in	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			include availability for each end-to-end link considering the MTBF and MTTR of each component. The RAM study will be in accordance with the....	accordance with the...."	
967	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.7 (147 of 279)	The Contractor shall design the RADIO NMS to report loss of link with train radio in Rolling Stock with rake number and train radio number.	As the Radio system is interfaced with ATS to show the details on rake number and train number on Radio Control Workstation. The loss of link will be shown in Radio Control Workstation. Kindly allow the provision of this and modify clause accordingly.	Corrigendum – 3 is being issued separately.
968	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.4.7 (147 of 279)	9.5.4.7. The Contractor shall design the RADIO NMS to report loss of link with train radio in Rolling Stock with rake number and train radio number.	As the Radio system is interfaced with ATS to show the details on rake number and train number on Radio Control Workstation. The losses of link will be shown in Radio Control Workstation.	Corrigendum – 3 is being issued separately.
969	Volume IV,	9.5.20, 9.5.21,	9.5.20. The Contractor shall	1. The Location and number of	1 and 2: The Base stations and

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	9.5.22 (149 of 279)	<p>design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the OCC.</p> <p>9.5.21. The Contractor shall design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the BCC.</p> <p>9.5.22. The Contractor shall design the Radio System with 11 traffic channels, expandable to 23 traffic channels and one control channel at each station.</p>	<p>base stations is calculated based on the RF Coverage analysis. Hence, BTS is not required in every station. The quantity of BTS and their locations will be decided based on RF Design analysis. Please confirm.</p> <p>2. The number of the traffic channels depends on the traffic calculations. The quantity of traffic channels mentioned in this clause for BCC and stations is very high compared to the number of Radios required. Also, in most Metros in India, the number of traffic channels in stations are 7. As the number of traffic channel increases, the frequency requirement increases with associated cost implications. Hence it is requested that 7 traffic channels</p>	<p>traffic channels mentioned are indicative. Being design-built contract, the Contractor shall suggest the requirement of Traffic Channels after coverage study. Hence to be finalised at Design stage</p> <p>The Tender Conditions shall prevail.</p> <p>3. Alignment drawings in Auto CAD uploaded. Refer the same for distances. The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>to be considered at stations & OCC/BCC.</p> <p>3. In order to do coverage analysis and decide the BTS locations, please share the distance between OCC & BCC and share the geo coordinates for OCC/ Depot/ stations & track route</p>	
970	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.23 (149 of 279)	The Contractor shall design the Radio System so that TETRA handheld radios used by the Bhopal Fire Brigade on the Metro Mainline Security talk group in the tunnels can communicate with their dispatcher through the PSTN landline telephone system at the depot or by other means.	As per clause 9.6.17, the Bhopal Fire Brigade will be using the TETRA portable radio provided by Bhopal Metro TETRA radio network and can communicate with their dispatcher using Bhopal Metro TETRA/IP-PBX interface and the calls to the police dispatcher shall be routed through the Metro IP-PBX. Please confirm the understanding.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
971	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.24 (149 of 279)	The Contractor shall design the Radio System so that TETRA handheld radios used by the Bhopal Police on the Metro Mainline Security talk group in the tunnels can communicate with their dispatcher through the PSTN landline telephone system at the depot or by other means.	As per clause 9.6.17, the Bhopal Police will be using the TETRA portable radio provided by Bhopal Metro TETRA radio network and can communicate with their dispatcher using Bhopal Metro TETRA/IP-PBX interface and the calls to the police dispatcher shall be routed through the Metro IP-PBX. Please confirm the understanding.	The Tender Conditions shall prevail.
972	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.21 (149 of 279)	9.5.21. The Contractor shall design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the BCC.	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system and expansion up to 15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
973	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.22 (149 of 279)	9.5.22. The Contractor shall design the Radio System with 11 traffic channels, expandable to 23 traffic channels and one control channel at each station	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system and expansion up to 15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage. The Tender Conditions shall prevail.
974	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.23 (149 of 279)	The Contractor shall design the Radio System so that TETRA handheld radios used by the Bhopal Fire Brigade on the Metro Mainline Security talk group in the tunnels can communicate with their dispatcher through the PSTN landline telephone system at the depot or by other means.	Please provide the details of Lines required by Bhopal Fire Brigade along with the Frequency details for interface	The requirement is as per standard practice of other metros. The Tender Conditions shall prevail.
975	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.24 (149 of 279)	The Contractor shall design the Radio System so that TETRA handheld radios used by the	Please provide the details of Lines required by Bhopal Police along with the Frequency details	The requirement is as per standard practice of other metros.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Bhopal Police on the Metro Mainline Security talk group in the tunnels can communicate with their dispatcher through the PSTN landline telephone system at the depot or by other means.	for interface	The Tender Conditions shall prevail.
976	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.20 (149 of 279)	The Contractor shall design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the OCC.	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system. and expansion up to 15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage. The Tender Conditions shall prevail.
977	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.21 (149 of 279)	The Contractor shall design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the BCC.	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				the system and expansion up to 15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	finalised at Design stage. The Tender Conditions shall prevail.
978	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.22 (149 of 279)	The Contractor shall design the Radio System with 11 traffic channels, expandable to 23 traffic channels and one control channel at each station	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system and expansion up to 15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage. The Tender Conditions shall prevail.
979	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.20 (149 of 279)	9.5.20. The Contractor shall design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the OCC.	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system. and expansion up to	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Tender Conditions shall prevail.
980	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.21 (149 of 279)	9.5.21. The Contractor shall design the Radio System with 15 traffic channels, expandable to 23 traffic channels and one control channel at the BCC.	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system and expansion up to 15 traffic channels and one traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage. The Tender Conditions shall prevail.
981	Volume IV, ERTS, Part 3: ERTS-TEL	9.5.22 (149 of 279)	9.5.22. The Contractor shall design the Radio System with 11 traffic channels, expandable to 23 traffic channels and one control channel at each station	Considering the quantity of radios proposed in the tender the radio system with 2 carrier i.e., 7 traffic channels and 1 control channel is sufficient to cater the traffic requirements of the system and expansion up to 15 traffic channels and one	The Radios proposed is tentative. Since this is design-built contract, the OEM shall suggest the requirement of Radios, Carriers and Traffic Channels after coverage study, hence to be finalised at Design stage.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				traffic channel is sufficient for future requirements. Kindly modify the clause accordingly.	The Tender Conditions shall prevail.
982	Volume IV, ERTS, Part 3: ERTS-TEL	9.7.1.1 (152 of 279)	The Contractor shall provide 200 handheld radios	These are the combined number for Bhopal & Indore metro or we have to consider 200 handheld radios for each Bhopal & Indore Metro.	The Radios proposed is tentative and separate for Bhopal and Indore. Refer Vol VI for further details. This is design-built contract, the OEM shall suggest the requirement of Radios, after coverage study and fleet map analysis to be finalised at Design stage. The Tender Conditions shall prevail.
983	Volume IV, ERTS, Part 3: ERTS-TEL	9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.7.7, 9.7.8, 9.7.9, 9.7.10 (153 of 279)	9.7.3 Laptop PC with Application Software 9.7.4 RF Power Meters 9.7.5 RF Frequency Counter 9.7.6 RF Spectrum Analyzer 9.7.7 RF Attenuator Set	Please confirm if Laptop PC with Application Software, RF Power Meters, RF Frequency Counter, RF Spectrum Analyzer, RF Attenuator Set, RF Signal Generator, Tetra Analyzer & Test Jig shall be common for Bhopal & Indore Metro or we	Refer Vol VI of S&T pricing schedule for details. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			9.7.8 RF Signal Generator 9.7.9 The Contractor shall provide one test jig of each type recommended by the manufacturer for maintenance of the RADIO equipment. 9.7.10 TETRA Analyser	need to consider separate for Bhopal & Indore Metro.	
984	Volume IV, ERTS, Part 3: ERTS-TEL	General (163 of 279)	CHAPTER 9: RADIO SYSTEM (RADIO)	Even with failure of one Base Station, the Radio coverage for any Train shall not be affected and the coverage to the SCR/OCC/BCC Radio shall not be affected. Hence there has to be overlapping coverage design for these areas. Please consider overlapping coverage.	Corrigendum – 3 is being issued separately.
985	Volume IV, ERTS, Part 3: ERTS-TEL	General (163 of 279)	CHAPTER 9: RADIO SYSTEM (RADIO)	Radio Tower details are not mentioned. Kindly provide.	This is design-built contract, the Contractor shall propose number of towers after coverage study. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
986	Volume IV, ERTS, Part 3: ERTS-TEL	10.1.1, (f) & (i) (164 of 279)	f. All Radio voice conversations including on-board PA announcements from OCC/BCC (excluding radio DMO mode). i. All Public Address announcements from OCC to train	We understand that there is no direct interface of VRS with Rolling stock, this will be recorded through VRS-Radio interface. Please confirm understanding is correct ?.	Recording shall be done through VRS interface. The Tender Conditions shall prevail.
987	Volume IV, ERTS, Part 3: ERTS-TEL	10.1.26 (166 of 279)	Mechanical locking facilities shall be provided to prevent unauthorized access to the recorders.	Please elaborate "Mechanical locking" facility requirement.	The Tender Conditions shall prevail.
988	Volume IV, ERTS, Part 3: ERTS-TEL	10.1.22 (166 of 279)	VRS should be able to record analog, digital phone, analog phone extension recording through CP/IP and E1.	Since Telephone systems are considered with IP solution as per TS requirement and also E1 is considered to be outdated, Bidders is requesting to update the clause as accordingly.	Corrigendum – 3 is being issued separately.
989	Volume IV, ERTS, Part 3: ERTS-TEL	10.3.2 (167 of 279)	The Contractor shall design the VRS to achieve an availability of 99.977% between	Please reduce Mean Time to Restore (MTTR) of the CDRS system less than four hours excluding the time of travel.	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>a. voice producing subsystem and VRS recorder in CER assuming a mean-time to-restore of 1-hour.</p> <p>b. playback of VRS recorded voice and VRS workstation assuming a mean-time to-restore of 1-hour.</p>		
990	Volume IV, ERTS, Part 3: ERTS-TEL	10.3.3 (167 of 279)	The Contractor shall design the VRS for electromagnetic and electrostatic compatibility with the 750V dc traction power.	As VRS equipment is not installed on near traction power so this clause is not applicable to VRS System. Kindly confirm.	<p>Compatibility for EMI, EMC is the standard requirement.</p> <p>The Tender Conditions shall prevail.</p>
991	Volume IV, ERTS, Part 3: ERTS-TEL	10.3.4 (167 of 279)	The Contractor shall design the VRS for electromagnetic and electrostatic compatibility with the Rolling Stock equipment.	As VRS equipment is not installed inside the Rolling Stock so this clause is not applicable to VRS System. Kindly confirm.	<p>Compatibility for EMI, EMC is the standard requirement.</p> <p>The Tender Conditions shall prevail.</p>
992	Volume IV, ERTS, Part 3: ERTS-TEL	10.3.8, 1st paragraph	The Contractor shall design the VRS to playback the recorded voice messages with	The clause requirement is applicable for Analog system. As per TS IP solution is requested.	Being design-built contract, this is in scope of the Contractor to propose to fulfil the Design

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
		(167 of 279)	a. more than 45 dB signal-to-noise ratio b. frequency response within 3dB of 300Hz to 3500Hz c. less than 3% distortion d. less than 1.0% added wow and flutter e. better than 60 dB crosstalk at 1 KHz f. Number of drives – 2 minimum	Hence the clause has to be amended accordingly.	Requirements of Telecom TS. The Tender Conditions shall prevail.
993	Volume IV, ERTS, Part 3: ERTS-TEL	10.3.8, last paragraph (167 of 279)	The recorder head shall support at least 100,000 hours of continuous recording. After this limit, the system will delete additional recording in FIFO manner	100000 hours corresponds to 11.4 years. As per clause 10.1.2, recording of 180 days are mentioned. Please clarify the contradictory clause.	Corrigendum – 3 is being issued separately.
994	Volume IV, ERTS, Part 3: ERTS-TEL	10.3.14.1 (168 of 279)	The Contractor shall design the VRS Network Management System to report a major VRS failure to the FRS via SNMP trap for any of the following failures.	We understand that industrial standards and open protocols e.g., SNMP v1 to v3 shall be used for soft integration of VRS NMS with FRS.	Refer sub-clauses CH - 10, 10.3.14.3, Vol IV ERTS-Tel. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				Hardwired integration may not be required please confirm ?.	
995	Volume IV, ERTS, Part 3: ERTS-TEL	10.3.14.7 (168 of 279)	The VRS NMS shall maintain a list of users granted playback access.	We understand that VRS NMS and its playback station is a single machine and same will be installed in NMS room at OCC & BCC building or NMS and playback machine are separate hardwares & will be installed at separate locations? Please confirm & elaborate the requirements of clause ?.	Being design-built contract, this is in scope of the Contractor to propose as per Design Requirements. The Tender Conditions shall prevail.
996	Volume IV, ERTS, Part 3: ERTS-TEL	10.4.5 (169 of 279)	VRS / FRS – for reporting faults from the VRS NMS.	We understand that industrial standards and open protocols shall be used for soft integration of VRS NMS with FRS. Hardwired integration may not be required please confirm ?.	The Tender Conditions shall prevail.
997	Volume IV,	10.4.9	VRS/RS - For Installation testing	As VRS equipment will not be	The Contractor need to interfaces.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(169 of 279)	and commissioning of Telecommunication equipment's inside the train.	installed inside the train so this clause can be removed.	The Tender Conditions shall prevail.
998	Volume IV, ERTS, Part 3: ERTS-TEL	10.7.2 (171 of 279)	VRS Equipment for Telecom Workshop Training The Telecom Workshop equipment shall be isolated from the Metro FOTS-IP system.	As per Cause- 10.7.2, Telecom Workshop equipment shall be isolated from the Metro FOTS-IP system. Please let us know without VRS connectivity with FOTS-IP system how configuration, training and troubleshooting of VRS with its interfaces will be demonstrated to Metro personnel staff.	Refer 10.7.1 for separate Servers and Workstation for training requirement. The Tender Conditions shall prevail.
999	Volume IV, ERTS, Part 3: ERTS-TEL	10.8.1.1 (171 of 279)	In the NMS Room of the Depot Administration Building and the NMS Room of BCC, The Contractor shall provide and install, connect and configure a Network Management System with functions for the overall	We understand that VRS NMS and its playback station is a single machine and same will be installed in NMS room at OCC & BCC building or NMS and playback machine are separate hardwares & will be installed at	VRS Playback Workstation and VRS NMS Workstation shall be separate. Refer clause no 10.2.1, 10.3.14.5 and 10.3.14.6 of chapter 10 Telecom TS The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			control, configuration, supervision and maintenance of the VRS.	separate locations? Please confirm & elaborate the requirements of clause ?.	prevail.
1000	Volume IV, ERTS, Part 3: ERTS-TEL	10.8.1.2 (171 of 279)	In the CER of the Depot Administration Building and the CER of BCC, The Contractor shall provide and install, connect and configure a VRS desktop workstation.	Requirement of this Clause-10.8.1.2 is not clear. Is it a voice recording device i.e., main VRS server or VRS playback station?. Please confirm the precise function of VRS desktop workstation.	VRS Playback Workstation and VRS NMS Workstation shall be separate. Refer clause no 10.2.1 of chapter 10 Telecom TS. The Tender Conditions shall prevail.
1001	Volume IV, ERTS, Part 3: ERTS-TEL	11.1.1 (173 of 279)	11.1. Functions of S&T UPS 11.1.1. The function of the S&T UPS is to provide seamless uninterrupted power to Signaling, Telecommunications and AFC equipment's at all times until S&T UPS battery end-point.	We would like to bring to your attention that the UPS has to be designed in such a way that it has to cater load to Signaling, Telecommunications and AFC equipment. Also, in case of OCC there are additional systems such as PSS SCADA & TVS SCADA whose load needs to be considered. As the load requirement for external systems is not mentioned in the tender, we request you to	Please refer Vol V S&T drawings for details of the load requirements and systems details. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				provide the standard kVA ratings for UPS to be provided. Please note that various Metro projects (Mumbai L4, Bangalore, Kolkata Line 3&6, Pune Line 1&2, Kanpur & Agra Metro) has specified kVA ratings in their respective tenders in past.	
1002	Volume IV, ERTS, Part 3: ERTS-TEL	11.1.4.2 (173 of 279)	At remote depot buildings and remote substation buildings, the S&T UPS shall be designed by The Contractor to provide 180-minutes service without input power.	Kindly confirm that remote depot building & remote substation building do not have diesel generator and require 180 min battery backup. Because as per clause no. 11.1.4.2, location with diesel generator requires back up of 120 mins. Kindly confirm the number of remote depot building and remote substation building and load requirement of these building.	This is design-built contract, the Contractor shall interface with concerned contractor for details with power supply and Traction contractor. The Tender Conditions shall prevail.
1003	Volume IV, ERTS, Part 3:	11.1.3	At locations with Diesel generator, the S&T UPS shall be	Kindly confirm the location where diesel generator is	All stations and the Depots of Bhopal and Indore Metro line shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL	(173 of 279)	designed by The Contractor to provide 120-minutes service without input power. This function and complete interface design shall be performed by The Contractor with an Interface Specification (load schedule at each location) as part of the design.	available and UPS back for 120Min to be provided.	have Diesel Generators. The Tender Conditions shall prevail.
1004	Volume IV, ERTS, Part 3: ERTS-TEL	11.1.7 (173 of 279)	The Contractor shall design the Metro Security Room to have power from the S&T UPS for telecom equipment.	Kindly confirm the location of Metro security room and load requirement. Can we provide load to Metro security room from nearest Power distribution cubicle (powered by S&T UPS).	Refer Vol V for Depot and Station drawings of Bhopal and Indore. The Tender Conditions shall prevail.
1005	Volume IV, ERTS, Part 3: ERTS-TEL	11.1.16 (174 of 279)	The S&T UPS will not provide power for PSS SCADA equipment except at the OCC and BCC for the PSS SCADA servers, workstations and mimic board if required.	Kindly provide the Server, workstation and mimic board load details along with equipment qty.	This is design-built contract, the Contractor shall interface with concerned contractor for detailed requirements. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
1006	Volume IV, ERTS, Part 3: ERTS-TEL	11.1.17 (174 of 279)	The S&T UPS will not provide power for TVS SCADA equipment except at the OCC and BCC for the TVS SCADA servers and workstations.	Kindly provide the Server and workstation load details along with equipment qty.	This is design-built contract, the Contractor shall interface with concerned contractor for detailed requirements. The Tender Conditions shall prevail.
1007	Volume IV, ERTS, Part 3: ERTS-TEL	11.1.18 (174 of 279)	At the three depot Access Control Buildings, The Contractor shall design the communications equipment to be powered from the nearest S&T UPS.	Kindly confirm are these Depot access control buildings different from remote depot building as mentioned in clause no. 11.1.4.2	Depot access control building is different from remote depot building. Corrigendum – 3 is being issued separately.
1008	Volume IV, ERTS, Part 3: ERTS-TEL	11.2.1 (174 of 279)	The S&T UPS will consist of two identical UPS-inverter/rectifier, each with an identical battery set, connected so that one UPS-inverter/rectifier seamlessly backs up the other and one battery set seamlessly backs up the other working as redundant UPS with load sharing basis.	Kindly confirm battery backup required as per clause no. 11.1.3 and 11.1.4.2 is the back up of both the battery bank combined together.	Battery backup detail requirements are given separately in both clause i.e., 11.1.3 and 11.1.4.2 of Tel TS separately. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
1009	Volume IV, ERTS, Part 3: ERTS-TEL	11.2.5 (174 of 279)	The S&T UPS for the Depot Administration Building will be located in a room adjacent to the CER.	Kindly confirm, what all rooms will be there in Depot administration building and will there be a common UPS for all the rooms.	Please refer Vol V Depot drawings for details of the rooms. The Tender Conditions shall prevail.
1010	Volume IV, ERTS, Part 3: ERTS-TEL	11.2.13 & 1.3 (176 of 279)	11.2.13 - The Contractor shall design the S&T UPS to achieve an availability of 99.996% assuming a mean-time-to-restore of 1-hour. 1.3 - Detailed availability requirements are given below: 10. Network Management Systems & all other systems -- 99.999	Availability requirement specifically for S&T UPS is not mentioned in Appendix IV. However, it can be considered under #10. Network Management Systems & all other systems -- 99.999; which is different from the availability requirement specified in Clause 11.2.13.	Refer clause no 11.2.13 for availability details. The Tender Conditions shall prevail.
1011	Volume IV, ERTS, Part 3: ERTS-TEL	11.2.13, 1.3 & 1.4.12 (176 of 279)	11.2.13 - The Contractor shall design the S&T UPS to achieve an availability of 99.996% assuming a mean-time-to-restore of 1-hour.	MTTR specifically for S&T UPS is not mentioned in Appendix IV. However, it can be considered under #10. Network Management Systems & all other systems -- 1; which is	For MTTR please refer 11.2.12. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>1.3 - The System shall be designed such that the MTTR figures for restoring the operation of the System from fault condition shall not be more than four hours (excluding time of travel).</p> <p>1.4.12 - Table: MTTR for various subsystems</p> <p>10. Network Management Systems & all other systems -- 1</p>	<p>different from the MTTR specified in Clause 11.2.13.</p>	
1012	Volume IV, ERTS, Part 3: ERTS-TEL	11.2.16 (176 of 279)	<p>The Preliminary Design Submittal shall include</p> <p>a. manufacturer's data sheet of each size of UPS</p> <p>b. manufacturer's data sheet of each size of battery</p> <p>c. preliminary drawing of S&T UPS equipment on station architectural drawings</p> <p>d. preliminary drawing and</p>	<p>The following documents can only be submitted as part of detailed design after supplier finalization.</p> <p>Kindly update the clause accordingly.</p>	<p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>specifications of battery rack</p> <p>e. preliminary drawing showing ac-input, battery and ac-output connections of S&T UPS equipment</p> <p>f. preliminary drawing showing power distribution cabinet adjacent to the S&T UPS with one properly sized individual circuit breaker per equipment item</p> <p>g. copy of warranty offered by battery manufacturer</p> <p>h. preliminary drawing or specifications of battery connector</p> <p>i. preliminary calculations showing total load at each site with justification for size of UPS and size of battery</p> <p>j. preliminary list of Workshop Training Equipment</p> <p>k. the recommended spares with</p>		

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>MTBF of each required to maintain the specified availability for service life of the S&T UPS. The recommended spares shall also be listed in Pricing Document Vol VI.</p> <p>I. preliminary outline of topics, maximum class size and estimated hours of in</p>		
1013	Volume IV, ERTS, Part 3: ERTS-TEL	11.3.1, 11.3.3 and 11.3.19 (177 of 279)	<p>11.3.1 - The Contractor shall design the S&T UPS with the following Interface Specifications, stating the electrical loads powered by the S&T UPS at each site. The Contractor shall use Interface Specifications to</p> <p>a. determine wire size for each load</p> <p>b. determine circuit breaker size for each load</p> <p>c. determine connection circuit for each load so that each of the</p>	<p>Kindly confirm if Wire sizing, circuit breaker sizing and connection circuit is to be designed for each AFC and PSD equipment as per the interface. Kindly provide the equipment wise details of AFC & PSD to be powered for UPS.</p>	<p>Please refer Vol V S&T drawings for details of the load and systems.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			<p>three 220V circuits are balanced</p> <p>11.3.3 - S&T UPS – AFC for electrical load for non-mechanical loads for immediate AFC functionality after power restoration if required.</p> <p>11.3.19 - S&T UPS – PSD for electrical load of controllers in station SERs for immediate PSD functionality after power restoration.</p>		
1014	Volume IV, ERTS, Part 3: ERTS-TEL	11.4.1.1 (178 of 279)	The Contractor shall provide 05 portable digital multimeters. The intent of this quantity is to deploy one multimeter in each room containing S&T UPS for battery testing and the remaining multimeters at the depot telecom workshop.	5 no. of portable multimeters cannot cater to requirement of 'one multimeter in each room containing S&T UPS for battery testing...'. Hence the clause seems to be contradictory in itself.	Corrigendum – 3 is being issued separately.
1015	Volume IV, ERTS, Part 3: ERTS-TEL	11.4.1.1 (178 of 279)	The Contractor shall provide 05 portable digital multimeters. The intent of this quantity is to deploy one multimeter in each room	Please clarify whether 5 multimeter is to be provided or multimeter for each station is to	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			containing S&T UPS for battery testing and the remaining multimeters at the depot telecom workshop.	be provided.	
1016	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.1.6 (179 of 279)	<p>Installation locations for S&T UPS are</p> <p>a. S&T UPS Room of Depot Administration Building.</p> <p>b. S&T UPS Room of Depot Maintenance Workshop & Central Store Building 1st Floor</p> <p>c. S&T UPS Room of BCC, or, The Contractor may provide just one S&T UPS at Station S&T UPS Room with additional capacity to power the BCC servers and BCC workstations.</p> <p>d. S&T UPS Room of each station</p> <p>e. Relay and Control Panel Room of each RSS</p>	<p>What will be the location of RSS and what will be the load requirement for RSS. Do we need to install the UPS in Relay and Control Panel Room of each RSS, please provide the inputs for S&T UPS Room of Depot Maintenance Workshop & Central Store Building 1st Floor</p>	<p>A) RSS Locations</p> <p>Bhopal</p> <p>1. Subhash Nagar, 2. Ratnagiri</p> <p>3. Karond Circle</p> <p>Indore</p> <p>1. Gandhinagar, 2. ISBT / MR10</p> <p>3. Khajrana</p> <p>B) Corrigendum – 3 is being issued separately, for clause b and e.</p> <p>C) Need not to install the UPS in Relay and Control Panel Room of each RSS. Corrigendum – 3 is being issued separately.</p> <p>D) Input for S&T UPS Rooms is</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					from Depot ASS. The Tender Conditions shall prevail.
1017	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.3.1 and 11.6.3.2 (180 of 279)	Control and Monitoring 11.6.3.1. The Contractor shall provide and install, connect and configure the S&T UPS NMS for control, monitoring and maintenance. 11.6.3.2. The Contractor shall provide and install, connect and configure the S&T UPS NMS for analog measurement of battery voltage.	UPS will have the NMS monitoring device and the alarm will be shown locally on UPS display and remotely through NMS/FRS at OCC/BCC. Kindly confirm our understanding is correct.	The Tender Conditions shall prevail.
1018	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.3.6 (181 of 279)	The Contractor shall install the S&T UPS NMS equipment in the S&T UPS Room of each station.	Apart from NMS-A and NMS-B, presumably asked to be deployed at OCC and BCC, is NMS also required at each location?	The Tender Conditions shall prevail.
1019	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.3.3, (k) & (l) (181 of 279)	In addition to the UPS NMS, The Contractor shall provide, install and connect the	In case NMS is required at each Station, OCC and BCC, do only NMS' at OCC and BCC are required to be connected to	Being design-built contract, this is in scope of the Contractor to propose as per Design

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			Fault Reporting System to: k. Data transmission (SNMP) of UPS NMS A l. Data transmission (SNMP) of UPS NMS-B	FRS? Will the NMS at each Station not be monitored by FRS?	Requirements The Tender Conditions shall prevail.
1020	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.4.2 (181 of 279)	S&T UPS to AFC Room at depot for 230Vac power to critical AFC equipment if required. The intent of this interface is allowed immediate operation of the AFC equipment in stations following restoration of power.	3 Phase power supply will be available for AFC System. Outgoing cables from S&T UPS and distribution will be AFC Contractor's responsibility. Please Confirm.	Refer Section 11.6.4 for details. The Tender Conditions shall prevail.
1021	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.4.3 (181 of 279)	S&T UPS to AFC equipment at stations for 230Vac power to critical AFC equipment if requirement. The intent of this interface is allowed immediate operation of the AFC equipment in stations following restoration of power.	3 Phase power supply will be available for AFC System. Outgoing cables from S&T UPS and distribution will be AFC Contractor's responsibility. Please Confirm.	Refer Section 11.6.4 for details. The Tender Conditions shall prevail.
1022	Volume IV, ERTS, Part 3:	11.6.4.4	S&T UPS 230Vac to depot Power Supply SCADA system in OCC	3 Phase power supply will be available for SCADA System.	Refer Section 11.6.4 for details.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL	(181 of 279)	and CER-OCC. This interface is for PSS SCADA workstations, servers and mimic board serving the OCC.	Outgoing cables from S&T UPS and distribution will be SCADA Contractor's responsibility. Please Confirm.	The Tender Conditions shall prevail.
1023	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.4.5 (181 of 279)	S&T UPS 230Vac to depot M&E SCADA system in OCC and CER-OCC. This interface is for M&E SCADA workstations and servers serving the OCC.	Kindly provide the Server and workstation load details along with equipment qty.	This is design-built contract, the Contractor shall interface with concerned contractor for details. The Tender Conditions shall prevail.
1024	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.4.6 (181 of 279)	S&T UPS 230Vac to depot M&E SCADA system in BCC and CER-BCC. This interface is for M&E SCADA workstations and servers serving the BCC.	Kindly provide the Server and workstation load details along with equipment qty.	This is design-built contract, the Contractor shall interface with concerned contractor for details. The Tender Conditions shall prevail.
1025	Volume IV, ERTS, Part 3: ERTS-TEL	11.4.7 (181 of 279)	S&T UPS 230Vac to depot TVS SCADA system in OCC and CER-OCC. This interface is for TVS SCADA workstations and servers serving	3 Phase power supply will be available for TVS SCADA System. Outgoing cables from S&T UPS and distribution will be TVS SCADA Contractor's	Refer Section 11.6.4 for details. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			the OCC.	responsibility. Kindly Confirm.	
1026	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.4.8 (181 of 279)	S&T UPS 230Vac to depot TVS SCADA system in BCC and CER-BCC. This interface is for TVS SCADA workstations and servers serving the BCC.	3 Phase power supply will be available for TVS SCADA System. Outgoing cables from S&T UPS and distribution will be TVS SCADA Contractor's responsibility. Kindly Confirm.	Refer Section 11.6.4 for details. The Tender Conditions shall prevail.
1027	Volume IV, ERTS, Part 3: ERTS-TEL	11.6.5.2 (181 of 279)	S&T UPS to S&T PSD Controller at stations for 230Vac power to PSD controller only.	Kindly confirm, PSD controller power supply to be provided from Telecom PDC or S&T UPS directly.	Being design-built contract, this is in scope of the Contractor to propose as per Design Requirements. The Tender Conditions shall prevail.
1028	Volume IV, ERTS, Part 3: ERTS-TEL	12.1.6, 1st paragraph; 3rd sentence (183 of 279)	On-board CCTV and CBTC shall each use one of the available ISM bands (2.4 GHZ, 5.8 GHZ).	2.4GHz band is highly polluted and prone to interference, as per latest WPC Notification 18 Oct 2018, 5GHz band is delicensed. Therefore, bidder requests the	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				employer to modify the clause as below, "The Onboard CCTV shall use 2.4 GHz ISM band / 5.4GHz band while CBTC shall use 5.8 GHz ISM band preferably or any other delicensed frequency band by Ministry of Communication."	
1029	Volume IV, ERTS, Part 3: ERTS-TEL	12.1.6, 1st paragraph; 5th sentence (183 of 279)	The data transmission from wayside to OCC may use same switching network, The Network shall be configured such that CBTC traffic will always have priority over VTS traffic.	Bidder requests Employer to confirm if a mutualized/common backbone network (mutualized OFC + Switches etc) can be used for CBTC and onboard CCTV transmission, with CBTC traffic having priority over VTS traffic.	Corrigendum – 3 is being issued separately.
1030	Volume IV, ERTS, Part 3: ERTS-TEL	12.1.6, 1st paragraph; 2nd sentence (183 of 279)	Redundant radio units shall be provided on Train and wayside for On-board CCTV transmission which shall be different from the radio units used for CBTC transmission.	Please modify the clause for clarity as below "Radio Redundancy shall be provided on train and wayside for onboard CCTV transmission, Radio units used for onboard CCTV transmission shall be	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				different from radio units used for CBTC transmission"	
1031	Volume IV, ERTS, Part 3: ERTS-TEL	13.1.12 (185 of 279)	The FRS will automatically send user selected SMS text message(s) to user selected mobile telephones of maintenance personnel.	The FRS system will have the provision of SMS modem and SIM card for sending text messages. The subscription cost for SMS will be borne by End user. Kindly confirm our understanding.	The subscription cost for SMS will be borne by End user when they got the msg. The Tender Conditions shall prevail.
1032	Volume IV, ERTS, Part 3: ERTS-TEL	13.2.8 (186 of 279)	Fault Reporting System – The Contractor shall design the FRS to achieve an availability of 99.995% assuming a mean-time-to-restore of 1-hour.	1 Hour restoration is possible with O&M operator deployment. If not please change it to 4 hours excluding travel time.	The Tender Conditions shall prevail.
1033	Volume IV, ERTS, Part 3: ERTS-TEL	13.4.1.2 (190 of 279)	The logging printer shall be dot-matrix type equipped with a paper holder for fan-fold continuous feed A3 and A4 size paper.	Dot - Matrix printer has only option of using A3 size paper not A4 size. Kindly amend the clause accordingly.	Dot - Matrix printer is already having the option of printing A4 therefore no change in the specification. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
1034	Volume IV, ERTS, Part 3: ERTS-TEL	13.7.2 (191 of 279)	2 (two) FRS Station Layer-2 switch.	Please confirm the no. of ports required for the layer 2 Switch.	Being design-built contract, this is in scope of the Contractor to propose as per Design Requirements. The Tender Conditions shall prevail.
1035	Volume IV, ERTS, Part 3: ERTS-TEL	13.9.2.1 (192 of 279)	The Contractor shall provide, install and connect a dot-matrix tractor-fed logging printer enclosed in a transparent sound reducing enclosure in the BCC NMS Room.	Please confirm the specifications and IP (ingress protection) ratings of sound reducing enclosure.	Being design-built contract, this is in scope of the Contractor to propose as per Design Requirements. The Tender Conditions shall prevail.
1036	Volume IV, ERTS, Part 3: ERTS-TEL	13.9.3.12 (193 of 279)	The Contractor shall connect and configure the NMS of FOTS-IP for transporting FRS data from stations to OCC & BCC.	We understand that all field communication equipments will forward their alarms to their respective NMS available at OCC & BCC and FRS will be designed to collect alarms and maintenance data from NMS of communications systems	Being design-built contract, this is in scope of the Contractor to propose as per Design Requirements. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				<p>available at CER-OCC & CER-BCC.</p> <p>We request you to provide the details of field i.e. (station) communication equipments to be monitored in FRS.</p>	
1037	Volume IV, ERTS, Part 3: ERTS-TEL	14.1.2, (o) (196 of 279)	o. to provide door-open / door-closed indication of all doors in stations.	All Doors in station means details provided in Section 14.1.2.(a to n). Kindly clarify.	The Tender Conditions shall prevail.
1038	Volume IV, ERTS, Part 3: ERTS-TEL	14.2.1.3 (197 of 279)	For movable desktop devices served with LAN cable, the LAN cable shall be stranded patch cord type.	Kindly elaborate on the requirement of movable desktop devices and the type of devices envisaged.	The Tender Conditions shall prevail.
1039	Volume IV, ERTS, Part 3: ERTS-TEL	14.3.1.14 (200 of 279)	All components of the ACIDS shall be vibration proof and ruggedized for the installation location.	Kindly note that components of ACIDS are installed in indoor locations and does not require ruggedness features. Request you to kindly update the clause accordingly	The Tender Conditions shall prevail.
1040	Volume IV,	14.4.3.12	The Contractor shall design the	Pls clarify whether bidder has to	The Tender Conditions shall

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS, Part 3: ERTS-TEL	(203 of 279)	access control system with electric strikes compatible with the doors in stations.	consider Electric Latch or Electro Magnetic latch locks in the bid as conventionally, EML locks are preferred.	prevail.
1041	Volume IV, ERTS, Part 3: ERTS-TEL	14.4.3.15 (a & b) (203 of 279)	The Contractor shall design an access control point at the following locations: (a) Receiver Sub-Station (b) Traction Sub-Station	Kindly provide the number of doors / rooms to be covered by ACID in RSS & TSS	Refer Volume V drawings for details. The Tender Conditions shall prevail.
1042	Volume IV, ERTS, Part 3: ERTS-TEL	14.4.3.15 (m) (203 of 279)	The Contractor shall design an access control point at the following locations: m) entry gates for road vehicles	Pls clarify in which way Access Control is envisaged for entry gates for road vehicles. Do we need to provision for Boom Barriers as this is already being covered in CCTV section	The Tender Conditions shall prevail.
1043	Volume IV, ERTS, Part 3: ERTS-TEL	14.4.4.6 (204 of 279)	The Contractor shall design the intrusion detection system to provide a door position sensor for all doors of enclosed workshops at the depot.	Kindly provide the number of doors to be covered with ACID system in workshop.	Refer Volume V drawings for details of the room details. The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
1044	Volume IV, ERTS, Part 3: ERTS-TEL	14.5.2 (205 of 279)	The Contractor shall print photo ID of staff on Contactless Smart Cards for Metro staff use in ACIDS. 1000 smartcards will be supplied by AFC contractor.	Pls clarify whether the bidder has to provide Card Personalisation Workstation along with printer or need to supply printed cards to MPMRCL.	Corrigendum – 3 is being issued separately.
1045	Volume IV, ERTS, Part 3: ERTS-TEL	14.8.29 (209 of 279)	The Contractor shall install Electric Door Strike in such a way and in such a location so as not to impair the operation of an emergency exit or panic hardware mounted on the door.	We understand that Electric Strike system as EM Lock System as per various Metro solutions. Kindly confirm and update the Clause accordingly.	Corrigendum – 3 is being issued separately.
1046	Volume IV, ERTS, Part 3: ERTS-TEL	15.5.2.1 and 15.7.35 (219 of 279)	15.5.2.1. The Contractor shall design, furnish and install two IP-65 enclosures for each cross passage. 15.7.35. For cross passage enclosures, The Contractor shall provide and install an IP32 enclosure to allow heat dissipation for each L2 switch in	Both Clauses are contradictory, please update as "IP 32" in 15.5.2.1	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			cross passages.		
1047	Volume IV, ERTS, Part 3: ERTS-TEL	16.4 (222 of 279)	The Contractor shall design, furnish and install 230Vac S&T UPS wiring for S&T service to remote buildings including depot out-buildings, RSS, TSS, ASS, etc.	How many such Depot Out buildings are there, kindly provide the load requirement for each building. Kindly confirm if the power can be provided from nearest Power distribution cubicle and UPS.	For Bhopal, there shall be one Depot and 3 RSS. For Indore, there shall be one Depot and 3 RSS. The Tender Conditions shall prevail.
1048	Volume IV, ERTS, Part 3: ERTS-TEL	16.2 (222 of 279)	The Contractor shall design, furnish and install power cable(s) from the S&T UPS to each telecom closet with S&T Layer-2 switches and design the 230Vac electrical outlets for S&T UPS 230Vac for the switches. Each outlet shall be prominently labelled S&T UPS.	Switch power supply will be provided through PDC. Kindly update the clause as "The Contractor shall design, furnish and install power cable(s) from the S&T UPS - PDC to each telecom closet with S&T Layer-2 switches and design the 230Vac electrical outlets for S&T UPS 230Vac for the switches. Each outlet shall be prominently labelled S&T UPS."	Since this is design-built contract, the Contractor may propose suitable equipment and shall be finalised in design stages. The Tender Conditions shall prevail.

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1049	Volume IV, ERTS, Part 3: ERTS-TEL	16.3 (222 of 279)	The Contractor shall design, furnish and install power cable(s) from the S&T UPS to the wall of each room with a a. S&T workstation or other S&T equipment requiring 230Vac. b. AFC workstation c. SCR	Power cable to the wall is through PDC. Hence kindly update the clause as "The Contractor shall design, furnish and install power cable(s) from the S&T UPS-PDC to the wall of each room with a a. S&T workstation or other S&T equipment requiring 230Vac. b. AFC workstation c. SCR	Since this is design-built contract, the Contractor may propose suitable equipment and shall be finalised in design stages. The Tender Conditions shall prevail.
1050	Volume IV, ERTS, Part 3: ERTS-TEL	22.6.2 (237 of 279)	The cables used in areas susceptible to rodent damage shall be wrapped with stainless steel intended for protection from rodent damage by the cable manufacturer.	All the outdoor cables are steel tape armoured, which will provide rodent protection. For cables within the TER or between different rooms in the same building are not susceptible to rodent damage. So, no wrapping with stainless steel will not be provided for the	The Tender Conditions shall prevail.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				indoor cables. Kindly update the clause accordingly.	
1051	Volume IV, ERTS, Part 3: ERTS-TEL	APPENDIX IV: 1.1.2 (251 of 279)	The Systems shall be so designed as to have a minimum of 15 years of service life operating continuously for the equipment's (excluding Servers & workstations) For Servers & workstations it shall be 10 years. The life of all the cables shall not be less than 25 years	Telecom systems are COTS product, hence kindly update the Service life as 12 years with recommended maintenance.	The Tender Conditions shall prevail.
1052	Volume IV, ERTS, Part 3: ERTS-TEL	APPENDIX IV: 1.4.12 (254 of 279)	Table: MTBF of the major systems	Pease mention the MTBF values of FRS servers, Workstations and printers in "Table: MTBF of the major systems".	Corrigendum – 3 is being issued separately.
1053	Volume IV, ERTS, Part 3: ERTS-TEL	1.4.12 & 1.4.1 (254 of 279)	1.4.12 - Table: MTTR for various subsystems 1.4.1 - The System shall be designed such that the MTTR	Both clauses are contradictory. Kindly clarify. As per standard practice, MTTR should be 4 hours	Refer clause no. 1.4.12, which is related to MTBF and clause no. 1.4.1 is related to MTTR. Also, refer Corrigendum – 3 being

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
			figures for restoring the operation of the System from fault condition shall not be more than four hours (excluding time of travel).		issued separately, for sub-clause 1.4.1.
1054	Volume IV, ERTS, Part 3: ERTS-TEL	APPENDIX IV: 1.4.12, Table, SN 8 (255 of 279)	Table: MTBF of the major systems 8. CVRS	Please mention the MTBF requirement of VRS Workstation & VRS NMS.	Corrigendum – 3 is being issued separately.
1055	Volume IV, ERTS, Part 3: ERTS-TEL	APPENDIX IV: 1.4.12, Table, SN 9 (255 of 279)	Table: MTTR for various subsystems 9. ACIDS& T-SCADA	Please reduce Mean Time to Restore (MTTR) of the FRS system less than four hours excluding the time of travel.	The Tender Conditions shall prevail.
1056	Volume IV, ERTS, Part 3: ERTS-TEL	APPENDIX IV: 1.4.12, Table, SN 9b (255 of 279)	Door Control Cards > 60,000 Hours	We assume it is a typographical error. It should be Door Controller. Kindly amend the clause	The door control card is an electronic card. Hence, for the systems related requirement is required, once the system is finalised in design stages it shall be clear.

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					The Tender Conditions shall prevail.
1057	Volume IV, ERTS, Part 3: ERTS-TEL	APPENDIX IV: 1.4.12, Table, SN 9c (255 of 279)	Ingress Button, Break Glass, Key Switch, Sensors > 60,000 Hours	Ingress Button, Break Glass, Key Switch & Sensors are passive components. Hence, request you to kindly remove these items from the clause	Corrigendum – 3 is being issued separately.
1058	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	<p>GBT/28181 is Chinese Security Protocol which is one of the potential vulnerability threat to the end user. Non-compliance to same is now been mandated by GoI Organisations. Hence, we request addition of following:</p> <p>Certificate from OEM of cameras in their letterhead confirming that any component/ hardware / parts / assembly / software including firmware used in the offered solution (hardware / software) DO NOT COMPLY to - GB28181, GB/T 28181-2011;</p>	Corrigendum – 3 is being issued separately.

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
				GB/T28181-2011; GBT 28181-2011; GBT28181-2011 standards.	
1059	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	<p>NDA is National Defence Authorization Act from US accepted by countries across the world to keep out OEMs that do not adhere to stringent Cybersecurity norms necessary to maintain security for such critical surveillance system. As per NDA, certain OEM's have security backdoors which can be big loophole in Security of Critical Environment. NDA ensures security at CHIP or component level of Cameras. So, request you to kindly consider our request to add below:</p> <p>The offered cameras should be NDA Complied.</p>	<p>NDA clause shall not be applicable.</p> <p>The Tender Conditions shall prevail.</p>

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
1060	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	<p>AES encryption ensures secure communication at camera level as well as data in transit from camera to server. So, request you to add the same in the tender as per below:</p> <p>Cameras and Video Management Software shall support video/data encryption based on AES-128.or better</p>	Corrigendum – 3 is being issued separately
1061	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	<p>Given the current security scenario and Gol directive on suppliers from countries sharing land border, we would like to request to you to kindly only consider OEMs whose camera IPRs are not owned by companies from countries sharing land border with India.</p>	<p>Land Border sharing clause shall not be applicable.</p> <p>The Tender Conditions shall prevail.</p>
1062	Volume IV, ERTS, Part 3:	General (279 of 279)	-	<p>We would like to request to kindly provide either minimum</p>	Being design-built contract, this is in scope of the Contractor to

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL			BoQ or the minimum camera quantity for each camera type for each station, depot, OCC/BCC so as to enable a level playing a field and ensure coverage is not compromised.	propose as per Design Requirements. The Tender Conditions shall prevail.
1063	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	Please confirm the availability of False Ceiling in station level so that this will be considered during simulation report to meet the TS requirement.	There shall be no false ceiling provision in Bhopal and Indore Metro Stations. The Tender Conditions shall prevail.
1064	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	As per provided drawing, only 1 RSS is identified. Kindly provide the details of RSS for further considerations	RSS locations for Bhopal: 1. Subhash Nagar 2. Ratnagiri 3. Karond Circle RSS locations for Indore: 1. Gandhinagar 2. ISBT/MR-10 3. Khajrana

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					The Tender Conditions shall prevail.
1065	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	CHAPTER 2: FIBER OPTIC TRANSMISSION SYSTEM (FOTS-IP)	Kindly Provide the minimum BOQ for the FOTS System.	<p>Since this is design-built contract, the Contractor may propose suitable equipment with BOQ as per the location specified and requirement of the Telecom equipment may be finalised in design stages.</p> <p>The Tender Conditions shall prevail.</p>
1066	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	CHAPTER 3: TIME DISTRIBUTION SYSTEM (TDS)	Kindly confirm the minimum BOQ for the TDS System.	<p>Since this is design-built contract, the Contractor may propose suitable equipment and shall be finalised in design stages.</p> <p>The Tender Conditions shall prevail.</p>
1067	Volume IV, ERTS, Part 3:	General (279 of 279)	CHAPTER 13: FAULT REPORTING SYSTEM (FRS)	Kindly confirm the minimum BOQ for the FRS System.	Since this is design-built contract, the Contractor may propose

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
	ERTS-TEL				<p>suitable equipment and shall be finalised in design stages.</p> <p>The Tender Conditions shall prevail.</p>
1068	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	Kindly confirm the availability of Number of Ancillary building in the Bhopal & Indore Metro Stations	<p>Refer Volume V drawings for details of the Entry/Exit rooms / Ancillary Buildings of Stations.</p> <p>The Tender Conditions shall prevail.</p>
1069	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	Kindly confirm the availability of Number of locations with Parking areas in the Bhopal & Indore Metro Stations.	<p>Refer Volume V drawings for details of the Parking Areas.</p> <p>The Tender Conditions shall prevail.</p>
1070	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	Kindly confirm the availability of Emergency Exit areas in the Bhopal & Indore Metro Stations.	<p>Refer Volume V drawings for details of the Entry/Exit rooms / Ancillary Buildings of Stations.</p>

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					The Tender Conditions shall prevail.
1071	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	-	We have noticed that the mainline chainage has started from 15120.56 (Gandhinagar) in Yellow Line, from 20+313 (AIIMS) in Purple Line & from 50+295 (BHADBHADA SQUARE) in Red Line stations. Kindly provide Zero Kilometric Points for reference.	<p>Bhopal Purple Line Chainage Start before AIIMS Metro station 20+000 E = 751521.6855, N = 2568523.9326</p> <p>Bhopal Red Line Chainage Start before BHADBHADA SQUARE STATION 50+000 E = 743563.6488, N = 2569441.5265</p> <p>Indore Yellow Line Chainage Start on "Indore Bypass 3 square" near Gokul Nagar E = 595784.79, N 2513725.25</p> <p>The Tender Conditions shall prevail.</p>

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1072	Volume IV, ERTS, Part 3: ERTS-TEL	General (279 of 279)	General	UPS and Battery system shall be designed on the operating load. Pleas confirm our understanding is correct.	Please refer Vol V S&T drawings for details of the load and systems. The Tender Conditions shall prevail.
1073	Volume V, TD, Part 04A and 04B	- (4 of 19)	BHIN02_Vol_V_Part04Aof06_Alignment_Drgs_BH.pdf BHIN02_Vol_V_Part04Bof06_Alignment_Drgs_IN.pdf	i. PF Length is not available in the drawings, only Station chainages listed in the Documents at the End of each line. Please Confirm whether we can consider the same for Platform length? ii. Crossover Length is not available in the drawings. iii. Fouling Point Details not available in the drawings. iv. PSR details are not available in GAD drawings. Bidder requests employer to provide all the above details	i) Platform length is 140 meters typical ii) Refer GAD in Vol V for details of Crossover Length (Difference between Chainages SRJ - SRJ) Details of Cross Over and Turnouts (4.20M C/C SPACING BETWEEN RAIL C/L) Cross Over Length (m) 1 in 9, Radius 300 72.738 1 in 9, Radius 190 60.68 1 in 7, Radius 140 50.526 Turn-out 1 in 9, Radius 190 28.056 1 in 7, Radius 190 27.924

Sr. No.	Tender Document Reference	Clause/Sub-Clause/Para (Page No)	Tender Document Excerpt/ Title/ Particulars of Tender Document	Description of Query Raised by Tenderer	Clarification
					<p>iii) Details shall be provided during Detailed Design Stage.</p> <p>iv) PSR details: Refer Attachment no. 8 of Corrigendum</p>
1074	Volume V, TD, Part 04A and 04B	- (4 of 19)	BHIN02_Vol_V_Part04Aof06_Alignment_Drgs_BH.pdf BHIN02_Vol_V_Part04Bof06_Alignment_Drgs_IN.pdf	Bhopal Metro: Purple & RED Line: For SP generation, Platforms info Considered from the Station chainages Table which available in Pg no: 54 and 103. Since Platform Start and End KP information is Not clear in Alignment Drawings as well Platform length. Indore Metro: For SP generation, Platforms info Considered from the Station chainages Table which available in Pg no: 107. Since Platform Start and End KP information is Not clear in Alignment Drawings as well Platform length. Bidder requests employer to provide all the necessary details	<p>Refer Clarification No. 01, Dated 15-Dec-2021 for AutoCAD drawings.</p> <p>The Tender Conditions shall prevail.</p>

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1075	Volume V, TD, Part 04A	- (4 of 19)	BHIN02_Vol_V_Part04Aof06_Alignment_Drgs_BH	RED Line: In the Pg No: 77/103 Mainline and Depot Connecting Turnout Point Kp is Not Clear (It is hided). For generation of Scheme plan, Point Kp assumed as a 56318.00 reference attached Image Highlighted in Yellow. Bidder requests employer confirm the same.	Entry and Exit SRJ Chainage RED LINE DEPOT Exit From Mainline 56+232.64 Entry to Mainline 56+314.63 PURPLE LINE DEPOT Exit From Mainline 26+819.57 Entry to Mainline 26+731.46 The Tender Conditions shall prevail.
1076	Volume V, TD, Part 04A and 04B	- (4 of 19)	BHIN02_Vol_V_Part04Aof06_Alignment_Drgs_BH.pdf BHIN02_Vol_V_Part04Bof06_Alignment_Drgs_IN.pdf	There is a mismatch between Curve Details in the GAD and the Curve report provided in the end, for some cases. Please confirm which we need to follow either Horizontal alignment in GAD or Curve Report?	Refer GAD in Vol V. The Tender Conditions shall prevail.
1077	Volume V, TD, Part 04B	- (5 of 19)	BHIN02_Vol_V_Part04Bof06_Alignment_Drgs_IN.pdf	At Rama Chandra nagar square station, SCISSOR CROSSOVER KP details not available in the General	Refer GAD in Vol V. The Tender Conditions shall

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				Alignment drawings. Please find the attached snapshot for your reference.	prevail.
1078	Volume V, TD, Part 04B	- (5 of 19)	BHIN02_Vol_V_Part04Bof06_Alignment_Drgs_IN.pdf	Bidder requests employer to confirm whether any KP Gap is available between BENGALI SQUARE & PATRAKAR COLONY Station or it is the continuous KP. Kindly confirm the details. Attached snapshot for your reference.	Indore Alignment is a Ring Line which starts from Bengali Square and ends at Bengali Square. The Tender Conditions shall prevail.
1079	Volume V, TD, Part 04B and 05E	- (5 of 19)	BHIN02_Vol_V_Part04Bof06_Alignment_Drgs_IN.pdf and BHIN02_Vol_V_Part05Eof06_Arch_Drgs_IN_Depot.pdf	Track Layout at Gandhi Nagar station and Depot Connecting lines is not matching with the Mainline GAD alignment drawings. Bidder Requests the employer to confirm which one we need to follow and provide the necessary drawings for the Design. Attached snapshot for your reference.	Refer GAD in Vol V. The Tender Conditions shall prevail.
1080	Volume V, TD,	-	BHIN02_Vol_V_Part05D1of06_A	KP Details are not available for	The Kp details of both the Depots

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	Part 05D1 and 05E	(10 of 19)	rch_Drgs_BH_Depot.pdf BHIN02_Vol_V_Part05Eof06_Arch_Drgs_IN_Depot.pdf	Both the Depot. Bidder requests employer to provide necessary AutoCAD drawing files or Provide the Kp details to Design the Scheme Plan.	shall be provided during Detailed Design Stage. The Tender Conditions shall prevail.
1081	Volume VI, PD, Preamble	2.1.14 (5 of 47)	The Contractor shall submit a Safe Custody Bank Guarantee as per form annexed as Annexure – 11 to Instructions to Tenderer (Volume I) against payments made for the Plants and Materials dispatched from manufacturer's works for final delivery under the Contract. The amount of safe custody Bank Guarantee shall be equal to 95% percent of the amount due as per relevant Cost Centre wherever applicable. The value of the Safe Custody Bank Guarantee would be adjusted for the Rolling Stocks and/or Plants & Materials (respective Systems) already installed at site or in the	1. The purpose of safe custody Bank Guarantee is not clear. The payment made by the customer is against milestone achieved. Even for the design, customer has received some tangible assets before making the payment. 2. In respect of supplies, the ownership of the goods will be transferred to purchaser at the time of dispatch and billing will be made accordingly. Hence the goods, which are available to customer has their guarantee against the payment made which is part of the total cost. 3. Furnishing 95% value of the	Corrigendum – 3 is being issued separately.

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			Rolling Stock, and tested to the satisfaction of the Employer, in either case, as certified by the Employer /Engineer.	payment as Bank Guarantee by the contractor will involve a huge burden on the contractor and such Bank Guarantee may not be possible to be provided. No contract in India on Metro projects has such a stipulation till date and this should be deleted. Please confirm.	
1082	Volume VI, PD, Preamble	2.1.14 (5 of 47)	The Contractor shall submit a Safe Custody Bank Guarantee as per form annexed as Annexure – 11 to Instructions to Tenderer (Volume I) against payments made for the Plants and Materials dispatched from manufacturer's works for final delivery under the Contract. The amount of safe custody Bank Guarantee shall be equal to 95%percent of the amount due as per relevant Cost Centre wherever applicable. The value of the Safe Custody Bank Guarantee would be adjusted for	Since we are already Submitting Advance Guarantee and Performance guarantee, we request you to consider removal of SBG requirement from the tender.	Corrigendum – 3 is being issued separately.

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			the Rolling Stocks and/or Plants & Materials (respective Systems) already installed at site or in the Rolling Stock, and tested to the satisfaction of the Employer, in either case, as certified by the Employer /Engineer.		
1083	Volume VI, PD, Preamble	2.1.14 (5 of 47)	The Contractor shall submit a Safe Custody Bank Guarantee as per form annexed as Annexure – 11 to Instructions to Tenderer (Volume I) against payments made for the Plants and Materials dispatched from manufacturer's works for final delivery under the Contract. The amount of safe custody Bank Guarantee shall be equal to 95%percent of the amount due as per relevant Cost Centre wherever applicable. The value of the Safe Custody Bank Guarantee would be adjusted for the Rolling Stocks and/or Plants & Materials (respective Systems)	Since we are already Submitting Advance Guarantee and Performance guarantee, we request you to consider removal of SBG requirement from the tender.	Corrigendum – 3 is being issued separately.

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			already installed at site or in the Rolling Stock, and tested to the satisfaction of the Employer, in either case, as certified by the Employer /Engineer.		
1084	Volume VI, PD, Preamble	2.6.1 (8 of 47)	<p>MILESTONE PAYMENT SCHEDULE (MPS)</p> <p>The MPS completed by the Contractor shall set out the maximum cumulative amount for all Cost Centres put together in relation to each month for which payment for that Cost Centre may be sought in accordance with Clause 14 of the GC and corresponding PC if any. This information should also be presented in graphic and tabular form. The Tenderer shall also submit Monthly cash flows for the Contract as a whole. Both Milestone Payment Schedules and Monthly cash flows shall be submitted for each currency of</p>	Kindly clarify where to provide MPS schedule under Financials submission section.	Corrigendum – 3 is being issued separately.

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			the Contract separately.		
1085	Volume VI, PD, Preamble	2.3.6 (8 of 47)	Further, the sum of the amounts apportioned to Cost Centres 'A' and 'B' (i.e. BHSTCCA, BHSTCCB, INSTCCA and INSTCCB) of a Section shall not exceed 4% and 9% respectively of the "Total Lump Sum" amount for that Section. The sum of amount apportioned to Cost Centre "D" and "E" (i.e. BHSTCCD, BHSTCCE, INSTCCD and INSTCCE) of a Section shall not be less than 18% and 9% respectively of the "Tender Total Sum" amount for that Section.	We Request employer to amend the apportionment in line with other ongoing tenders (Kolkata) to reduce minimum apportionment of 18% to cost center "D" (BHSTCCD, INSTCCD) to 9% in line with cost structure of "tender total Sum" amount of that section.	The Tender Conditions shall prevail.
1086	Volume VI, PD, Preamble	2.16.1.1 (c), 2.16.1.2 (c), 2.16.1.3 (c) (11 of 47)	Pricing Mechanism for order up to Completion of the Whole of the Works for Bhopal and Indore Metro 2.16.1.1 For Main Line / 2.16.1.2 For Depot (Extension/ new	Please specify the date by which Employer will seek the quantity of spares & special tools required. This is required for cost computation.	As the Contractor shall be liable for DLCMP as well, the Contractor need to plan required Spares and Special Tools, etc. and the Contract Price shall be deemed inclusive. Variations if any due to

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			depots) / 2.16.1.3 For On Board equipment for the Trains: c. In respect of Spares and Special Tools, the price will be determined on the basis of unit rate given in the offer and the quantity decided by the Employer		change in scope as per Contract Conditions shall also be deemed inclusive of additionally required Spares and Special Tolls, etc. for varied scope. The Tender Conditions shall prevail.
1087	Volume VI, PD, Preamble	4.9 (8), 2nd sentence (26 of 47)	For every 10% change in actual average annual kilometre earning, the DLCMP Fee shall be adjusted by 2% of Average	As change in price with change in mileage is non-linear (due to factors like major overhauls, staffing etc), request customer to provide a ceiling on percentage of mileage change as a substantially higher mileage may overshoot the price adjustment factor of 2%.	The Tender Conditions shall prevail.
1088	Volume VI, PD, Preamble	6.3 (36 of 47)	COST CENTRE C – MANUFACTURE AND DELIVERY (i.e., Cost Centres BHSTCCC and INSTCCC)	We request you to clarify on the thresholds of each Cost centre.	Minimum or maximum limits if any; are mentioned in Pricing Document Sub-Clauses and in last columns of Financial Bid, for compliance. Refer Notes.

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					The Tender Conditions shall prevail.
1089	Volume VI, PD, Financial Bid	SECTION-BHRSDLCMP , SI. No. 1 (4 of 16)	Defect Liability and Comprehensive Maintenance for 27 Number of Rolling Stock Trainsets, Special Tools, Jigs, Fixtures, Gauges, Testing & Diagnostic Equipment as stated in the Employer's Requirements and any other Equipment required for DLCMP obligations, at Bhopal (Apportioned Amounts and INR portion shall not be less 90% of "Total equivalent INR")	IN BOQ document, section-BHRSDLCMP, it is mentioned that INR portion shall not be less than 90% of total cost. We request MPMRCL to delete this 90% threshold, as it may lead to FE risk exposure to the contractor. Further, recent other tender does not have this kind of threshold stipulated. Please delete 90% threshold. We request MPMRCL to remove year wise apportionment percentages of DLCMP and let the bidder decide on this aspect. Otherwise, this may lead to cashflow implications and add	The Tender Conditions shall prevail.

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				up to cost. Further, recent other tender does not have this kind of apportionment. Please consider.	
1090	Volume VI, PD, Financial Bid	SECTIONS-BHRSDLCMP and INRSDLCMP, Sl. No. 1 (4 of 16)	ITEM #1	We understand the price to be quoted for Eur and USD portion (cell no. E11 & F11 respectively) shall be in equivalent INR. Please confirm our understanding is correct.	Amount under respective column need to be quoted in respective currencies only. The Tender Conditions shall prevail.
1091	Volume VI, PD, Financial Bid	SECTIONS-BHRSDLCMP and INRSDLCMP, Sl. No. 1 (4 of 16)	Defect Liability and Comprehensive	If the DLCMP commences from revenue operation of first train set and ends 15 years after that, we understand that the price to be quoted is for maintenance of full fleet (Bhopal/Indore respectively) for 15 years without considering the delivery phasing. However, payment for DLCMP will be as per apportioned yearly maintenance fee in the price schedule. Hence	Refer Corrigendum – 3 being issued separately with respect to DLCMP commencement and end: "This period of 15 Years for Rolling Stock shall commence from Revenue Operations of first Train-set and shall end on completion of 15 Years, subject to extension of period if any in accordance with Conditions of Contract Sub-Clause 13.3.1.". Understanding is correct and the

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				<p>the contract price for DLCMP would be less than the quoted price as trains delivered at later phase will not complete 15 years of maintenance.</p> <p>Please confirm our understanding is correct.</p>	<p>Contract Price shall be deemed inclusive.</p> <p>The Tender Conditions shall prevail in this regard.</p>
1092	Volume VI, PD, Financial Bid	SECTIONS-BHRSDLCMP and INRSDLCMP, SI. No. 1 (4 of 16)	<p>Defect Liability and Comprehensive Maintenance for 27 Number of Rolling Stock Trainsets, Special Tools, Jigs, Fixtures, Gauges, Testing & Diagnostic Equipment as stated in the Employer's Requirements and any other Equipment required for DLCMP obligations, at Bhopal (Apportioned Amounts and INR portion shall not be less 90% of "Total equivalent INR")</p> <p>&</p> <p>Defect Liability and Comprehensive Maintenance for 25 Number of Rolling Stock</p>	<p>We understand there is a cap being imposed on foreign currency component for DLCMP up to 10%, however in current scenario most of the critical components example electronic cards, Safety critical brake components, test benches are still being imported. Hence, we request customer to decrease the cap for INR to 85% and correspondingly increase the capping for foreign currency to 15%</p>	<p>The Tender Conditions shall prevail.</p>

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			<p>Trainsets, Special Tools, Jigs, Fixtures, Gauges, Testing & Diagnostic Equipment as stated in the Employer's Requirements and any other Equipment required for DLCMP obligations, at Indore (Apportioned Amounts and INR portion shall not be less 90% of "Total equivalent INR")</p>		
1093	Volume VI, PD, Financial Bid	SECTION- INRSDLCMP, SI. No. 1 (6 of 16)	<p>Defect Liability and Comprehensive Maintenance for 25 Number of Rolling Stock Trainsets, Special Tools, Jigs, Fixtures, Gauges, Testing & Diagnostic Equipment as stated in the Employer's Requirements and any other Equipment required for DLCMP obligations, at Indore (Apportioned Amounts and INR portion shall not be less 90% of "Total equivalent INR")</p>	<p>IN BOQ document, section- INRSDLCMP, it is mentioned that INR portion shall not be less than 90% of total cost. We request MPMRCL to delete this 90% threshold, as it may lead to FE risk exposure to the contractor. Further, recent other tender does not have this kind of threshold stipulated. Please delete 90% threshold. We request MPMRCL to remove</p>	The Tender Conditions shall prevail.

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				<p>year wise apportionment percentages of DLCMP and let the bidder decide on this aspect. Otherwise, this may lead to cashflow implications and add up to cost. Further, recent other tender does not have this kind of apportionment.</p> <p>Please consider.</p>	
1094	Volume VI, PD, Financial Bid	BHSTBOQ and INSTBOQ (9 of 16)	-	<p>We would request you to provide minimum BoQ for Telecom package as this is a standard practice and has been provided in various past tenders. (Ex: Kolkata Metro, Kanpur Agra Metro, Bangalore Metro, Pune Line 1&2 Metro)</p>	<p>Since this is design & built contract, the OEM shall suggest as per Design requirements for Bhopal and Indore separately.</p> <p>The Tender Conditions shall prevail.</p>
1095	Volume VI, PD, Financial Bid	General (16 of 16)	ATS training simulators	<p>The tender asks for 4 ATS training simulators. Our recommendation here is to consider reducing this number to optimize cost as this can be</p>	<p>Provisions are made in Financial Bid "BHSTBOQ" and "INSTBOQ" for ATS Training Simulators as being supplied either from abroad or domestically or partly in</p>

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				shared across corridors.	combination thereof, under respective items. However, 2 ATS training simulators - one each for Bhopal and Indore respectively to be provided. The Tender Conditions shall prevail.
1096	Volume VI, PD, Financial Bid	General (16 of 16)	-	The minimum BoQ of Telecommunication equipment is sought, as is common practice in metro S&T tenders.	Since this is design & built contract, the OEM shall suggest as per Design requirements for Bhopal and Indore separately. The Tender Conditions shall prevail.
1097	Volume VI, PD, Financial Bid	General (16 of 16)	-	We also request you to provide cost indexation for foreign currency exchange rate if the contractor has quoted a part value in foreign currency for 7 year STDLCMP period.	The Tender Conditions shall prevail.

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1098	General	-	-	<p>Telephony product “EPABX/IP PBX” is earmarked for purchase from domestic manufacturers meeting the desired value addition in India as capability and capacity to manufacture this product is available in India. Product is covered under category 3a of the PPP MII order issued by DPIIT which has to be mandatorily procured from domestic manufacturers as nodal ministry has clearly stated that sufficient capacity and capability exists in the country for design and manufacture of Soft switch / IMS / PABX/ IP PBX systems. Hence the following clause must be added in the tender.</p> <p>“Only Class-I local suppliers are eligible to participate in Tender in line with the govt policy “Public Procurement (Preference to</p>	The Tender Conditions shall prevail.

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				Make In India), Order 2017' (PPP- MII Order) dated 16.09.2020 and its subsequent revisions / amendments issued by Department of Industrial Policy and Promotion (DIPP)".	
1099	General	-	-	The offered model/System should be TEC approved as per TEC specification number TEC/GR/SW/PBX-005/01/Sept-16 or latest which is mandatory for server media gateway architecture (IP Core switching) with IPv4 & IPv6 ready.	The Tender Conditions shall prevail.
1100	General	-	-	We also want to highlight another Govt. Notification dated:23-July-2020 which must be added in your tender for a fair participation. "Restrictions on procurement from a bidder of a country which shares a land border with India, any bidder from a country which shares a	Land Border sharing clause shall not be applicable. The Tender Conditions shall prevail.

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				land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action in accordance with the laws.”	
1101	General	-	Indore Mainline	Since Indore mainline is a circle line, Bidder requests employer to clarify that how the train service is planned. Whether it will be a circular movement or terminal to terminal turn back.	This shall be finalised during detailed design stage. The Tender Conditions shall prevail.
1102	General	-	BCC Location	Bidder requests customer to confirm the BCC location for both Bhopal and Indore metro.	Location of BCC for Bhopal is proposed at Pulbogda Station and BCC for Indore is proposed at Vijaya Nagar Square Station.

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					The Tender Conditions shall prevail.

Managing Director
Madhya Pradesh Metro Rail Corporation Limited
Bhopal