

Corrigendum No. 8

Date:-05.05.16

Tender Notice No. N1RS-1/2016. (ICB), Dt.25.01.2016

Date of Pre-Bid Meeting:- 9th March 2016

Tender No (As uploaded in the e-tender portal) – No 25

Name of work: DESIGN, MANUFACTURE, SUPPLY, TESTING, COMMISSIONING OF PASSENGER ROLLING STOCK (ELECTRICAL MULTIPLE UNITS) AND TRAINING OF PERSONNEL AT NAGPUR METRO RAIL PROJECT.

SN	Part No.	Section	Clause ref.	Existing description	Replaced with
1.	Part 1	Section III	Evaluation and Qualification Criteria	<u>The 2nd para amended</u> Wherever a Bidder is required to state a monetary amount, Bidders should indicate the USD equivalent using the rate of exchange determined as follows:	Wherever a Bidder is required to state a monetary amount, Bidders should indicate the INR equivalent using the rate of exchange determined as follows:
2.	Part 1	Section III-B, Annexure III-B (Pricing Document)	Annexure 2: Milestone Payment Schedule (Monthly cash flow ...)	Item no. 2 The amount of Cost Centre "H" and Cost Centre "I" will not be included in the Monthly Cash Flows	Item no. 2 deleted
3.	Part 1	Section IV, Annexure IV-C (Technical Proposal)	Table 3	Criteria for technical qualification of the bogie manufacturer The bogie proposed to be supplied against this Bid shall be of proven design principles. Similar bogies as proposed for this Bid (Standard gauge with TBU [tread brake unit] or the proposed brake system), should have established their satisfactory performance and reliability on at least one mass rapid transits in revenue service over a period of 3 years or more either	Criteria for technical qualification of the bogie manufacturer The bogie proposed to be supplied against this Bid shall be of proven design principles. Similar bogies as proposed for this Bid, should have established their satisfactory performance and reliability on at least one mass rapid transits in revenue service over a period of 3 years or more either outside country of origin or in Indian metros / railway system

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				outside country of origin or in Indian metros / railway system	
4.	Part 2	Section VII-B (ERTS)	3.22.1, Table 3.7	The following item of Table 3.7 amended Minimum Schedule Speed (kmph) 34 kmph	Minimum Schedule Speed (kmph) for North-South Corridor 32 kmph
5.	Part 2	Section VII-B (ERTS)	3.21.3 (ii)	The maximum tare weights of a 3-car train (DM-T-DM) shall not exceed 125 tonnes (including IEC tolerances) subject to gross axle load not exceeding 16 tonnes. The weight limits specified herein i.e. tare weight limit of the train and gross axle load limit (tare plus AW3 load) are inclusive of all tolerances permitted in the IEC 1133.	The maximum tare weights of a 3-car train (DM-T-DM) shall not exceed 128 tonnes (including IEC tolerances) subject to gross axle load not exceeding 16 tonnes. The weight limits specified herein i.e. tare weight limit of the train and gross axle load limit (tare plus AW3 load) are inclusive of all tolerances permitted in the IEC 1133.
6.	Part 2	Section VII-B (ERTS)	3.22.3 A.	Normal (Coasting) Mode: Normal mode shall be used to calculate the schedule speed. The Tenderer shall calculate the Schedule Speed based on the followings: <ul style="list-style-type: none"> Accelerate the train using the specified performance characteristics at the ERTS 3.21.1 and their proposed TE/BE curves. Atleast 10% coasting time (% of Run Time under All-out mode) to achieve the scheduled speed Turnback time of 6 minutes and dwell time of 30 seconds at each station shall be considered Achieve rate of deceleration of not less than 1.0m/s² from at least 70 kmph running speed till 10 kmph with dynamic brake only and with blended brake from 10 kmph till the train comes to a stop. The Regenerative braking power shall be constant from 80 kmph to 70 kmph. Full Service Brake requirements for speed range of 70 kmph to 10 	Normal (Coasting) Mode: Normal mode shall be used to calculate the schedule speed. The Tenderer shall calculate the Schedule Speed based on the followings: <ul style="list-style-type: none"> Accelerate the train using the specified performance characteristics at the ERTS 3.21.1 and their proposed TE/BE curves. Atleast 10% coasting time (% of Run Time under All-out mode) to achieve the scheduled speed Dwell time of 30 seconds at each station shall be considered (turnback time not to be considered for determining scheduled speed) Achieve rate of deceleration of not less than 1.0m/s² from at least 70 kmph running speed till 10 kmph with dynamic brake only and with blended brake from 10 kmph till the train comes to a stop. The Regenerative braking power shall be constant from 80 kmph to 70 kmph. Full Service Brake

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				<p>friction brake. The regenerative power shall be used to the maximum extent possible.</p> <ul style="list-style-type: none"> The above steps should be taken in a manner such that prescribed scheduled speed is maximized and energy consumption is minimized. 	<p>with regeneration brakes only i.e. without any friction brake. The regenerative power shall be used to the maximum extent possible.</p> <ul style="list-style-type: none"> The above steps should be taken in a manner such that prescribed scheduled speed is maximized and energy consumption is minimized.
7.	Part 2	Section VII-B (ERTS)	3.22.6	<p>The round trip running time, under All-out Mode, for a train loaded with 500 passengers and with one motor coach cut-out, shall not be more than the scheduled round trip time as declared by the Contractor vide ERTS 3.22.3. In such case the operation may be high TE mode. Under such operation conditions the temperature rise of the propulsion equipment shall not exceed the respective thermal ratings and the train shall be able to start and move on a UP gradient of 4%.</p>	<p>The round trip running time, under All-out Mode, for a train loaded with 500 passengers and with one bogie of a motor coach (i.e. 25% motors of a train) cut-out, shall not be more than the scheduled round trip time as declared by the Contractor vide ERTS 3.22.3. In such case the operation may be high TE mode. Under such operation conditions the temperature rise of the propulsion equipment shall not exceed the respective thermal ratings and the train shall be able to start and move on a UP gradient of 4%.</p>
8.	Part 2	Section VII-B (ERTS)	3.24.2	<p>SEC of propulsion system (henceforth mentioned as SEC_P) shall be calculated for round trip of complete sections with 34kmph schedule speed of AW2 loaded train. For calculation of SEC_P, full auxiliary load with 100% duty cycle BUT excluding HVAC, shall be considered along with the propulsion load. The Committed Energy values (SEC) are at pantograph level. SEC_P, as above, shall not be more than 30 Wh/tonne/km.</p>	<p>SEC of propulsion system (henceforth mentioned as SEC_P) shall be calculated for round trip of complete sections with schedule speed of AW2 loaded train. For calculation of SEC_P, full auxiliary load with 100% duty cycle BUT excluding HVAC, shall be considered along with the propulsion load. The Committed Energy values (SEC) are at pantograph level. SEC_P, as above, shall not be more than 34 Wh/tonne/km for North South Corridor.</p>
9.	Part 2	Section VII-B (ERTS)	4.15.2 (ii)	<p>The headroom in the inter-car gangway area shall be at least 1900mm, and the clear width through at least 1900mm.</p>	<p>The headroom in the inter-car gangway area shall be at least 1900mm, and the clear width through at least 1400mm and preferably wider (as close to 1900mm as possible).</p>
10.	Part 2	Section VII-B	5.1.3	<p>The bogies shall be of the two axle bolster less type</p>	<p>The bogies shall be of the two axle bolster less type</p>

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		(ERTS)		incorporating a proven primary suspension system such as metal bonded rubber springs. The use of helical coil steel springs will not be acceptable. Calculation supporting the selection of axles and bearings shall be submitted for review and approval by the Engineer. Bogie-body connection shall preferably be through resilient transmission bar arrangement.	incorporating a proven primary suspension system such as metal bonded rubber springs or helical coil steel springs. Calculation supporting the selection of axles and bearings shall be submitted for review and approval by the Engineer. Bogie-body connection shall preferably be through resilient transmission bar arrangement.
11.	Part 2	Section VII-B (ERTS)	8.4.1	Gapless type lightning arresters of proven design in accordance with specification IEC 60099-4 shall be provided on the roof. One LA shall be provided on incoming side after the pantograph and another LA shall be provided before the HT Transformer Bushing after the VCB, for protection against line voltage transients caused by lightning or system switching. The LA shall be rated for not less than 42kV with compatible rupture capacity. The failure of arrester shall not be explosive in any case. No splintering etc. shall be permissible. This shall be included in the type test plan. The arrester shall be exposed to line harmonics and line voltage / frequency fluctuations. Contractor is advised to take actual measurements before design. Frequency fluctuation of the order 47Hz to 54Hz may be considered as datum.	Gapless type lightning arresters of proven design in accordance with specification IEC 60099-4 shall be provided on the roof. One LA shall be provided on incoming side after the pantograph and another LA shall be provided before the HT Transformer Bushing after the VCB, for protection against line voltage transients caused by lightning or system switching. The LA shall be rated for not less than 42kV with compatible rupture capacity. The failure of arrester shall not be explosive in any case. No splintering etc. shall be permissible. This shall be included in the type test plan. The arrester shall be exposed to line harmonics and line voltage / frequency fluctuations. Contractor is advised to take actual measurements before design. Frequency fluctuation of the order 48Hz to 52Hz may be considered as datum.
12.	Part 2	Section VII-B (ERTS)	10.2.10	The TCMS architecture, functionality and redundancy level shall be compatible with the UTO mode of operation.	The TCMS architecture, functionality and redundancy level shall be compatible with the ATO mode of operation.
13.	Part 2	Section VII-B (ERTS)	14.22	New Clause	14.22 Cable & Pipes Entries Seal 14.22.1 To prevent entry & ensure foolproof protection against water, dust, humidity, insulation damage / failure, fire, vibrations, temperature variations, pull tension noise as well as rodents etc. & increasing life of Cable / equipment, all the Cable & Pipe transits in all

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					<p>cars including rooftop shall be sealed with EPDM Modular based Cable & Pipe sealing system with multi-diameter technology. The EPDM (Ethylene - Propylene Diene Monomer) should be "Low Smoke Index, Halogen free cross-linkable rubber compound.</p> <p>14.22.2 Sealing & Protection application area of Rolling Stock</p> <p>(i) Sealing application areas: cable & pipe penetration through floor wall (in & out), roof top area (in & out), below driver desk areas, bulk wall between Machine room & driver cab area, entry of 25 kV cable through rooftop, converter & inverter cabinets, traction motor terminal box, roof mounted AC package units etc.</p> <p>(ii) Protection for transit cables: Cable Transit System with EPDM modules should be used for holding / retention of running power cables & control cables, HT cables at under frame.</p> <p>14.22.3 Tech Details of EPDM Modular System:</p> <ul style="list-style-type: none">• The Modules should made of halogen free EPDM (Ethylene Propylene Diene Monomer) with Low Smoke Index, cross-linkable rubber compound. Low Smoke & Toxicity index. Minimum F1 class as per standard NF F 16-101 & NF F 16-102.• Heat radiation classification - M2 class as per NF-P 92-512.• The said Modular system must be type tested for the Water/Fire/gas tightness.• The Modular based Cable Sealing & Protection

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					<p>system/Cable Transit System with EPDM Modules conforming to IP 54/55 for Cable Retention/Holding of transit cables, enclosures / Panel & Cabinets etc. & IP67 for sealing applications as per IEC: 60529.</p> <ul style="list-style-type: none"> • EPDM Modular System shall be Fire resistance more than 02 hours as per UL-1479 & Fire Flammability resistance shall be of UL (V-0) as per UL94 & integrity & EI 120 as per BS 476. Valid Fire Certification should be from UL. • Vibration conform to Category A, Class 1 As per IEC 61373.
14.	Part 2	Section VII-B (ERTS)	Annexure 1/TD	<p><u>Following item from the Table amended</u></p> <p>Average acceleration rate for crush loaded (AW2) train on level tangent track shall be as under:</p> <ul style="list-style-type: none"> • 0 kmph to 30kmph: 1.2 m/sec² • 0 kmph to 60 kmph: 0.65 m/sec² • 0 kmph to 80 kmph: 0.35 m/sec² 	Deleted
15.	Part 2	Section VII-B (ERTS)	Annexure 1/TD	<p><u>Following item from the Table amended</u></p> <p>Tare weight cars (maximum) ... 125T for 3-car unit with weight of any car not exceeding 43T</p>	Tare weight cars (maximum) ... 128T for 3-car unit
16.	Part 3	Section X	Performance Security (Demand Guarantee)	The form amended	Refer to attachment for revised form
17.	Part 3	Section X	Advance payment security (Demand Guarantee)	The form amended	Refer to attachment for revised form

Substituted

SN	Part No.	Section	Clause ref.	Existing description	Replaced with
			(Demand Guarantee)		
18.	Part 3	Section X	Retention money security (Demand Guarantee)	The form amended	Refer to attachment for revised form



**General Manager/Procurement,
Nagpur Metro Rail Corporation Limited.**

Performance Security Option 1: (Demand Guarantee)

Beneficiary: _____
Date: _____
PERFORMANCE GUARANTEE No.: _____
Guarantor: _____

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.
At the request of the Applicant, we as Guarantor, waiving all objections and defences under the aforementioned contract, hereby irrevocably and independently undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's first demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant has failed to duly perform the aforementioned contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

In the event that any amount to be paid under this guarantee, payments shall be remitted to a special account of the Borrower in the country of the Borrower, which

¹ The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.
² Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

may be drawn on only with the consent of KfW.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Advance Payment Security

Demand Guarantee

Beneficiary: _____

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (_____) is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, waiving all objections and defences under the aforementioned contract, hereby irrevocably and independently undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's first demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant has failed to duly perform the aforementioned contract.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number _____ at _____.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, no later than _____ [date]. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

¹ The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

In the event that any amount to be paid under this guarantee, payments shall be remitted to a special account of the Borrower in the country of the Borrower, which may be drawn on only with the consent of KfW.

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Retention Money Security

Demand Guarantee

_____ [Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____ [Insert name and Address of Employer]

Date: _____ [Insert date of issue]

RETENTION MONEY GUARANTEE No.: _____ [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

We have been informed that _____ [insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture] (hereinafter called "the Applicant") has entered into Contract No. _____ [insert reference number of the contract] dated _____ with the Beneficiary, for the execution of _____ [insert name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of [insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security] is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, waiving all objections and defences under the aforementioned contract, hereby irrevocably and independently undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ [insert amount in figures] (_____) [amount in words]¹ upon receipt by us of the Beneficiary's first demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or

¹ The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.

identifying the demand, stating that the Applicant has failed to duly perform the aforementioned Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Applicant on its account number _____ at _____ *[insert name and address of Applicant's bank]*.

This guarantee shall expire no later than the day of, 2...², and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

In the event that any amount to be paid under this guarantee, payments shall be remitted to a special account of the Borrower in the country of the Borrower, which may be drawn on only with the consent of KfW.

² *Insert the same expiry date as set forth in the performance security, representing the date twenty-eight days after the completion date described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*