General Bid Bulletin No.6
23 December 2020

IFB No. PB20-023-4

THE MALOLOS-CLARK RAILWAY PROJECT
AND THE
NORTH-SOUTH COMMUTER RAILWAY EXTENSION (NSCR-EX) PROJECT

PACKAGE CP NS-02: ROLLING STOCK COMMUTER TRAINSETS

TO ALL PROSPECTIVE BIDDERS:

This General Bid Bulletin is issued to amend/clarify certain provisions in the Bidding Documents for the abovementioned project. Please refer to the attached Annexes of this General Bid Bulletin duly approved by the end-user and co-implementer for details:

1. Annex "A" – **Answers to Queries from Prospective Bidders including Clarifications to the Bidding Documents;**

2. Annex "B" – **Revisions to the Bidding Documents**

All other portions of the Bidding Documents affected by these revisions, amendments and/or clarifications shall be made to conform to the same.

Revisions/amendments/clarifications made herein shall be considered an integral part of the Bidding Documents for this project.

For your information and guidance.

For the Bids and Awards Committee IV:

SIGNATURE REDACTED

JOSEPH CONRAD D DUEÑAS
Chairperson

North – South Commuter Railway Extension
(NSCR-EX) Project

MEMORANDUM:

TO	:	**THE CHAIRMAN AND MEMBERS** Bids and Awards Committee IV
THRU	:	**THE BAC SECRETARIAT**
FROM	:	**THE JOINT TECHNICAL WORKING GROUP (TWG) FOR CONTRACT PACKAGE NS-02**
SUBJECT	:	**GENERAL BID BULLETIN NO. 6**
DATE	:	**22nd December 2020**

This Memorandum serves as an endorsement of the contents and attachments[1] of General Bid Bulletin No. 6, as prepared and recommended by the tender assistant, GCR Consortium, and endorsed by the Joint Technical Working Group (TWG) for Contract Package NS-02: Rolling Stock – Commuter Trainsets.

The TWG is respectfully submitting the contents of General Bid Bulleting No. 6, for the BAC's review and approval.

Respectfully Submitted By:

SIGNATURE REDACTED

ENGR. NARCISO PRECLARO JR.
Primary Member

SIGNATURE REDACTED

ENGR. ALFONSO ANDALEON
Primary Member

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ATTY. CRESIELDA ECALNEA
Primary Member

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ENGR. WARREN ZINGAPAN
Primary Member

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MR. ROMMEL RIVERA
Primary Member

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MR. WAN KHAIRUL ANUAR
Representative,
Greater Capital Railway,
Member

[1] Annex A and B, including its attachment, for GBB6 are attached to this Memorandum

Annex A

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
1	-	Bidder understands that Operational Rules of Special Terms for Economic Partnership (STEP) of Japanese ODA Loans (“Guideline”) is applying to this project, and would like to clarify our understanding of Section 6, which stipulates country of origin of goods and services procured under STEP loans, of this Guideline. Bidder understands that this project shall be subject to (1), (b), (ii) of this section 6, thus, not less than thirty percent (30%) of the total price of contract(s) (excluding consulting services) shall be accounted for by either (i) goods from Japan and services provided by a Japanese company(ies), or (ii) goods from Japan only, depending on the nature of the project. According to this Guideline, Bidder reads that the final assembly or the final refinement/processing of the		Bidder understanding is correct.

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		goods needs to be carried out either in Japan or companies that meets the requirement stated in (i) – (iii) under (2), (a) of Section 6, to be included in the calculation of that 30% ratio. Please confirm if Bidder's understanding is correct.		
2	1, Section II BDS-6 ITB 24.1	The current deadline of bid submission is until 10:00am on 16th December, 2020, however, Bidder would like to request its extension for our best and bona fide bid proposal, with following reason. - Due to outbreak of Coronavirus (COVID-19) all over the world, Bidder and its sub-suppliers in Japan still have to reduce normal business operation and it has been affecting our bid preparation work seriously. Thus, Bidder kindly request to extend deadline a month, up to 18th January, 2021.		Bid submission dead line has been changed to 15 January 2021. Please refer to GBB No. 5.

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3	1 Section IV BF-57,58 Schedule 3: LIST OF JAPANESE ORIGIN, GOODS AND SERVICES, FORM SCJ: Summary for the Table Cost of Goods and Services Procured from Japan	For calculation of General Administration Expenses, 7.47% is multiplied to Total Bid Amount excluding VAT in BF-57. On the other hand, 7.41% is multiplied to Total Price Schedules plus Provisional Sums and VAT for calculation of General Administration Expenses in BF-58. Bidder understands the same ratio shall be used for calculation of the same name of Expenses. Please confirm if Bidder`s understanding is correct. If yes, please inform Bidders which ratio shall be used.		For the General Administrative Expenses , referring to the Section 6 item (2) (c) (iii) in the Operational Rules of Special Terms for Economic Partnership (STEP) of Japanese ODA Loans published by JICA. The rate is determined based on the rate that is applied to the general administrative expenses of a contract whose construction cost exceeds JPY 3 billion in accordance with the relevant guidelines issued by Ministry of Land, Infrastructure and Transport of Japan, the rate was 7.41% (Footnote 21 in Page 7) as of February 2017. Addendum is issued. Please refer to Annex B Attachment 1.
4	Volume I, Part I, Section III, EQC-12 2. Proposed Project Management Plan	For safety related personnel, item No.8 on the table of EQC-13 states "Health & Safety (Accident Prevention) Officer". On the other hand, Sub-clause 4 of ERG states "Safety Officer". In addition, Sub-		Bidder`s understanding is correct. Addendum is issued. Please refer to Annex B Attachment 1.

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		clause 10 of ERG states "Safety Manager". It is Bidder's understanding that the above mentioned personnel indicate the same person and shall be read as Health & Safety (Accident Prevention) Officer. Please confirm if Bidder's understanding is correct.		
5	Volume I, Part I, Section III, EQC-14 4. Proposed Major Plant and Equipment	"No.9 Curve Test Facility" is listed in "No.4 Proposed Major Plant and Equipment" in Sub-clause 3.4.2 of EQC, which "The Bidder must demonstrate that it has key construction plant and equipment listed hereafter". It is Bidder's understanding that the "No.9 Curve Test Facility" is a facility for static test which assures the bogie and carbody pass smoothly through the tightest curve specified in ERT. Please confirm if Bidder's understanding is correct.		Bidder`s understanding is correct.

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6	Volume I, Part I, Section III, EQC-14 4.	"No.4 Proposed Major Plant and Equipment" in Sub-clause 3.4.2 of EQC states “No.3 Body Loading Test Facility” is "to be mobilized to the port/Depot/Site". However, such body loading test facility is usually located at the rolling stock manufacturing factory and not easy to be moved. It is considered appropriate as only being available at the manufacturer’s facility. Bidder requests Employer to revise the requirement of this No.3 facility as follows: "Items nos. 1 to 2 – to be mobilized to the port/Depot/Site Item nos. 3 to 8 – available at the manufacturer’s facility"		Bidder`s request is accepted. Item 3 will be required to be made available at the manufacturer`s facility. Addendum is issued. Please refer to Annex B Attachment 1.
7	Volume I, Part I, Section III, Volume II, Part 2,	It is Bidder’s understanding that based on Sub-clause 1.6 4) and 7) of SOW, CP NS-02 scope is to provide only simulator parts, not the entire simulator to		Bidder`s request is accepted. Addendum is issued. Please refer to Annex B Attachment 1.

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<table>
<tr><th>Item No.</th><th>Volume Section No.
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<td></td>
<td>EQC-16
5.Proposed Subcontractors/Manufacturers for Major Items of Plan and Installation Services.

BF-17
APPENDIX7.3:

BF-83
Form SUB:

ERT-136
27.1.2 Shipping</td>
<td>Employer. Also, Subclause 25.1 of ERT and BF-44 state CP NS-01 is the Driving Simulator Contractor. However, some sections in the Bidding Documents seem to require Bidder to provide the entire simulator, which are listed in the chart below. Bidder requests Employer to revise such sections so that the contradicted requirements concerning provision of the simulator itself should be deleted.
<table>
<tr><th>Page No.</th><th>Sub-clause</th><th>Requirement</th></tr>
<tr><td>EQC-16</td><td></td><td>No.18 Train Operation Simulator</td></tr>
<tr><td>BF-17</td><td>Appendix 7.3</td><td>2.1.4 g) Preliminary schematic and block diagrams such as</td></tr>
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				propulsion, brake, train management system, door control and auxiliary system, air supply diagram, air conditioning, communication system and train simulator.		
		BF-83		18. Train Operation Simulator		
		ERT-136		27.1.2 The Contractor shall prepare a shipping		

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		manual to cover the shipping of all items covered under the Contract, including cars, spare parts and simulator.		
8	Volume I, Part I, Section IV, BF-25, APPENDIX 7.8:SUPPLY SOURCE OF CAPITAL SPARE PARTS,CONSUMABLES AND SPECIAL TOOLS,JIGS AND TEST EQUIPMENT	The first paragraph of Page BF-25 states “The Bidder shall furnish a preliminary plan for the supply source of spare parts, special tools, and consumables, etc., in accordance with the Employer’s Requirements, Technical Specifications Clause 24.2.3, Guaranteed Period of Spare Parts, from the date of completion of the DNP.”		Bidder understanding is correct. Appendix 7.8 section has been revised to “The Bidder shall furnish a preliminary plan for the supply source of spare parts, special tools, and consumables, etc., in accordance with the Employer’s Requirements.” Addendum is issued. Please refer to Annex B Attachment 1

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		Since the cited Clause "24.2.3" does not meet its title "Guaranteed Period of Spare Parts, from the date of completion of the DNP", however, Bidder understands that the first paragraph in Page BF-25 can be granted as below. "The Bidder shall furnish a preliminary plan for the supply source of spare parts, special tools, and consumables, etc., in accordance with the Employer's Requirements." Please confirm if Bidder's understanding is correct.		
9	Volume I, Part I, Section IV, BF-54 SCHEDULE OF ADJUSTMENT DATA	On page BF-54 "TABLE OF ADJUSTMENT DATA, Table B. Foreign Currency (FC)", the indices to be cited for L:Labor, E:Equipemt and M:Material are not shown in (c) column "Source of Index" of the Table. Bidder would like Employer to accept cited indices below in order		Bidder request is not accepted. The foreign currency portion (Japanese Yen) of the fixed portion of the Contract Price shall be adjusted by applying the Consumer Price Index of all Japanese items published by the Statistics Bureau of Japan.

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		to complete filling in this Table properly, because it is not clear what indices are required to cite. L: Consumer Price Index (All Items), published by the Statistics Bureau of Japan E: Producer Price Index (2015 Base) / Transportation equipment published by Bank of Japan M: Input Price Index / Major sector / Transportation equipment published by Bank of Japan		The source of index for the foreign currency other than Japanese Yen shall be proposed by the Bidder. The base value and date for the relevant index shall be indicated by the Bidder and the copy of the reference index shall be attached hereto for identification purpose. Base value means the base cost indices or reference prices on the Base Date (GC 13.8) which is the date twenty-eight (28) days prior to the latest date for submission of the Bid. The applicable Indexes shall be finalized during the contract negotiation. Addendum is issued. Please refer to Annex B Attachment 1.

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10	Volume I, Part I, Section IV, BF-53 SCHEDULE OF ADJUSTMENT DATA	On Page BF-53, "TABLE OF ADJUSTMENT DATA, Table A. Local Currency (LC)", the indices to be cited are written in column (c) "Source of Index" of the Table. Bidder would like Employer to accept indices below in order to complete filing in this Table properly, because it is not clear what indices are required to cite. L:DOLE Selected Labor & Wage Indicators (Legislated Wage Rates (in PHP), Non-Agricultural, NCR) E:Equipment E: PSA General Retail Price Index in the National Capital Region (G. Machinery and Transport Equipment)		The Bidder shall propose in their Price Bid indexes for Local Currency Portion to apply the Price Adjustment; for example, Minimum Wage of NCR or General Retail Index in National Capital Region G. Machinery and Transportation Equipment or Construction Materials Wholesale Price Index (CMWPI) in NCR etc. for Local Currency Portion. The base value and date for the relevant index shall be indicated by the Bidder and the copy of the reference index shall be attached hereto for identification purpose. Base value means the base cost indices or reference prices on the Base Date (GC 13.8) which is the date twenty-eight (28) days prior to the latest date for submission of the Bid.

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		M: PSA Construction Materials Wholesale Price Index in the National Capital Region (All items)		The applicable Indexes shall be finalized during the contract negotiation.
11	Volume I, Section IV, BF-83 Form SUB: Proposed Subcontractors/Manufactures for Major Items of Plant and Installation Services	It is Bidder's understanding that the current SUB form only covers the case that a carbody manufacturer becomes a prime contractor. However, Bidder believes there is a case that a trading firm becomes a prime contractor and a carbody manufacturer becomes a sub-contractor to that trading firm. To cover this case (which is quite common), Bidder would like to suggest including Carbody as a content of Major Item in Form SUB. In addition, Bidder understands that a Bidder who will subcontract a Carbody manufacturing work to a carbody manufacturer shall submit the Form ELI-2, EXP-1, MAN and SUB to show the eligibility of its subcontractor. Please		Bidder`s request is accepted. Addendum is issued. Please refer to Annex B Attachment 1.

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		confirm if Bidder`s understanding is correct.		
12	Volume II, Part 2, Section VI ERG-13 4.3 General Health and Safety Requirements	Sub-clause 4.3 1.1 of ERG states "The Contractor shall also comply at all times with any other mandatory requirements, local safety, security, EIA report, Environmental Impact Statement (EIS) report and other regulations in force and to which the Works are subject, including any requirements specified by the Bureau of Fire Protection." It is Bidder's understanding that requirements of EIA report and Environmental Impact Statement (EIS) report have been satisfied by adhering to Employer's Requirements. Please confirm if Bidder's understanding is correct.		Bidder understanding is not correct. In any conditions and stages, the bidder need to comply with EIA report and EIS report.
13	Volume II, Part 2, Section VI, ERG-32	It is Bidder's understanding that CP NS-02 do not have to provide latrine seat and urinal accommodation, because these facilities should be a		Bidder understanding is correct. However, under some circumstances whereby the bidder required to provide

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	4.9.1 Latrine and Urinal Accommodation	part of the scope by civil contractor of a depot or/and a contractor of depot equipment when CP NS-02 will start on-site activities at the depot because workers for civil construction start to work earlier than workers for the rolling stock contract. In addition, it is not a general role for a rolling stock supplier in similar project. Bidder would like to confirm whether such understanding is correct.		the facilities, the bidder shall adhere to the requirement.
14	Volume II, Part 2, Section VI ERG-35 6.1 Standards	Sub-clause 6.1 of ERG states "The Contractor shall provide one (1) copy of all relevant manufacturing and testing standards for items under his scope of supply." However, many of JIS and JRIS standards are only available in Japanese language without English translation. Hence, Bidder is concerned about the provision of standards to be provided to Employer, especially Japanese-		Bidder`s request is accepted.

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		written ones that are to be translated to English, due to a violation of the international copyright law. Bidder would like to ask Employer to enable Bidder to discuss with Engineer/Employer practical way of standards provision complying with common regulations during implementation stage.		
15	Volume II, Part 2, Section VI, ERG-51 9.3.1 Design Submission and Review Procedure ERG-60 10.2.4.2 g: Details Works Program ERG-68 12.1.9 Inspection, Testing and Commissioning	Sub-clause 10.2.4.2 of ERG states "Trial Runs: After completion of commissioning, the Contractor shall be required to take part in trial runs with other interface contractors as decided." However, Sub-clause 20.1 "Inspection, Testing and Commissioning" of ERT does not include any description about "Trial Run" but about "Trial Operations", which is defined as verification of the operational readiness. Therefore, it is Bidder's understanding that "Trial Run"		Bidder`s request is accepted. Addendum is issued. Please refer to Annex B Attachment 1.

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	2 of 16 APPENDIX D:	should be replaced by the word "Trial Operation", which is defined in detail in ERT. There are also descriptions of "Trial Run" in Sub-clause 9.3.1 of ERG, Sub-clause 12.1.9 of ERG, and Sub-clause 2.7 of "APPENDIX D: WORK PROGRAMME REFERENCE" of ERG, which should be revised to "Trial Operation". Bidder would like to confirm if such understanding is correct.		
16	Volume II, Part 2, Section VI, ERG-69 12.7 Commissioning Coordination	CP NS-02 rolling stock and CP NS-01 signaling system are closely linked each other and are planned to proceed concurrently. To ensure that CP NS-02 Contractor achieves each Key Date of Attachment 1 of PC as planned, CP NS-02 and CP NS-01 shall progress in parallel. Bidder would like to make proposals on the premise that the gap of CP NS-01 Commencement Date and CP NS-02 Commencement Date		Bidder request is not accepted. Any gap in term of information required shall be mitigated through the interface register whereby during the design stage of CP NS-02, the engineer will provide the information required until the CP NS-01 contractor on board. The level of interface shall be developed as the high level.

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		are no more than one month. Please specify different premises to be considered if Bidder's suggestion is not acceptable.		
17	Volume II, Part 2, Section VI, ERG-73 14.6 Training Location	ERG sub-clause 14.6 requires Contractor to bear employees' travel cost when training is held outside of Manila. This requirement is assumed only if the training is held at remote locations outside of Manila. It is Bidder's understanding that "Manila" in this sub-clause includes the places alongside with MCRP, NSCR and NSRP-S, thus depots to be constructed for MCRP and NSRP-S, which are thought as usually used places, within vicinity of Manila; therefore, no local travel costs will be born by the Contractor. Please confirm if Bidder's understanding is correct.		Bidder understanding is correct. The training shall be done in Metro Manila, Clark and depots areas.

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18	Volume II, Part2, Section VI ERG-81 19.12 Asset Management	1) Clause 19 of ERG refers "Obsolescence Management Plan", while Sub-clause 24.5 of ERT refers "Obsolescence Plan". Bidder understands that Obsolescence Plan described in ERT is the same document as Obsolescence Management Plan described in ERG, updated version at last of the project. Please confirm if Bidder's understanding is correct. 2) Based on the requirement in Sub-clause 19.7 of ERG, Bidder understands that Obsolescence Management Plan shall include: - How Contractor notifies the unavailability of components; and - How Contractor proposes the alternative components which replace the original one and their supply periods. Please confirm if Bidder's understanding is correct.		1. Bidder understanding is correct. 2. Bidder understanding is correct. 3.Bidder`s request is not accepted. Within 90 days upon commence of work, bidder required to submit the preliminary plan. The final plan can be submitted at later stage.

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		3) Bidder considers that such Obsolescence Management Plan will start functioning just after component design would be fixed and actually procured. Therefore, Bidder kindly requests Employer to allow Contractor to submit Obsolescence Management Plan ninety days before the first dispatch of spare parts and consumables, instead of within ninety days upon commencement of work required in Sub-clause 19.12 of ERG.		
19	Volume II, Part 2, Section VI, ERG-82 20.4.2 Interface and Coordination with Interfacing Contractors/External Interfacing Parties	Sub-clause 20.8.1of ERG states "c. The Contractor shall ensure that the requirements of each interface contractor are fully coordinated and provided for in the design of the Contract Works." However, in the event that Contractor and the interface contractors have different opinions and there is a technical		This is design and build contract, therefore the Contractor shall be responsible to fully coordinate with other relevant parties during detailed design and interface coordination. The engineer will coordinate and intervene to determine the direction of the interface issue.

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		gap of recognition between each contractor, Engineer's intervention is needed to determine the direction of interface issues as final because the instruction or request from one contractor never be contractually binding to the other contractors. Since CP NS-02 is a design and build contract but not a full turnkey contract, it is Bidder's understanding that Contractor is responsible basically for developing detailed design that comply with the requirements of CP NS-02 and just additionally for making its best effort of coordination with the requirements of each interface contractor. Otherwise, when a problem with major disagreement between contract packages occurs, mechanism like described in Sub-clause 20.4.1 should solve such a major issue. Please confirm if Bidder's understanding is correct.		

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20	Volume II, Part 2, Section VI ERG-99,100 Appendix B:Split Responsibility on Rolling Stock and Other Works	Item 5.1 of "Table B.2: Split Responsibility in Special Tools for Rolling Stock and Depot Equipment" in Appendix B.1 of ERG states supply scope of “Refrigerant retainer”. However, it is Bidder’s understanding that the function of such "Refrigerant retainer" is included partially as a part of in the function of “Refrigerant extractor” and/or that of “Refrigerant filler”, which are required in Sub-clause 24.8 of ERT, thus “Refrigerant retainer", as a part of the rolling stock contract, appears redundant and is not considered necessary in separate. Please confirm if Bidder’s understanding is correct. Otherwise, Bidder would like Employer to explain about what “Refrigerant retainer” is, how it will be used, and how differently it works from "Refrigerant extractor/filler".		Bidder understanding is correct if the “refrigerant extractor” described in ERT24.8 is sufficient for the ACU maintenance provided by the bidder rolling stock design.

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21	Volume II, Part 2, Section VI ERT-4 1.3.3 Rolling Stock Gauge	Generally, when rolling stock envelope is determined, amount of carbody displacement at a curve shall be provided by Employer. Since the amount of carbody displacement at a curve is not specified in ERT, it is Bidder's understanding that formula for amount of carbody displacement that are used for car of which dimensions are equivalent to those for NS-02 shall be used. They are 23100/R millimetres (R stands for curvature radius in meters) for carbody displacement, and 11550/R millimetres for a pantograph location. Bidder would like to confirm if Bidder's understanding is correct.		The bidder shall submit the calculation to show that the bidder rolling stock adhere to all the condition in NSCR alignment. Bidder understanding on the R terminology is correct.
22	Volume II, Part 2, Section VI, ERT-5 1.5.1 Horizontal Curve Radius	In ERT Sub-clauses 1.5.8, 13.1.5, 13.6.1.7, there are description about 10-car trainsets in the future, but no further detailed information about such assumption is provided in		Bidder understanding is correct. Note that basic configuration is 5M5T in case of 10 cars consist in the future.

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		bidding documents. It is Bidder's understanding that in the project implementation phase, certain information of engineering specification will be provided under the conditions of more fixed plan, and Bidder can design trainsets within reasonable range of possible engineering changes. Please confirm if Bidder's understanding is correct.		
23	Volume II, Part 2, Section VI, ERT-9 1.8.4.1 Degraded / Emergency Performance	The first paragraph of ERT Sub-Clause 1.8.4.1 states "The Contractor shall confirm by calculation and by test that an 8-car train with 20 t/car loading condition, with the propulsion system on one of the 4 motor car units totally inoperative is capable of completing a continuous trip." It does not state the restriction of regenerative brake. However, Sub-Clause 11.1.2 of ERT states “j. When 25% loss of the on-board traction motors total		Bidder understanding is correct and bidder request for the degree of restriction to be reviewed and approved during the design stage is accepted.

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		power, train can run all day; k. (with restriction on regenerative brake at a load above a certain load)." It is Bidder's understanding that the restriction on regenerative brake will also be applied for the first paragraph of ERT Sub-Clause 1.8.4.1. Bidder would like to confirm if Bidder's understanding is correct. In addition, Bidder would like to request the Employer that the degree of restriction on regenerative brake to be reviewed and approved at design stage.		
24	Volume II, Part 2, Section VI, ERT-9 1.8.4.1 Degraded / Emergency Performance	The first paragraph of ERT Sub-Clause 1.8.4.1 states “The Contractor shall confirm by calculation and by test that an 8-car train with 20 t/car loading condition, with the propulsion system on one of the 4 motor car units totally inoperative is capable of completing a continuous trip.” There is no		Bidder’s understanding is correct. But try to maintain acceleration as much as possible while considering the balance with the regenerative brake limit. These will be submitted with details for the Engineer review during the detailed design phase.

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		requirement of performance, such as acceleration, in the paragraph. Thus, it is Bidder's understanding that reduction of acceleration will be accepted in the condition that one motor car is totally inoperative. Please confirm if Bidder's understanding is correct. In addition, Bidder would like to request Employer that degree of acceleration reduction shall be subject to review of Engineer at the design stage.		
25	Volume II, Part 2, Section VI, ERT-10 1.8.4.4 Degraded / Emergency Performance	ERT Sub-clause 1.8.4.4 states "the Contractor shall confirm by calculation and test that 8-car train-set at W0 loading condition can push and tow a 10 cars train-set at 20t/car loading condition(537ton), with an inoperative propulsion system, in its worst condition. If the healthy train cannot be pushed or towed at the 3.5% upgrade, then the		Bidder understanding on the rescue operation is not correct. The rescue operation for fully loaded train only cover up to the next station and the empty train shall be towed to the depot.

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		high acceleration mode shall be applied." Also, "the farthest terminal station" can be assumed that it is Malolos Station, which is the farthest station from the depot. From the assumptions above, it is Bidder's understanding that the requirement is fulfilled if an eight-car trainset can push/tow a ten-car trainset from Calamba Station to Alabang Station because it seems the farthest section required by such condition . Please confirm if Bidder's understanding is correct.		
26	Volume II, Part 2, Section VI, ERT-10 1.8.4.5 Degraded / Emergency Performance	It is Bidder’s understanding that for the testing of an eight-car trainset which pushes or tows another a ten-car trainset stated in ERT Sub-Clause 1.8.4.5, the ten-car trainset can be a converted to two cars plus an eight-car trainset. It is also Bidder’s understanding that purpose of the test can be achieved if torque to tow another trainset is proven.		Bidder`s understanding is correct for the car consist. For the loading condition of each trainset, the sum of the loading cannot be shared between these 2 trainsets. Empty train shall remain unloaded for the test.

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		Thus, loading condition of each trainset, such as the inoperable trainset and the rescue trainset, can be increased or decreased under the condition that the total loading condition of two trainsets meets total loading requirement of the test. Bidder would like to confirm whether the understanding is correct. Also, it is Bidder's understanding that adhesion does not need to be considered at the test start point. Bidder would like to confirm whether such understanding is correct.		
27	Volume II, Part 2, Section VI, ERT-10 1.8.4.7 Degraded / Emergency Performance	Sub-clause 1.8.4.7 of ERT states "The specifications for rescue operation and emergency electric coupler shall be considered coupling other project trains in interoperability section and shall be reviewed by the Engineer." It is		Bidder understanding is not correct. In the south section from Bicutan to Calamba, there will be mixed operation between NSCR and MMSP train. Thus this requirement is valid for interoperability situation.

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		Bidder's understanding that rolling stock of CP NS-02 will only run on NSCR, MCRP, NSRP-South, and there will be no interoperability section for this project. Please confirm if Bidder's understanding is correct. If Bidder's understanding is correct, Bidder would like Employer to delete this requirement.		
28	Volume II, Part 2, Section VI, ERT-10 1.8.5.1 Brake Performance at Parking	ERT Sub-clause 1.8.5.1 states "the Contractor shall confirm by calculation and by test that the parking brake is capable of holding an 8-cars train coupled to a disabled (i.e. without any brake) 8-car train with both trains at W0 load condition on a 3.5% grade." It is Bidder’s understanding that rescue train is healthy and can use the normal parking brake as well as the friction brake (e.g. unit brake) to comply with Employer’s Requirement, if stopped or parked		Bidder`s understanding is correct.

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		at the 3.5% grade. Please confirm if Bidder's understanding is correct.		
29	Volume II, Part 2, Section VI, ERT-12 1.11 Maintainability Requirements	It is Bidder's understanding that the maintainability requirement in Sub-clause 1.11 of ERT shall be applied just in the period of service operation after the issuance of TOC. Please confirm if Bidder's understanding is correct.		Bidder`s understanding is correct.
30	Volume II, Part 2, Section VI, ERT-14 1.12.3.1 Operating Voltage Range	Sub-clause 1.12.3.1 of ERT states "Unless otherwise specified, equipment connected to the low-voltage power supply shall operate over a power supply (line) voltage range from 0.7 x (Vnom) to 1.30 x (Vnom)." It is Bidder's understanding that requirement of low-voltage power supply (line) voltage range is fully satisfied if such voltage range fulfills with relevant requirements in both JIS E 5004, listed in Sub-clause		Bidder's understanding is correct. Note: JIS 5006 is mentioned in ERT 21.5. (not 1.15)

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		1.15 of ERT, and JIS E 5006, stated in Sub-clause 21.5.1 of ERT. Please confirm if Bidder's understanding is correct.		
31	Volume II, Part 2, Section VI, ERT-15 1.13.1.6 Printed Circuit Boards	ERT Sub-clause 1.13.1.6 states that "Semiconductor operating temperature rating shall meet or exceed +85°C." However, Bidder believes this temperature requirement is too high. Bidder would like Employer to accept semiconductor operating temperature rating of +70℃, which is requirement for Class T1 of JIS E5006/ IEC 60571, if it complies with ERG Sub-clause 8.2.2 Performance Acceptance Criteria (PAC), and proven record of same or similar products are submitted during the detailed design phase, so that wide variety of equipment can be proposed.		Bidder request is accepted. However, the bidder shall submit the proven record of the component operated under the same condition as Philippine environment. Addendum is issued. Please refer to Annex B Attachment 1
32	Volume II,	ERT Sub-Clause 1.13.9.4 states		Bidder`s understanding is correct.

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	Part 2, Section VI, ERT-17 1.13.9 Wire and Cable Installation	"All wires and cables shall have sufficient spares." It is Bidder's understanding that this requirement is redundancy for possibility of future installation of new system but there is no specific engineering information of such a system at this bidding phase. Please confirm if our understanding is correct.		Please noted that the spare core allocation to be proposed by the Contractor, considering the evaluation result that include security cable containment, thus mitigating cable core damage during the maintenance activities.
33	Volume II, Part 2, Section VI, ERT-30 2.8.2 Cabin and Saloon Access Handrails and Steps	Sub-clause 2.8.2.2 of ERT states "The Contractor shall ensure that easy access steps with non-slip treads and handrails fit for purpose will be provided at each passenger side entrance door on both sides, this will allow passengers to easily and safety exit the cars during evacuation circumstances when the car is not at platform level." However, since each car will be equipped with evacuation ladders, installation of steps for every passenger side entrance door more		Bidder request is accepted. Addendum is issued. Please refer to Annex B Attachment 1

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		than that seems too excessive. In addition, a typical Japanese commuter train has one easy access step on each side of a car at maximum, excluding driver's door. For above reasons, Bidder kindly requests Employer to reduce the number of easy access steps and handrails of passenger side entrance door to one on each side of car, total of two on each car.		
34	Volume II, Part 2, Section VI, ERT-31 2.9 Evacuations	Sub-clause 2.9.1 of ERT states "The ladders for evacuation at where there are no evacuation passages shall be mounted on the both sides of each vehicle. Two ladders shall be mounted on the one side (The total of four ladders shall be mounted). In case of evacuation from inside of vehicle to on-ground through the saloon doors, the passengers shall be able to evacuate by using these Ladders safe and quickly as possible."		Bidder request is accepted. The emergency ladder is not required. Addendum is issued. Please refer to Annex B Attachment 1

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		Bidder kindly requests Employer to reduce required number of the ladders from two on each side to one on each side (total of two ladders) of each car for the following reasons. 1. Bidder assumes that rolling stock for CP NS-02 will be used for conductor-less operation based upon the requirement of ATP described in Sub-clause 16.10.3.1 of ERT, which states “Door opening and closing operation shall be carried out by the train operator.” In an event of emergency, the operator must install or instruct passengers to install ladders all through the trainset for evacuation, and thus it could take time to install 32 ladders in the trainset. 2. Item No.20 in Annex A of GBB No.3 states “The emergency		

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		sidewalk for evacuation will be installed. Therefore, these assemblable (the Employer assumes that assemblable refers to the temporary evacuation ladder) evacuation ladders are just for temporary to be used on the opposite side of evacuation." Four ladders in each car are considered excessive for temporary use.		
35	Volume II, Part 2, Section VI, ERT-31 2.9 Evacuations	Sub-clause 2.9.2 of ERT states Bidder shall prepare "the steps for evacuation" and Item No.20 in Annex A of GBB No.3 states "The emergency sidewalk for evacuation will be installed". Bidder understands that the evacuation step is used for bridging between a train and the emergency sidewalk in an event of emergency; therefore, the steps should be designed for exact size of the sidewalk. Bidder kindly asks Employer to provide		The required details for the walkway is the interface point that will be a part of CP NS-02 contractor obligation for interface with CP NS-01 contractor. No details will be provided at this stage.

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		detailed dimensions of such emergency sidewalk; otherwise just to require design of the room for the steps on rolling stock and to procure them in other CPs after the dimension of the sidewalk is decided.		
36	Volume II, Part 2, Section VI, ERT-34 3.4.5 Wheels, Wheel Sets and Axles	Sub-clause 3.4.5 of ERT states "Easy access shall be provided to both ends of all axles to allow ultrasonic testing of the axles. It shall be possible to carry out ultrasonic testing with the wheel set in situ under the cars." However, typically in Japanese commuter railway, ultrasonic testing is carried out in a situation when the wheel set is removed from the carbody during the periodical bogie overhaul; therefore, it can contradict premises described in Sub-clause 1.11 "Maintainability Requirements" of ERT. Bidder would like Employer to remove the requirement of Sub-		Bidder request is accepted. Addendum is issued. Please refer to Annex B Attachment 1

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		clause 3.4.5 of ERT.		
37	Volume II, Part 2, Section VI, ERT-40 5.4.9 Flooring	There are no flooring material which can fulfill every standard stated in Sub-clause 5.4.9 of ERT. Bidder kindly asks Employer to remove b., c., and d. from Sub-clause 5.4.9 of ERT so that JRIS J0745 is only requirement and existing flooring material can fulfill the requirement.		Bidder request is not accepted. Any new material proposal for the new material shall be submitted with proven record addressing the 5.4.9 requirement during the design stage for Engineer review.
38	Volume II, Part 2, Section VI, ERT-45 5.15.1.6 Driver Cab	Sub-clause 5.15.1.6 of ERT states "The interior door and partition wall between the driver's cab and interior end car passenger area shall be designed to maximize the visibility but without compromise the safety of the drivers". However, the partition wall of a driver's cab is fully occupied with necessary cab equipment, and windows cannot be installed on the wall. Window can be only be installed on interior door. With this reason, it is Bidder's		Bidder`s understanding is correct.

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		understanding that the requirement of Sub-clause 5.15.1.6 of ERT is fulfilled if window on the cab interior door is designed as wide area as possible.		
39	Volume II, Part 2, Section VI, ERT-48 5.17 Car Fire Safety and Protection	It is Bidder' understanding that the requirement of Car Fire Safety and Protection is fully satisfied if the Contractor fully meets Japanese Ministerial Ordinance, MLIT Chapter 8, Section 5, Article 84 (Countermeasures for Fire of Rolling Stock). Please confirm if Bidder's understanding is correct.		Bidder's understanding is correct. Note that Subway category shall be applied because CIA station is underground.
40	Volume II, Part 2, Section VI, ERT-51 6.5.4 Exterior Lights	Sub-clause 6.5.4 of ERT states "The light intensity of headlights shall comply with Table.7 in the item 5.2.1 of JRIS R 1645 or other equivalent standards." However, JRIS R1645 is the standard for HID and Sub-clause 6.5.1 states that LED-type headlights shall be provided. The standard for LED		Bidder request is accepted. Addendum is issued. Please refer to Annex B Attachment 1

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		lights is JRIS R1646. Thus, Bidder would like Employer to revise the light intensity standard described in Sub-clause 6.5.4 of ERT from JRIS R1645 to JRIS R1646.		
41	Volume II, Part 2, Section VI, ERT-56 7.8.5 Interlocks related to PSD (Platform Screen Door)	Sub-clause 7.8.6 and 7.8.7 of ERT states "Space Radio". Bidder kindly asks Employer to explain specifically what "space radio" here is meant by.		Space radio' means communication system (GSMR) between train and OCC which shall be supplied by CP NS-01 E&M contractor.
42	Volume II, Part 2, Section VI, ERT-62 9.2.4 Friction Brakes	Sub-clause 9.2.4 of ERT states "By design, as air pressure is released from the brake cylinders, the spring brakes shall apply. Should air pressure not be available, the driver may release the brakes electro-mechanically from the cab by pressing a switch." However, it is Bidder's understanding that releasing all the brakes from the cab is dangerous in a situation when compressed air is not		Bidder's request is not accepted. This requirement shall apply to only parking brake. And also, the detail sequence shall be determined during the detailed design stage. And also note that Emergency brake shall not be released in case the main reservoir tank pressure is under predetermined pressure (around 500kPa).

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		available. Thus, Bidder would like Employer to revise the requirement so that the driver may release the brakes electro-mechanically from the cab by pressing a switch only when air pressure is available.		
43	Volume II, Part 2, Section VI, ERT-63 9.4.7 Wheel Slide Control System	ERT Sub-clause 9.4.7, Item a. requires that digital wheel slide protection with gradual slide correction shall be provided in all braking modes. It is Bidder's understanding that "all modes" in the above sentence means service brake, emergency brake, and if applicable, security brake only and it is not necessary to apply wheel slide control system for parking brake. It is also Bidder's understanding whether this function is applied in security brake or not shall depend on the security brake mode sequence and condition, which shall be reviewed and accepted in the detail design stage.		Bidder`s understanding is correct.

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		Please confirm if Bidder's understanding is correct.		
44	Volume II, Part 2, Section VI, ERT-66 10.3.1 Pneumatic System	Sub-clause 10.3.1 of ERT states ”Joints shall be made using rail industry approved compression fittings." However, it is Bidder's understanding joints can be also made with screw-type fittings, if stainless steel piping is used. Please confirm if Bidder's understanding is correct.		Bidder’s understanding is correct. Bidder shall submit the proven record for the Engineer review.
45	Volume II, Part 2, Section VI, ERT-68 11.1.1 Propulsion System	ERT Sub-Clause 9.3.2 b. states “Under condition of catenary voltage: 1,650 V dc, load: 20 t per vehicle and velocity: 0-64 km/h, regenerative braking capability (including trailer car’s brake torque) shall be equivalent to deceleration of 3.7 km/h/s”. ERT Sub-Clause 11.1.1.h. states “Lowered regenerative performance applied except for ATO normal mode may be acceptable in case it is difficult to		Bidder’s understanding is correct. Final design shall be reviewed during detail design stage based on final run curve (both normal pattern and recovery pattern).

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		achieve reasonable design in consideration with capacity and size, weight and so on." It is Bidder's understanding that "ATO normal mode" means the other modes than All-Out mode and recovery mode. It is also Bidder's understanding that in the other modes than "ATO normal mode", lowered regenerative brake performance is acceptable against requirement of ERT Sub-Clause 9.3.2.b. Please confirm if Bidder's understanding is correct. In addition, Bidder would like to request Employer's concurrence that the detailed figure of lowered regenerative performance to be reviewed and approved at design stage.		
46	Volume II, Part 2,	Sub-clause 11.1.1 of ERT states "the material of the filter reactor		The proposal is subject to Engineer review.

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	Section VI, ERT-68 11.1.1 Propulsion System	shall be copper; or other service-proven material, subject to review by the Engineer." It is Bidder's understanding that aluminum is an acceptable alternative to the coil of filter reactor material, because it is commonly used and service proven in Japanese railway industries. Please confirm if Bidder's understanding is correct.		
47	Volume II, Part 2, Section VI, ERT-68 11.1.1 Propulsion System	Sub-clause 11.1.2 i of ERT states "Indicative journey time for the round trip including 37 station dwells for both directions plus end change dwell is 266 minutes and 59 seconds, at a commercial average speed of 63.46 km/h (subject to simulation of final service pattern)". It is Bidder's understanding that this requirement is only for a healthy trainset and does not apply for degraded mode. Please confirm if Bidder's understanding is correct.		Bidder’s understanding is correct. Refer to item 21.

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48	Volume II, Part 2, Section VI, ERT-68 11.1.2 Propulsion System	It is quite difficult for the traction equipment to satisfy the thermal duty under All-Out mode operation with 20 t/car loading condition. In the meantime, Sub-Clause 11.1.2.g of ERT states that a dwell-time at each station shall be 30 seconds. To allow Bidder proposes a service proven propulsion equipment, Bidder would like to kindly request Employer to add ten more seconds onto the above dwell time at each station under the All-Out mode operation. For your information, Bidder estimates that it will be difficult to get on and off a train for 30 seconds through congested MCRP/NSRP-South section		Bidder's request is not accepted. But note that ERT 11.1.1 h mentions as below. "Lowered regenerative performance applied except for ATO normal mode may be acceptable in case it is difficult to achieve reasonable design in consideration with capacity and size, weight and so on. It shall be necessary to be reviewed by the Engineer when above performance will be adopted."
49	Volume II, Part 2, Section VI, ERT-68	Item I of Sub-clause 11.1.2 of ERT states "When 50% loss of the on-board traction motors total power, train can run 1 round trip; (with		Bidder's understanding is not correct. The following is correct.

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	11.1.2 Propulsion System	restriction on regenerative brake)". However, Sub-clause 1.8.4.2 of ERT states "The Contractor shall confirm by calculation and by test that an 8-car train with 20 t/car loading condition, with the propulsion system on two of the 4 motor car units totally inoperative is capable of operating to the next station, including traversing the maximum gradient of the main line." It is Bidder's understanding that description of Sub-clause 1.8.4.2 of ERT is correct and description of Sub-clause 11.1.2 of ERT is not, since the requirement of Sub-clause 1.8.4.2 has been changed from the same section of ERT of CP107 on, a similar project. Thus, train with propulsion system on two of four motor cars totally inoperative is to be capable of operating only to the next station. Please confirm if Bidder's understanding is correct.		Item I of Sub-clause 11.1.2 of ERT states "When 50% loss of the on-board traction motors total power, train can run 1 round trip."

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50	Volume II, Part 2, Section VI, ERT-68 11.1.2 Propulsion System	Sub-clause 11.1.2 of ERT states "The CP NS-02 Contractor shall validate and confirm the normal and recovery run (power consumption) curves submitted by CP NS-01 Contractors." It is Bidder's understanding that the CP NS-01 contractor shall submit data of such run (power consumption) curves within the reasonable conditions in compliance with rolling stock performance requirements and respond to the feedback after validation and confirmation by the CP NS-02 contractor. Please confirm if Bidder's understanding is correct.		Bidder's understanding is correct.
51	Volume II, Part 2, Section VI, ERT-70 11.1.15 Propulsion System	ERT Sub-clause 11.1.15 states "The design life of the main circuit semiconductors and the filter capacitors shall be 30 years or more". However, normal design life of filter capacitors is around 12 years. Design life of more than 30		Bidder request is accepted. Design life for filter capacitors changed to 12 years and main circuit semiconductor remain 30 years. Addendum is issued. Please refer to Annex B Attachment 1

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		years is not feasible. Bidder kindly asks Employer to modify the requirement to 12 years at most.		
52	Volume II, Part 2, Section VI, ERT-74 12.1.6 Current Collection	Sub-clause 12.1.6 of ERT states ”The rigid overhead conductor shall be used in some section." However, it is Bidder's understanding that there will be no sections in MCRP or NSRP-South that use rigid overhead conductor including the underground section of Clark Station to CIA Station where ordinary overhead catenary system will be employed. Please confirm if Bidder's understanding is correct.		Bidder understanding is correct. This clause is removed. Addendum is issued. Please refer to Annex B Attachment 1
53	Volume II, Part 2, Section VI, ERT-79 13.6.3.1 Battery Contractor	Sub-clause 13.6.3.1 of ERT states "The battery contactor shall be a non-contact contactor". It is Bidder's understanding that this sentence forces to adopt a semiconductor-type contactor. Meanwhile, Sub-clause 13.6.1.1 states "The battery shall have		The bidder shall submit the proposal for the other type of contactor during the design stage for engineer review. Addendum is issued. Please refer to Annex B Attachment 1

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		sufficient capacity to supply all low voltage power loads (which includes ventilation system, emergency lighting, etc. listed as emergency loads under ERT Sub-Clause 13.1) during failure of the low voltage power supply for a minimum period of one (1) hour of normal train operation and for a minimum period of 90 minutes of passenger emergency lighting." This requires that The battery circuit shall need quite large capacity to fulfill this requirement, and the semiconductor-type battery contactor suitable for such large capacity battery is not available in the industry at the present time. Thus, Bidder kindly asks Employer to accept mechanical type battery contactor.		
54	Volume II, Part 2, Section VI,	ERT Sub-clause 14.3.20 states "I/O shall be digital input/output.", which are service proven. It is Bidder's		Bidder's understanding is correct.

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	ERT-82 14.3.20 TMS Design Requirements	understanding that types of input/output other than digital, such as serial transmission will also be an acceptable alternative, if they are of proven design and technology. Please confirm if Bidder's understanding is correct.		Bidder shall submit the proven record of the components design for the Engineer review.
55	Volume II, Part 2, Section VI, ERT-87 15.5.8 External Destination Sign System	ERT Sub-clause 15.5.8 requires Contractor to propose options for the electronic destination display sign system. It is Bidder's understanding that "options" are information with automated scheduled base in combination with real-time information of either fixed or strings format, and other information that can be illustration, etc. Please confirm if Bidder's understanding is correct.		Options for the electronic destination display sign system will be discussed during the design stage.
56	Volume II, Part 2, Section VI,	Bidder kindly asks Employer to explain specifically the communication specification for		Wireless another system referred to the option for the database to be

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	ERT-87 15.4.2 External Guidance Display	"wireless another system", stated in Sub-clause 15.4.2 of ERT; e.g. WiMAX, cellular network etc.		uploaded by other wireless system. This is the provision for future upgrade. Addendum is issued to change. Please refer to Annex B Attachment 1.
57	Volume II, Part 2, Section VI, ERT-88 15.9.3 Train Radio System	Sub-clause 15.9.3 of ERT states "The TOCP shall typically include: c. Gooseneck microphone". However, Employer prefers handset-type microphones in the other project and has requested to change from a gooseneck to a handset due to premature failures of the goose neck type microphone. It is Bidder's understanding that description of "shall typically" allows Bidder to adopt a handset-type microphone instead of a gooseneck microphone. Please confirm if Bidder's understanding is correct.		Bidder's understanding is correct. Addendum is issued. Please refer to Annex B Attachment 1.
58	Volume II, Part 2,	Sub-clause 15.9.1 of ERT states "The CP NS-01 Contractor shall		Bidder request is not accepted. Details on the installation scope will be

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
	Section VI, ERT-88,89 15.9 Train Radio System	provide installation for the first Train Radio System installation on-site. The second trainset shall be installed by CP NS-02 Contractor and supervise by CP NS-01 Contractor." However, circumstances of the first trainset installation work in the limited space, such as a driver's cab or an underfloor, at the other contractor's factory can be a factor of human errors and work inefficiency because workers of the NS-01 contractor are not accustomed to such conditions. Therefore, Bidder kindly requests to change requirement for the first trainset as the same as requirement for the second trainset. Please confirm if Bidder's understanding is acceptable.		subjected to the interface between the contractors.
59	Volume II, Part 2, Section VI,	According to Sub-Clause 16.5.2 of ERT, it is required that the signal equipment shall be installed in the		Bidder understanding is correct however the justification for the proposed measures shall be submitted

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
	ERT-93 16.5 On-board Signaling Equipment Cubicles	equipment locker at driver's cab which meet the IP52 standard. The cab locker is located in the carbody which it the water prof design (and tested); thus, does not get wet and IP52 criteria for the water exposure is assured. In terms of dust, following measures can prevent dust from getting in the cab locker: - To prevent dust inflow through a door pocket, partition between the door pocket and the cab locker will be installed; and - To put the cables in flexible protection tube and the connection of the flexible tube will be sealed with protective sealant of the cab locker. For the above reasons, the cab locker will not get water and dust by design. Such measure is widely adopted for commuter trains operated in Tokyo Metropolitan		officially during the design stage for engineer review.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		Area and its performance has been proven to be sufficient. Therefore, Bidder would like to request Employer to confirm that the above approach to the IP standard criteria is acceptable.		
60	Volume II, Part 2, Section VI, ERT-95 16.10 Operation Modes	The following Sub-clauses of ERT mention about ATO operation; 3.1.12, 5.15.1.5, 9.1.8, 9.1.9, 9.3.4, 11.1.1.h, 11.1.2.c, 11.1.17, 13.1.5, 13.6.1.7, 14.1.4, 14.1.8, 16.2.1.d, 16.2.11.a, 16.2.14, 16.10.1, 16.10.2, and 16.12. It is Bidder's understanding that Bidder is only required to consider future installation as much as possible just under given conditions of detailed engineering specification provided from Engineer/Employer at a reasonable time point of rolling stock design stage. Please confirm if Bidder's understanding is correct.		Bidder’s understanding is correct.
61	Volume II,	The description for "k. Car body		Bidder’s understanding is correct.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
	Part 2, Section VI, ERT-110 20.4.2 Factory Acceptance Test(FAT)	loading test (one car only)" is listed for "Type Test of Acceptance Test (FAT)" in Sub-clause 20.4.2.4 of ERT. However, it is Bidder's understanding that car body loading test should be a part of DQT, which is described in Sub-clause 20.3 "Design Qualification Testing" of ERT, because the time point of FAT would be too late to reflect the results of car body loading test on revision of detail design. Please confirm if Bidder's understanding is correct.		
62	Volume II, Part 2, Section VI, ERT-124 22.7.4 Fleet Defects (Pattern Failures)	Regarding Fleet Defects (Pattern Failures) described in Sub-clause 22.7.4 of ERT, Bidder would like to clarify detailed process. 1) As MDBF is defined in Sub-clause 8.2.2 of ERG as “In service operational faults, MDBF no less than 50,000 km causing a delay greater than 5 minutes,” it is		1. Bidder’s understanding is not correct. The qualification of fleet defect if the same failure pattern is observed on the 3% of the total number of the identical items. 2. Bidder’s understanding is correct.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		Bidder's understanding that the occurrence of independent failures is counted for failures causing a delay greater than 5 minutes also for the case of Fleet Defects (Pattern Failures), which are attributable to rolling stock within the range of Bidder's scope of work. 2) Furthermore, Bidder also would like to clarify the period when this sub-clause is applied. It is Bidder's understanding that Sub-clause 22.7.4 of ERT is applied only during the Defects Notification Period as Sub-clause 1.6 of ERT stipulates that Warranty will be provided for the full Defects Notification Period from the date of issue of the Taking Over Certificate and additional time required, if any, by the Contractor for rectification of defects. Please kindly confirm if these two		

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		Bidder's understandings are correct.		
63	Volume II, Part 2, Section VI, ERT-124 22.7.4 Fleet Defects (Pattern Failures)	Sub-clause 22.7.4 of ERT, "The occurrence of independent failures of the same warranted item that exceeds more than 3 percent of the total number of identical items supplied may be declared a fleet defect or pattern failure." Since there is no clear definition what "identical items" described here are, Bidder would like to define "identical" to be one included in a certain Lowest Line Replaceable Unit (LLRU), which is described in Sub-clause 19.11 of ERT. Bidder would like Employer to confirm whether Bidder's understanding is correct.		Bidder's understanding is correct. However, it depends on the cause of failure. Final decision should be done considering the cause of failure after detailed investigation.
64	Volume II, Part 2, Section VI, ERT-130	In Table B.2 in Appendix of ERG and Sub-clause 24.8 of ERT, quantity of special tools and test equipment are not specified. Bidder		Bidder request is accepted. Addendum is issued. Please refer to Annex B Attachment 1

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
	24.8 Main Special Tools and Diagnostic Test Equipment	presumes that just one unit will be required for most of overhaul devices, but in the same Table B.2 and Sub-Clause 24.8 above, purpose of their use, whether for light maintenance or for heavy maintenance or for both, is not clearly defined either. Since cost impact is large, Bidder would like Employer to specify the required number of each special tool and each test equipment.		
65	Volume II Part 2, Section VI, ERT-132 25.1 Equipment for Driving Simulator	"Train Protection Radio" is mentioned only in Table 15.1 "Responsibility Matrix" of ERT and Sub-clause 25.1.1. There is no other description, such as technical specification. Bidder kindly asks Employer to remove such two parts of description for consistency of requirements. In addition, Bidder understands that the CP NS-01 contractor will be responsible for the		Bidder request is not accepted. Refer to item 64 response.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		scope of "Train Protection Radio".		
66	Volume II Part 2, Section VI, ERT-132 25.1 Equipment for Driving Simulator	Sub-clause 25.1 of ERT states "The Contractor shall prepare the equipment for driving simulator as below, and supply to the Driving Simulator Contractor." It is Bidder's understanding that the Driving Simulator Contractor is not decided and not even tendered. For Bidder to properly evaluate the relevant cost such as shipment cost, Bidder needs the equipment delivery location. For the proper cost estimating purpose by the Bidder, Bidder would like to request the Employer to define the delivery place to be Japan where a factory of the Driving Simulator Contractor may be located. Bidder would like Employer to cover difference between such assumption and actual results, if exist, by giving information to the future bidder of Driving Simulator and making them		Bidder's request is rejected.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		to estimate cost difference on their scope.		
67	Volume II Part 2, Section VI, ERT-132 25.1 Equipment for Driving Simulator	Sub-clause 25.1.1 of ERT states that Bidder shall prepare the equipment for driving simulator to supply to the Driving Simulator Contractor. However, Bidder has found discrepancy on some items between the scope of Driving Simulator Contractor and the scope of the CP NS-02 contractor. For example, “Passenger emergency call system” is different system configuration between one on actual rolling stock and one in the train simulator; so the hardware to be used on the rolling stock cab may not be readily compatible with that for the simulator. Based upon the above reason, Bidder requests the requirements to be revised to the basic information and function based instead of hardware type specifications. “TMS unit” in		There should be no discrepancy for the supplied components specified in 25.1.1 as all of these equipment supplied by bidder based on the actual component in the train. Bidder’s understanding is correct. Train protection radio shall be provided by CP NS-01 contractor.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		"Driver's Console" and "Sound system" are similar cases as above. Bidder kindly asks Employer to revise requirements concerning three devices described above. In addition, Bidder has submitted another clarification to delete "Train Protection Radio" based upon the understanding that its supply will be the scope of E&M Signaling Contractor, ie., the CP NS-01 contractor.		
68	Volume II Part 2, Section VI, ERT-133 25.2 Pantograph and Bogie Assembly	Sub-clause 25.2.1 of ERT states "The Contractor shall prepare and supply the equipment for Training Center as listed below: a. Pantograph and Bogie Assembly: 1 set b. Bogie-assembly for Motor-car including traction motor, gearbox, and coupling: 1 set". For planning of delivery of the above items, Bidder would like Employer to clarify which floor of		Bidder's understanding is correct. Only Motor bogie assembly shall be required. Pantograph assembly and Bogie assembly will be installed at the ground floor in north depot training center building.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		the Training Center the equipment shall be supplied to. In addition, it is Bidder's understanding that just one set of bogie assembly for the M car shall be supplied for the Training Center and another set of bogie assembly for the T car is not necessary because difference between such bogie frames is not so large. Please confirm if Bidder's understanding is correct.		
69	Volume II Part 2, Section VI, ERT-134 26.1.2 Asset Register	Considering that ERT Sub-clause 26.1 is a requirement for asset register of spare parts into CMMS database, Bidder understands that taxonomy shown in Sub-clause 26.1.2 of ERT is for reference and Bidder should provide available information within the scope given in the contract package. Bidder understands that description in Sub-clause 26.1.3 of ERT also requires Bidder to provide available		The taxonomy shown in 26.1.7 and 26.1.3 are not for reference and mandatory information for CMMS. However, for information that is not available, the bidder can note as not applicable.

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		information within the scope given in the contract package. Please confirm if Bidder's understanding is correct.		
70	Volume II Part 2, Section VI, ERT-135 26.1.5 Asset Register	Sub-clause 26.1.5 of ERT states "The Contractor shall provide an Administrative Schedule to the CMMS Contractor to populate the CMMS Database Server which shall include but not be limited to: a. Personnel Details; b. Training; c. Warranties; d. Work schedule; e. Job Cards." It is Bidder's understanding that such information is under the management and the scope of an O&M contractor and Bidder will not be able to access such information. If this is correct, Bidder would like Employer to delete Sub-clause 26.1.5 of ERT from the requirement.		Bidder understanding is not correct. The preliminary information regarding this information shall be provided by the rolling stock contractor before CMMS been handed over to the O&M Concessionaire.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
71	Volume III Part 3, Section VIII, PC-8 Attachment 1 SUMMARY OF KEY DATES	This construction project for MCRP and NSRP-S is complex while there are many contract packages related each other and huge amount of interface coordination is required. Bidder is concerned if the Final Design Review of this project cannot be completed due to interface requirements unsettled because schedule of NS-01 bid is still not clear at the present time in such event, the Contractor's obligation cannot be fulfilled; thus, Bidder cannot control this KD. Bidder kindly requests Employer to delete this KD 1 requirement.		Bidder request is rejected. The time given for KD1 has considered the contract award for CP NS-01.
72	Volume III Part 3, Section VIII, PC-8 Attachment 1 SUMMARY OF KEY DATES	"AD-1A" is set as on-board signaling system to be supplied by NS-01 contractor in "30 months" from the commencement date in ATTACHMENT 2 "TIME FOR ACCESS TO THE SITE" of PC. On the other hand, "KD 3 Achievement:		Bidder request is not accepted. FAT/FAI are for trainset component not for onboard equipment from CP NS-01. So, there should be no issue for the KD 3.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		Completing FAI and FAT" is defined as " in "25 months" from the commencement date". Therefore, "KD 3" is not considered achievable as well as current "AD-1A" schedule. Bidder kindly requests Employer to revise or delete "KD 3" from the requirement.		
73	Volume III Part 3, Section VIII, PC-8,9 Attachment 1 SUMMARY OF KEY DATES	Regarding interface with the other rolling stock contractor, Sub-clause 4.1.1 of ERT states “The end car in each train shall be fitted with an automatic coupler. It shall be possible to directly couple all the trains running on the NSCR, MCRP and NSRP-South” lines without an adapter during train rescue or hauling.” In "(3) of Attachment 1" of PC, “Package CP NS-03 Rolling Stock - Limited Express Trainsets” is also listed as the contract package which CP NS-02 will be required to interface with. Since the bid of CP NS-03 is not		Bidder’s understanding is correct. Please be noted the coupler details should be complied with CP 03 coupler.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		tendered as of this date, rolling stock specification of CP NS-02 will have to be determined with high possibility before CP NS-03 enters its detail design stage. It is Bidder's understanding that in such a case the CP NS-03 contractor will become responsible to design their rolling stock compatible with CP NS-02 in terms of interface. Please confirm if Bidder's understanding is correct.		
74	Volume III Part 3, Section VIII, PC-8 Attachment 1 SUMMARY OF KEY DATES	Bidder would like to suggest that Maintenance staff training and Engineering staff training are better to be completed just before the completion of works so that trainees can engage with their expected tasks not so long after the training done by the Contractor. Bidder thus kindly requests Employer to amend KD : 5 as follows; KD 5 : Completion of training except		Bidder request is not accepted. The training should be completed before the 1st batch of the train delivered to the site as a part of the preparation to support train maintenance. Thus the request is rejected.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		the one for Heavy Maintenance and delivery of Operation and Maintenance Manual : 46 months		
75	Volume III Part 3, Section VIII, PC-12 Attachment 2 TIME FOR ACCESS TO THE SITE	Based on the AD 5 "Access to the mainline from Calamba to Alabang" in ATTACHMENT 2 "TIME FOR ACCESS TO THE SITE" of PC, Bidder understands that the construction of NSRP-S will be partially completed. It is Bidder's understanding that the mainline from Calamba to Alabang will be fully prepared for trial operation before the whole section of NSRP-S is completed. Bidder would like to confirm if such understanding is correct. Bidder also would like Employer to clarify which access date will be expected as milestone for service operation start in the NSRP-S section; either AD 5 or AD 6		Bidder's understanding is correct. AD-5 is the milestone for the access date between Alabang and Calamba.AD-6 will be for the whole alignment access date from Clark to Calamba.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
76	Volume III Part 3, Section VIII, PC-12 Attachment 2 TIME FOR ACCESS TO THE SITE	It is necessary to know when the NS-02 contractor is expected to obtain permission of starting testing and commissioning on the mainline of NSRP-S. It is Bidder's understanding that alike AD 2,3, and 4 in ATTACHMENT 2 "TIME FOR ACCESS TO THE SITE" of PC, AD 5 and 6 mean readiness for testing, commissioning, and test running. Bidder would like to confirm if such understanding is correct; otherwise, Bidder kindly asks Employer to define the milestones when construction of signaling system are to be completed on the mainline of NSRP-S.		Bidder's understanding is correct.
77	Volume III Part 3, Section VIII, PC-16 4.19 Electricity, Water and Gas	Sub-clause 4.19 of PC states "The Employer will not provide the Contractor with any power, water or other services for the Contractor's construction activities and the static tests. The Contractor shall be		Bidder understanding is not correct. Any activities' cost that utilized the non-traction power shall be shouldered by the bidder.

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Item No.	Volume Section No. Page No. Clause No. / Title Reference Text	Clarification Request	Proposed Revised Text (if any)	Response
		responsible for the provision of all power, water and other services he may require for his construction and assembly activities and the static tests. The Employer will be responsible for the provision of and payment for electricity for Traction Power for Test Running and Performance Proving both in the depots and on the mainline." However, it is Bidder's understanding that in addition to Traction Power, Employer shall be responsible for provision of and payment for electricity which will be used for assembly and static test as a part of rolling stock commissioning and acceptance process at the Depot and on the mainline. Please confirm if Bidder's understanding is correct.		

Annex B

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<table>
<tr><th>ITEM NO.</th><th>REFERENCE/CLAUSE/ SECTION</th><th>REVISIONS / AMENDMENTS</th></tr>
<tr><td colspan="3">Volume I. Part 1 – Bidding Procedures</td></tr>
<tr><td>1.</td><td>Page IFB-2
Item 9</td><td><u>Revised item 9 for the following:</u>

9. Bids must be delivered to the address above on or before 10:00 AM on 15 January 2021 and must be accompanied by a Bid Security of Japanese Yen One Billion (JPY 1,000,000,000).</td></tr>
<tr><td>2</td><td>BDS-6
ITB 24.1</td><td><u>Revised ITB 24.1 for the following:</u>

<table>
<tr><td>ITB 24.1</td><td>For Bid submission purposes only, and acting on behalf of the Employer, the Procuring Agent’s address is:
Attention: Joseph Conrad D Dueñas
The Chairperson
Bids and Awards Committee IV

Address: Procurement Service
RR Road, Cristobal Street,
Paco, Manila</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td></td><td><table><tr><td></td><td>The deadline for Bid submission is:
Date: 15 January 2021
Time: 10:00 AM</td></tr></table></td></tr>
<tr><td>3.</td><td>Page EQC-13
2. Proposed Project Management Plan</td><td><u>Revised item 8 for the following:</u>
<table><tr><th>Position</th><th>Total Work Experience (years)</th><th>Experience in Similar Works (years)</th><th>Experience as Manager (years)</th></tr><tr><td>8. Safety Officer</td><td>10</td><td>5</td><td>3</td></tr></table></td></tr>
<tr><td>4.</td><td>Page No. EQC-14
4. Proposed Major Plant and Equipment</td><td><u>Revised item 4 with the following:</u>
The Bidder must demonstrate that it has key construction plant and equipment listed hereafter:
<table><tr><td>No.</td><td>Equipment Type and Characteristics</td><td>Minimum Number Required</td></tr><tr><td>1</td><td>Crane car necessary for lifting or assembling the Rolling Stock at the port and/or the Depot</td><td>1</td></tr><tr><td>2</td><td>Trailer car necessary for transporting the Rolling Stock from the port to the Depot</td><td>1</td></tr><tr><td>3</td><td>Body Loading Test Facility</td><td>1</td></tr><tr><td>4</td><td>Car Construction Surface Plate</td><td>1</td></tr></table></td></tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td>
<table>
<tr><td>5</td><td>Spot Welding Facility</td><td>1</td></tr>
<tr><td>6</td><td>Water Tightness Testing Facility</td><td>1</td></tr>
<tr><td>7</td><td>Vehicle Weighing Facility</td><td>1</td></tr>
<tr><td>8</td><td>Inspection Track (with DC 1500 V Overhead Contact Line)</td><td>1</td></tr>
<tr><td>9</td><td>Curve Test Facility</td><td>1</td></tr>
</table>
Items nos. 1 to 2 – to be mobilized to the port/Depot/Site
Item nos. 3 to 9 – available at the manufacturer’s facility
The Bidder shall provide further details of the proposed equipment using Form EQU in Section IV, Bidding Forms
</td>
</tr>
<tr>
<td>5.</td>
<td>Page No. EQC-16
5. Proposed Subcontractors/Manufacturers for Major Items of Plant and Installation Services</td>
<td>
<u>Removed item 18 from table under section 5.1 to following:</u>
<table>
<tr><th>Item No.</th><th>Description of Item</th><th>Minimum Criteria to be Met by Subcontractors / Manufacturers</th></tr>
<tr><td>1</td><td>Bogie</td><td rowspan="3">Minimum of ten (10) years of Manufacturing Experience of mass-produced products</td></tr>
<tr><td>2</td><td>Wheel and Axle</td></tr>
<tr><td>3</td><td>Tread Brake</td></tr>
<tr><td>4</td><td>a. Traction Motor
b. Propulsion Unit</td><td>Minimum of ten (10) of years Manufacturing Experience of mass-produced products with proven</td></tr>
</table>
</td>
</tr>
</table>

					reliability of at least five (5) years' service (Ref. TS 11.4.1)	
			5	Power Conversion Equipment (PCE)	Minimum of ten (10) years of Manufacturing Experience of mass-produced products	
			6	Gear Box	Minimum of ten (10) years of Manufacturing Experience of mass-produced products	
			7	Coupler and Draft-Gear		
			8	Brake System with trainset brake control function		
			9	Air Compressor		
			10	Auxiliary Power Supply Equipment		
			11	Air Conditioning Unit		
			12	Pantograph		
			13	Door System		
			14	Train Management System with control transmission		
			15	LCD Display System for passenger cabin		

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>16</td><td>Battery</td></tr>
<tr><td>17</td><td>Communications System</td></tr>
<tr><td>18</td><td>CCTV System</td></tr>
</table>
</td></tr>
<tr><td>6.</td><td>Page BF-16
Appendix 7.2:
PROPOSED PROJECT MANAGEMENT PLAN</td><td><u>Revised item 2.2 with the following:</u>

2.2 Key management personnel and engineering personnel and specialists shall include: Project Manager, Technical Director, Design Manager, Manufacturing Manager, Testing & Commissioning Manager, Quality Assurance Manager and Safety Officer. With the exception of the Project Manager, the aforementioned personnel may be from Specialist Subcontractors.</td></tr>
<tr><td>7.</td><td>Page BF-17
Appendix 7.3:
PROPOSED METHOD OF IMPLEMENTATION OF THE WORKS</td><td><u>Revised item 2.1.4 g) with the following:</u>

g) Preliminary schematic and block diagrams such as propulsion, brake, train management system, door control and auxiliary system, air supply diagram, air conditioning and, communication system.</td></tr>
<tr><td>8.</td><td>Page BF-25
Appendix 7.8: SUPPLY SOURCE OF CAPITAL SPARE PARTS, CONSUMABLES AND SPECIAL TOOLS, JIGS AND TEST EQUIPMENT</td><td><u>Revised Appendix 7.8 with the following:</u>

The Bidder shall furnish a preliminary plan for the supply source of spare parts, special tools, and consumables, etc., in accordance with the Employer’s Requirements

The Bidder shall also provide the information of full particulars including available sources of all spare parts, special tools, etc., listed under TS Clause 24.2 in accordance with ITB 16.1(b), using Form SPA provided in these Bidding Forms.</td></tr>
</table>

<table>
<tr>
<td>9.</td>
<td>Page BF-54
SCHEDULE OF ADJUSTMENT DATA</td>
<td><u>Revised Table B note to the following:</u>
The foreign currency portion (Japanese Yen) of the fixed portion of the Contract Price shall be adjusted by applying the Consumer Price Index of all Japanese items published by the Statistics Bureau of Japan. The base value and date for the relevant index shall be indicated by the Bidder and the copy of the reference index shall be attached hereto for identification purpose.
The source of index for the foreign currency other than Japanese Yen shall be proposed by the Bidder. The base value and date for the relevant index shall be indicated by the Bidder and the copy of the reference index shall be attached hereto for identification purpose.</td>
</tr>
<tr>
<td>10.</td>
<td>Page BF-58
SCHEDULE 3: LIST OF JAPANESE ORIGIN, GOODS AND SERVICES</td>
<td><u>Revised table in page BF-58 to the following:</u>
<table>
<tr><td rowspan="2">Description</td><td colspan="3">Amount</td></tr>
<tr><td>Local Currency</td><td>Foreign Currency</td><td>Equivalent to Japanese Yen</td></tr>
<tr><td>Total Bid Amount excluding Value Added Tax (B)</td><td></td><td></td><td>(B)</td></tr>
<tr><td colspan="3">General Administration Expenses (C) = (B) x (c) x 7.41%;
(i) where the Bidder is a single Japanese entity, (c) is 1.00, or</td><td>(C)</td></tr>
</table>
</td>
</tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>(ii) where the Bidder is a JV consisting of Japanese entities, (c) is 1.00, or

(iii) where the Bidder is a JV consisting of a Japanese entity and a Philippines entity, (C) is the total share of the Japanese entity in the JV.</td><td></td></tr>
<tr><td>Total Amount of Japanese Component (D) = (A) + (C)</td><td>(D)</td></tr>
<tr><td>Total Bid Amount including Value Added Tax (Equivalent to Japanese Yen)</td><td>(E)</td></tr>
<tr><td>Total Percentage of Japanese Component (F) = (D) / (E)</td><td>(F)</td></tr>
</table>
</td></tr>
<tr><td>11.</td><td>BF-84
Form SUB: Proposed Subcontractors/Manufacturers for Major Items of Plant and Installation Services</td><td>
<u>Revised the table to the following:</u>
<table>
<tr><th>Major Items of Plant and Installation Services</th><th>Proposed Subcontractors / Manufacturers</th><th>Nationality / Country of Manufacturing</th><th>Statement of Similar Works Previously Executed</th></tr>
<tr><td>1. Bogie</td><td></td><td></td><td></td></tr>
<tr><td>2. Wheel and Axle</td><td></td><td></td><td></td></tr>
<tr><td>3. Tread Brake</td><td></td><td></td><td></td></tr>
<tr><td>4a. Traction Motor</td><td></td><td></td><td></td></tr>
<tr><td>4b. Propulsion Unit</td><td></td><td></td><td></td></tr>
<tr><td>5. Power Conversion Equipment (PCE)</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

		6. Gear Box			
		7. Coupler and Draft-Gear			
		8. Brake System with train-set brake control function			
		9. Air Compressor			
		10. Auxiliary Power Supply Equipment			
		11. Air Conditioning Unit			
		12. Pantograph			
		13. Door system			
		14. Train Management System with control transmission			
		15. LCD Display System for passenger cabin			
		16. Battery			
		17. Communications System			
		18. CCTV System			

		19. Carbody				

PACKAGE CP NS-02: ROLLING STOCK COMMUTER TRAINSETS
General Bid Bulletin No. 6
Annex B

Volume II. Part 2 – Employer Requirement
Section VI
1. Scope of Work
2A) General Requirements (ERG)
2B) Technical Requirements (ERT)

ITEM NO.	REFERENCE/CLAUSE/SECTION	REVISIONS / AMENDMENTS
2.	Page ERG-52 Item 9.3.1	Revised item 9.3.1 with the following: 9.3.1 The Contractor shall transmit all submissions to the Engineer as required under the Contract and shall establish and implement a comprehensive Digital Electronic Information Management System at their own cost as given Notice of No Objection by the Engineer to suit the Project requirements for the transmittal of formal correspondence, documents, drawings and information and ensure efficient information management on the Project including the tracking of Progress with user friendly Monitoring, Tracker Modules, Dash boards, Triggers and reminders throughout the project life from Design stage to Testing & Commissioning and trial operation.
4.	Page ERG-60 Item 10.2.4.2 g.	Revised item 10.2.4.2 g with the following: g. Trial Operation: After completion of commissioning, the Contractor shall be required to take part in trial operation with other interface contractors as decided. The activities shall indicate tests, measurements and interface tests required to be carried out to verify system performance and readiness for revenue service;

5.	Page ERG-65 Item 10.4.1.3	<u>Revised item 10.4.1.3 with the following:</u> 10.4.1.3 The Contractor shall attend the meetings including the Contractor's representative QC Manager and Safety Officer and other key personnel as appropriate. Additionally, the Contractor shall ensure that its sub-contractors, suppliers and consultants attend meetings when so required.
6.	Page ERG-68 Item 12.1.8 Item 12.1.10	Revised item 12.1.8 and 12.1.10 with the following: 12.1.8 The Contractor shall provide a sufficient number of train driver for testing and commissioning and any related works utilizing commuter train. 12.1.10 The cost to provide water and other services including train operation personnel (train operators and rolling stock personnel) required for inspection, testing and commissioning including integrated testing and commissioning and trial operation shall be borne by the Contractor. Train operator and associated rolling stock personnel required for all Interfacing Contractors will be provided by the CP NS-02 Contractor (24/7) as required) for the completion of testing & commissioning.
7.	Page ERG-77 Item 16.4.3	<u>Removed section 16.4.3</u> ~~6.4.3 Website~~ ~~16.4.3.1 The Contractor shall establish a website with the guidance of Engineer and Employer which gives a clear description of the MCRP and NSRP-South Project, the Works, indication of anticipated completion date, public relations exercises, traffic control issues and details of the enquiry hotline. The website shall be updated regularly to ensure that the information is up to date. The site shall make provision for the public and stakeholders~~

<table>
<tr><td></td><td></td><td><s>to submit comments, feedback and complaints, which shall be addressed and responded to by the Contractor as per the PR Plan.</s></td></tr>
<tr><td>8.</td><td>Page ERG-99
Table B.2</td><td><u>Revised Table B.2 with the following:</u>
<table>
<tr><th>ITEM</th><th>DESCRIPTION</th><th>SUPPLY</th><th>North WKS</th><th>North LRS</th><th>South LRS</th></tr>
<tr><td>1</td><td>Workshop Facilities</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.1</td><td>Turn table for bogie</td><td>CP NS-01</td><td></td><td></td><td></td></tr>
<tr><td>1.2</td><td>Lifting jack for car body</td><td>CP NS-01</td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>Testing Equipment</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2.1</td><td>Portable test unit for traction controller (with software)</td><td>CP NS-02</td><td>✔</td><td>✔</td><td>✔</td></tr>
<tr><td>2.2</td><td>Portable test unit for auxiliary power supply equipment (with software)</td><td>CP NS-02</td><td>✔</td><td>✔</td><td>✔</td></tr>
<tr><td>2.3</td><td>Portable test unit for air conditioning unit (with software)</td><td>CP NS-02</td><td>✔</td><td>✔</td><td>✔</td></tr>
<tr><td>2.4</td><td>Portable test unit for brake control unit (with software)</td><td>CP NS-02</td><td>✔</td><td>✔</td><td>✔</td></tr>
<tr><td>2.5</td><td>Portable test unit for TMS (with software)</td><td>CP NS-02</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>2.6</td><td>Test equipment for ACU</td><td>CP NS-02</td><td>✔</td><td></td><td></td></tr>
</table></td></tr>
</table>

		2.7	Test equipment for brake control unit	CP NS-02	✔			
		2.8	Testing equipment for relays	CP NS-01				
		2.9	Testing equipment for magnetic valves	CP NS-01				
		3	**Jigs/Test Stands**					
		3.1	Test stands for bogie	CP NS-02	✔			
		3.2	Lifting jig for ACU	CP NS-02	✔			
		3.3	Test stand for ACU	CP NS-02	✔			
		4	**Machining Tools**					
		4.1	Wheel re-profiling machine	CP NS-01				
		4.2	Wheel lathe	CP NS-01				
		5	**Tools for Maintenance Work**					
		5.1	Refrigerant retainer	CP NS-02	✔			
		5.2	Not used.	CP NS-02				
		5.3	Window glass lifting fixture (vacuum)	CP NS-02	✔	✔	✔	
		5.4	Crimping tool for electric connector (for each equipment)	CP NS-02	✔	✔	✔	

		5.5	Wrenches	CP NS-01				
		5.6	Power supply for testing electrical equipment	CP NS-01				
		5.7	Welding machine	CP NS-01				
		5.8	Soldering iron	CP NS-01				
		6	**Cleaning Facilities**					
		6.1	Train washing plant	CP NS-01				
		6.2	Parts washer	CP NS-01				
		7	**Measuring Tools**					
		7.1	Digital multi-meter	CP NS-01				
		7.2	Ohmmeter	CP NS-01				
		7.3	Wheel diameter measuring equipment	CP NS-02	✔	✔	✔	
		7.4	Back gauge measuring equipment	CP NS-02	✔	✔	✔	
		7.5	Wheel profile gauge	CP NS-02	✔	✔	✔	
		7.6	Coupler head wear gauge	CP NS-02	✔	✔	✔	
		7.7	Leak detector for refrigerant	CP NS-02	✔	✔	✔	

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>7.8</td><td>Tension gauge for measuring upward force of pantograph</td><td>CP NS-01</td><td></td><td></td><td></td></tr>
<tr><td>7.9</td><td>Vacuum pump for refrigerant</td><td>CP NS-01</td><td></td><td></td><td></td></tr>
<tr><td>8</td><td>Transportation Equipment</td><td></td><td></td><td></td><td></td></tr>
<tr><td>8.1</td><td>Shunting vehicle</td><td>CP NS-01</td><td></td><td></td><td></td></tr>
<tr><td>8.2</td><td>Truck for transporting air conditioning unit</td><td>CP NS-01</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>9.</td><td>Page 2 of 16
Appendix D
Item 2.7</td><td><u>Revised item 2.7 with the following:</u>

2.7 Trial Runs Operation: After completion of commissioning, the Contractor shall be required to take part in trial runs operation with other interface contractors as decided. The network/chart shall indicate tests, measurements and interface tests required to be carried out to verify system performance and readiness for revenue service.</td></tr>
<tr><td>10</td><td>Page ERT- 15
Item 1.13.1.6</td><td><u>Revised item 1.13.1.6 with the following:</u>

1.13.1.6 Semiconductor operating temperature rating shall meet or exceed +70 °C.</td></tr>
<tr><td>11.</td><td>Page ERT-30
Item 2.8.2.2
Item 2.8.2.5</td><td><u>Revised item 2.8.2.2 and added item, 2.8.2.5 with the following:</u>

2.8.2.2 The Contractor shall ensure that easy access steps with non-slip treads and handrails fit for purpose will be provided one (1) on each side of car on both sides, this will allow passengers to easily and safety exit the cars during evacuation circumstances when the car is not at platform level.</td></tr>
</table>

		Signage and instructions on how to alight from the train safely shall be provided for each passenger door. 2.8.2.5 The steps for evacuation used at there is evacuation passage along the line shall be mounted on the both sides of each saloon, because there is the gap between train and evacuation passage. It is necessary that passengers can use this feature easily.
12.	Page ERT-31 Item 2.9	<u>Removed section 2.9:</u> ~~2.9 Evacuation~~ ~~2.9.1 The ladders for evacuation at where there are no evacuation passages shall be mounted on the both sides of each vehicle. Two ladders shall be mounted on the one side (The total of four ladders shall be mounted). In case of evacuation from inside of vehicle to on-ground through the saloon doors, the passengers shall be able to evacuate by using these Ladders safe and quickly as possible.~~ ~~2.9.2 The steps for evacuation used at where there is evacuation passage along the line shall be mounted on the both sides of each saloon, because there is the gap between train and evacuation passage. It is necessary that passengers can use this feature easily.~~
13.	Page ERT-34 Item 3.4.5	<u>Removed item 3.4.5:</u> ~~3.4.5 Easy access shall be provided to both ends of all axles to allow ultrasonic testing of the axles. It shall be possible to carry out ultrasonic testing with the wheel set in situ under the cars.~~
14.	Page ERT-51 Item 6.5.4	<u>Revised item 6.5.4 with the following:</u> 6.5.4 The light intensity of headlights shall comply with Table.7 in the item 5.2.1 of JRIS R 16465 or other equivalent standards.

15.	Page ERT-70 Item 11.1.15	Revised item 11.1.15 with the following: 11.1.15 The design life of the main circuit semiconductors shall be 30 years or more, PECE and filter capacitor shall have the design life of 12 years or more.
16.	Page ERT-74 Item 12.1.6	Removed item 12.1.6 ~~12.1.6 The rigid overhead conductor shall be used in some section. For rigid overhead conductor, since detachment tends to occur easily, the spring structure to suppress detachment shall be equipped~~.
17.	Page ERT-79 Item 13.6.3.1	Revised item 13.6.3.1 with the following: 13.6.3.1 The battery contactor shall be a non-contact contactor for the opening and closing control of the 100 V dc circuit from the storage battery in the control voltage 100 V dc system and shall be composed of a control unit, the main circuit unit in which a semiconductor shall be incorporated and the circuit that shall be operated from the driver's cab. Other type of contact for the contactor is open for proposal and subject to engineer review.
18.	Page ERT-87 Item 15.4.2	Revised item 15.4.2 with the following: 15.4.2 The displays for advertisement (21.5-inch or more LCD) shall be installed between doors on both sides (total 6 displays per car). These displays shall be mounted above the window. Advertisement contents shall be installed into this system directly. Provision for the data uploading using wireless system shall be provided for future upgrade.
19	Page ERT-127 Item 24.2.5	Revised item 24.2.5 with the following: 24.2.5 The spare part supplied during DNP shall include at least the below list of spare parts as minimum. The quantity shall be based on one (1) trainset basis. If necessary, the Contractor shall adjust the quantity of each parts where required, considering two (2) depots and

<table>
<tr><td></td><td></td><td>maintainability and reliability, and actual fault record submitted by the Contractor for the Engineer review. Also, parts that are not on the list but are considered necessary for the train proposed by the Contractor shall be included in” Any other item”. Final list (item and quantity) shall be confirmed during design stage.</td></tr>
<tr><td>20,</td><td>Page ERT-132
Item 24.3.5</td><td>Revised Table 24.1 with the following:
<table>
<tr><th>ID</th><th>Name</th><th>North WKS</th><th>North LRS</th><th>South LRS</th></tr>
<tr><td rowspan="8">Light repair（2 depots）</td><td>Safety device tester</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>Event recorder reader</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>VVVF log reader</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>Brake control unit log reader</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>Rewriting device for internal display system</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>Rewriting device for external display system</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>Rewriting device for public address system</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td>Brake-pad replacement tool</td><td></td><td>✔</td><td>✔</td></tr>
<tr><td rowspan="3">PTU</td><td>VVVF</td><td>✔</td><td>✔</td><td>✔</td></tr>
<tr><td>BCU</td><td>✔</td><td>✔</td><td>✔</td></tr>
<tr><td>ACU</td><td>✔</td><td>✔</td><td>✔</td></tr>
</table></td></tr>
</table>

			Doors	✔	✔	✔	
			TMS	✔	✔	✔	
			APSE	✔	✔	✔	
		Bogie removal	Radius arm gauge	✔			
		Traction Motor	Motor disassembling/reassembling tools	✔			
			WM coupling extractor	✔			
			Non-disassembling bearing exchange special tool	✔			
		Bogie	Bogie disassembling/reassembling special tools	✔			
			Lock bolt for axle spring	✔			
		Tight lock coupler and draft gear	Special tool for draft gear	✔			
		Air Conditioner	Special tool for air conditioner overhaul	✔			
			Refrigerant extractor	✔			
			Refrigerant filler	✔			
			Gas leak tester	✔		✔	

			Cleaner for special parts	✔	✔	✔	
		Electric Shop	HB tester	✔	✔	✔	
			High voltage device tester	✔	✔	✔	
			Contactor tester	✔	✔	✔	
			Solenoid valve tester (supplied by CP NS-01)				
			Electronic relay tester (supplied by CP NS-01)				
			Door operating device tester	✔	✔	✔	
			Safety device tester	✔			
			Event recorder reader and analyzer	✔			
			Failure data reading device	✔			
			Train radio tester (supplied by CP NS-01)				
			Speed sensor tester	✔	✔	✔	
			VVVF inverter tester	✔	✔	✔	
			VVVF log reader	✔			
			Cleaner for special parts	✔	✔	✔	
		Bearings	Special tool for bearing overhaul	✔			
			Special tool for air-spring overhaul	✔			

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>Spring, Air Spring & Iron work</td><td>Special tool for damper overhaul</td><td>✔</td><td></td><td></td></tr>
<tr><td rowspan="4">Air Brake valve</td><td>Brake test equipment</td><td>✔</td><td></td><td></td></tr>
<tr><td>Brake control unit log reader</td><td>✔</td><td></td><td></td></tr>
<tr><td>Special tool for air valve overhaul</td><td>✔</td><td></td><td></td></tr>
<tr><td>Special tool for compressor overhaul</td><td>✔</td><td></td><td></td></tr>
<tr><td rowspan="2">Final adjustment</td><td>Safety device tester</td><td>✔</td><td></td><td></td></tr>
<tr><td>Event recorder reader</td><td>✔</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>21</td><td>Page ERT-138
Item 27.1.2</td><td><u>Revised item 27.1.2 with the following:</u>

27.1.2 The Contractor shall prepare a shipping manual to cover the shipping of all items covered under the Contract, including cars, spare parts and simulator part. The shipping manual shall detail the method, packaging and other details required to ensure the safe shipment to the delivery point. The shipping manual shall be submitted for review by the Engineer prior to the shipment of any equipment.</td></tr>
</table>

Annex B – Attachment 1

In addition to the over the counter payment at Procurement Service Cashier and due to the extraordinary circumstance and consistent with the effort of the Philippine Government to curb the further spread of the contagion, **payments may also be made via online domestic and international bank transaction through the following account:**

Bank:	**Land Bank of the Philippines – UN Branch**
Account Name:	**Procurement Service – DBM**
Account No:	**001442-1012-10**
Swift Code:	**TLBPPHMMXX**

Important Notes:

i. Due to 72-hours standard wire transfer clearing process for online transfers, bidders are strictly advised to ensure transfer of Submission of Bids or not later than 16 December 2020.

ii. Bidders who choose to transfer payments online shall ensure that the amount transferred shall be sufficient to cover the transfer fees of correspondent banks upon conversion of the original currency to Philippines Pesos.

iii. Bidder shall send proof of payment to the official BAC email on the same day of transfer.

iv. Please refer to Annex A-1 for the list of Depository Bank.

7. The PS will hold a Pre-Bid Conference on 6 October 2020 at 10.00 AM at Procurement Service, RR Road, Cristobal Street, Paco, Manila, which will be open to all interested parties, including those who have not purchased the Bidding Documents. Pursuant to the Presidential Proclamation on **COMMUNITY QUARANTINE** and **STRICT** implementation of social distancing due to the COVID-19 pandemic, the Procurement Service shall limit the number of attendees to a maximum of three (3) representatives per organization. Interested bidders are advised to notify the Committee of their intent to physically attend, with an advice on the number and names of the representatives. The sated notification may be sent to the same official email address.

   All interested parties may access the Pre-Bid Video Conference call through this link: **meet.google.com/zkh-qrqd-ubm** using the Google Meet Platform on the scheduled Pre-bid conference as stated above. Potential bidders who access the link shall be required to input their attendance, name, representation, and contact details as traditionally required in physical meetings.

8. The provisions in the Instructions to Bidders and the General Conditions of Contract are as contained in the Standard Bidding Documents (SBD) under Japanese ODA Loans for SBD (Design Build) published by JICA in July 2015 (Trial Version).

9. Bids must be delivered to the address above on or before 10:00 AM on 15~~6~~ ~~December~~January 2021~~0~~ and must be accompanied by a Bid Security of Japanese Yen One Billion (JPY 1,000,000,000).

In addition to the over the counter payment at Procurement Service Cashier and due to the extraordinary circumstance and consistent with the effort of the Philippine Government to curb the further spread of the contagion, **payments may also be made via online domestic and international bank transaction through the following account:**

Bank:	**Land Bank of the Philippines – UN Branch**
Account Name:	**Procurement Service – DBM**
Account No:	**001442-1012-10**
Swift Code:	**TLBPPHMMXX**

Important Notes:

i. Due to 72-hours standard wire transfer clearing process for online transfers, bidders are strictly advised to ensure transfer of Submission of Bids or not later than 16 December 2020.

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iv. Please refer to Annex A-1 for the list of Depository Bank.

7. The PS will hold a Pre-Bid Conference on 6 October 2020 at 10.00 AM at Procurement Service, RR Road, Cristobal Street, Paco, Manila, which will be open to all interested parties, including those who have not purchased the Bidding Documents. Pursuant to the Presidential Proclamation on **COMMUNITY QUARANTINE** and **STRICT** implementation of social distancing due to the COVID-19 pandemic, the Procurement Service shall limit the number of attendees to a maximum of three (3) representatives per organization. Interested bidders are advised to notify the Committee of their intent to physically attend, with an advice on the number and names of the representatives. The sated notification may be sent to the same official email address.

   All interested parties may access the Pre-Bid Video Conference call through this link: **meet.google.com/zkh-qrqd-ubm** using the Google Meet Platform on the scheduled Pre-bid conference as stated above. Potential bidders who access the link shall be required to input their attendance, name, representation, and contact details as traditionally required in physical meetings.

8. The provisions in the Instructions to Bidders and the General Conditions of Contract are as contained in the Standard Bidding Documents (SBD) under Japanese ODA Loans for SBD (Design Build) published by JICA in July 2015 (Trial Version).

9. Bids must be delivered to the address above on or before 10:00 AM on 15 January 2021 and must be accompanied by a Bid Security of Japanese Yen One Billion (JPY 1,000,000,000).

<table>
<tr><td>ITB 22.2</td><td>The written confirmation of authorization to sign on behalf of the Bidder shall, corresponding to whether the Bidder is a Corporation, Partnership, Joint Venture (JV) or Sole Proprietorship, consist of the applicable documents, as follows:

<table>
<tr><th></th><th>TYPE OF ENTITY</th><th>DOCUMENT</th></tr>
<tr><td>1</td><td>Corporation</td><td>Board Resolution with Board Secretary Certificate</td></tr>
<tr><td>2</td><td>Partnership</td><td>Articles of Partnership</td></tr>
<tr><td>3</td><td>Joint Venture (JV)</td><td>Special Power of Attorney (SPA)</td></tr>
</table>

For a Japanese Company bidding as a Corporation, a SPA may be substituted for a Board Resolution with Board Secretary Certificate.

However, in the case of a JV, evidence shall be provided to demonstrate that the person(s) signing the SPA is authorized to sign for and on behalf of each member of the JV.</td></tr>
<tr><td colspan="2">D. Submission and Opening of Bids</td></tr>
<tr><td>ITB 24.1</td><td>For <u>Bid submission purposes</u> only, and acting on behalf of the Employer, the Procuring Agent’s address is:
Attention: Joseph Conrad D Dueñas
The Chairperson
Bids and Awards Committee IV

Address: Procurement Service
RR Road, Cristobal Street,
Paco, Manila

The deadline for Bid submission is:
Date: 1<u>5</u>~~6~~ ~~December~~<u>January</u> 202<u>1</u>~~0~~
Time: 10:00 AM</td></tr>
<tr><td>ITB 27.1</td><td>The opening of the Technical Bids shall take place immediately after the deadline for submission of Bids in the presence of Bidders’ representatives who choose to attend at :

Procurement Service, RR Road, Cristobal Street,
Paco, Manila.</td></tr>
</table>

<table>
<tr><td>ITB 22.2</td><td>The written confirmation of authorization to sign on behalf of the Bidder shall, corresponding to whether the Bidder is a Corporation, Partnership, Joint Venture (JV) or Sole Proprietorship, consist of the applicable documents, as follows:

<table>
<tr><th></th><th>TYPE OF ENTITY</th><th>DOCUMENT</th></tr>
<tr><td>1</td><td>Corporation</td><td>Board Resolution with Board Secretary Certificate</td></tr>
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However, in the case of a JV, evidence shall be provided to demonstrate that the person(s) signing the SPA is authorized to sign for and on behalf of each member of the JV.</td></tr>
<tr><td colspan="2">D. Submission and Opening of Bids</td></tr>
<tr><td>ITB 24.1</td><td>For <u>Bid submission purposes</u> only, and acting on behalf of the Employer, the Procuring Agent’s address is:
Attention: Joseph Conrad D Dueñas
The Chairperson
Bids and Awards Committee IV

Address: Procurement Service
RR Road, Cristobal Street,
Paco, Manila

The deadline for Bid submission is:
Date: 15 January 2021
Time: 10:00 AM</td></tr>
<tr><td>ITB 27.1</td><td>The opening of the Technical Bids shall take place immediately after the deadline for submission of Bids in the presence of Bidders’ representatives who choose to attend at :

Procurement Service, RR Road, Cristobal Street,
Paco, Manila.</td></tr>
</table>

		3. Design Manager	15	5	3
		4. Interface Manager	15	5	3
		5. Manufacturing Manager	10	5	3
		6. Testing & Commissioning Manager	10	5	3
		7. Quality Assurance Manager	10	5	3
		8. ~~Health &~~ Safety ~~(Accident Prevention)~~ Officer	10	5	3
		With the exception of the Project Manager, the above personnel may be from Specialist Subcontractors. The Bidder shall provide details of the proposed personnel and their experience records in Form PER-1 and PER-2 in Section IV, Bidding Forms.			
		2.2.1 Adequacy of Proposed Key Personnel			
	2.3	Personnel Mobilization Schedule – the Bidder shall provide details of the proposed personnel and their experience records in Forms PER-1 and PER-2 in Section IV, Bidding Forms.			
		2.3.1 Appropriateness of Mobilization Schedule and Correlation with Work Items			
3		**Proposed Method of Implementation of the Works**			
	3.1	Appropriateness of Proposed Method of Implementation of the following Works Activities:			
		3.1.1 Provision of the data and/or documents for design, manufacture, assembling and test			
		3.1.2 Provision of the data and/or documents for Training			
		3.1.3 Provision of the data and/or documents for supplying spare parts and consumables			
		3.1.4 Provision of the data and/or documents for design life and required general overhaul (Renewal) plan based on design life			

		3. Design Manager	15	5	3
		4. Interface Manager	15	5	3
		5. Manufacturing Manager	10	5	3
		6. Testing & Commissioning Manager	10	5	3
		7. Quality Assurance Manager	10	5	3
		8. Safety Officer	10	5	3
		With the exception of the Project Manager, the above personnel may be from Specialist Subcontractors. The Bidder shall provide details of the proposed personnel and their experience records in Form PER-1 and PER-2 in Section IV, Bidding Forms.			
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		3.1.2 Provision of the data and/or documents for Training			
		3.1.3 Provision of the data and/or documents for supplying spare parts and consumables			
		3.1.4 Provision of the data and/or documents for design life and required general overhaul (Renewal) plan based on design life			

4		**Proposed Major Plant and Equipment**

<table>
<tr><td>4</td><td></td><td>Proposed Major Plant and Equipment</td></tr>
<tr><td></td><td></td><td>The Bidder must demonstrate that it has key construction plant and equipment listed hereafter:
<table>
<tr><th>No.</th><th>Equipment Type and Characteristics</th><th>Minimum Number Required</th></tr>
<tr><td>1</td><td>Crane car necessary for lifting or assembling the Rolling Stock at the port and/or the Depot</td><td>1</td></tr>
<tr><td>2</td><td>Trailer car necessary for transporting the Rolling Stock from the port to the Depot</td><td>1</td></tr>
<tr><td>3</td><td>Body Loading Test Facility</td><td>1</td></tr>
<tr><td>4</td><td>Car Construction Surface Plate</td><td>1</td></tr>
<tr><td>5</td><td>Spot Welding Facility</td><td>1</td></tr>
<tr><td>6</td><td>Water Tightness Testing Facility</td><td>1</td></tr>
<tr><td>7</td><td>Vehicle Weighing Facility</td><td>1</td></tr>
<tr><td>8</td><td>Inspection Track (with DC 1500 V Overhead Contact Line)</td><td>1</td></tr>
<tr><td>9</td><td>Curve Test Facility</td><td>1</td></tr>
</table>
Items nos. 1 to 23 – to be mobilized to the port/Depot/Site

Item nos. 34 to 98 – available at the manufacturer’s facility

The Bidder shall provide further details of the proposed equipment using Form EQU in Section IV, Bidding Forms</td></tr>
<tr><td></td><td>4.1</td><td>Adequacy of Plant and Equipment intended to mobilize</td></tr>
<tr><td>5</td><td></td><td>Proposed Subcontractors/Manufacturers for Major Items of Plant and Installation Services

Note: The prime contractor can be also be a manufacturer.</td></tr>
<tr><td></td><td>5.1</td><td>The subcontractors/manufacturers for the following major items of supply or services must meet the following minimum criteria, herein listed for that item. The Bidder shall provide information relating to any proposed subcontractors/manufacturers.</td></tr>
</table>

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<tr><td>9</td><td>Curve Test Facility</td><td>1</td></tr>
</table>
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Item nos. 3 to 9 – available at the manufacturer’s facility

The Bidder shall provide further details of the proposed equipment using Form EQU in Section IV, Bidding Forms</td></tr>
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</table>

		~~18~~ ~~Train Operation Simulator~~
		19 CCTV System
		Failure to comply with these requirements will result in the rejection of the proposed Subcontractors/Manufacturers. In the case of a Bidder who offers to supply and install major items of supply under the Contract that the Bidder did not manufacture or otherwise produce, the Bidder shall provide the manufacturer's authorization, using Form MAN: Manufacturer's Authorization provided in Section IV, Bidding Forms, showing that the Bidder 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 Bidder is responsible for ensuring that the manufacturer or producer complies with the requirements of ITB 4 and ITB 5 and meets the minimum criteria listed above for that item.
		5.1.1 Appropriateness of the proposed subcontractors/manufacturers
6	**Works Management Plan**	
	6.1	Outline Quality Management Plan
		6.1.1 Appropriateness of plan, organization and methodology to manage Quality
	6.2	Outline Site Safety Management Plan
		6.2.1 Appropriateness of plan, organization and methodology to manage Site Safety Management
	6.3	Outline System Assurance Management Plan
		6.3.1 Appropriateness of plan, organization and methodology to manage System Assurance Management
	6.4	Outline Environmental Management Plan
		6.4.1 Appropriateness of plan, organization and methodology to manage Environmental Control
	6.5	Outline Project Management Plan
		6.5.1 Appropriateness of plan, organization and methodology to manage the Project
	6.6	Outline Interface Management Plan
		6.6.1 Appropriateness of plan, organization and methodology to manage

		<table><tr><td>18</td><td>CCTV System</td><td></td></tr></table> Failure to comply with these requirements will result in the rejection of the proposed Subcontractors/Manufacturers. In the case of a Bidder who offers to supply and install major items of supply under the Contract that the Bidder did not manufacture or otherwise produce, the Bidder shall provide the manufacturer's authorization, using Form MAN: Manufacturer's Authorization provided in Section IV, Bidding Forms, showing that the Bidder 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 Bidder is responsible for ensuring that the manufacturer or producer complies with the requirements of ITB 4 and ITB 5 and meets the minimum criteria listed above for that item.
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		6.5.1 Appropriateness of plan, organization and methodology to manage the Project
	6.6	Outline Interface Management Plan
		6.6.1 Appropriateness of plan, organization and methodology to manage Interfacing
	6.7	Outline Inspection, Testing and Commissioning Plan

APPENDIX 7.2: PROPOSED PROJECT MANAGEMENT PLAN

1. Proposed Project Management Organization

1.1 The Bidder shall submit a Project Management Structure and Organization Chart to demonstrate how it will organize and manage its work activities, both in the Country and abroad, including areas of responsibility, relative seniorities and lines of communication.

2. Proposed Key Personnel

2.1 The Bidder shall submit, in its Technical Bid, its Proposed Key Personnel who shall meet the requirement described in Section III, Evaluation and Qualification Criteria, Sub-Clause 3.2-2.2 (Proposed Key Personnel), indicating names, qualifications, professional experience and corporate affiliation of all proposed key management and engineering personnel and specialists, using Forms **PER-1: Proposed Personnel** and **PER-2: Resume of Proposed Personnel** annexed to these Bidding Forms. The Bidder shall also demonstrate the capability of its key management and engineering personnel and specialists for their respective roles.

2.2 Key management personnel and engineering personnel and specialists shall include: Project Manager, Technical Director, Design Manager, Manufacturing Manager, Testing & Commissioning Manager, Quality Assurance Manager and ~~Health &~~ Safety ~~(Accident Prevention)~~ Officer. With the exception of the Project Manager, the aforementioned personnel may be from Specialist Subcontractors.

2.3 The suitability of the proposed key management and engineering personnel and specialists to be deployed by the successful Bidder will be evaluated for acceptability. The corresponding list of the acceptable candidates for each position may be completed and attached to the Contract Agreement.

3. Personnel Mobilization Schedule

3.1 The Bidder shall also submit the mobilization schedule, for both in the country and abroad, of key management and engineering personnel and specialists, together with managers, engineers, experts, etc. to demonstrate how the Bidder proposes to carry out the Works.

4. Major Plant and Equipment Mobilization Schedule

4.1 The Bidder shall also submit the mobilization schedule at the Site, of major plant and equipment identified in Appendix 7.4.

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APPENDIX 7.3: PROPOSED METHOD OF IMPLEMENTATION OF THE WORKS

1. The Bidder's proposed method of implementation of the Works shall comply or, subject to reasonable development, be capable of complying with the Employer's Requirements in all respects. The Bidder's proposals shall demonstrate such compliance and shall establish firmly the intended design and methodology, and the Technical Specifications for the Rolling Stock, including training and knowledge transfer.

2. For the purpose of the evaluation of the Bid submission, the Bidder shall provide a detailed method of implementation of the Works including, but not limited to, the data and/or documents referred to in the following sections.

2.1 Provision of the following data and/or documents for design, manufacture, assembling and testing:

2.1.1 Details of the national or international standards and codes used for design;

2.1.2 Specifications for Rolling Stock;

2.1.3 Drawing of the relationship between cross-section and vehicle gauge on straight line and on tangent track;

2.1.4 Drawings of Rolling Stock as follows:

a) Train formation and general arrangement of each car showing principal dimensions;
b) Drawings of general layout showing all major features and equipment of interior including seat arrangement, exterior, cab, roof and under floor;
c) Drawings of car body structure outline;
d) Drawings of car body cross section including interior panel and equipment;
e) Drawings showing coupler arrangement;
f) Drawings of bogie with principal dimensions including bogie frame, primary suspension, secondary suspension, wheel set, brake equipment, traction motor and gear mounting, traction drive equipment, traction motor and gear mounting; and
g) Preliminary schematic and block diagrams such as propulsion, brake, train management system, door control and auxiliary system, air supply diagram, air conditioning and, communication system ~~and train simulator~~.

2.1.5 Weight plan and calculation of height of center of gravity, and calculation of wind speed to turnover against side wind at sharpest curve under empty condition;

2.1.6 Drawings indicating relationship between wheel profile and rail;

2.1.7 Drawings to examine relative displacement of car body, gangway and coupler on minimum radius curvature;

2.1.8 Characteristics showing speed, traction power and braking forces for 8-car train;

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APPENDIX 7.8: SUPPLY SOURCE OF CAPITAL SPARE PARTS, CONSUMABLES AND SPECIAL TOOLS, JIGS AND TEST EQUIPMENT

The Bidder shall furnish a preliminary plan for the supply source of spare parts, special tools, and consumables, etc., in accordance with the Employer's Requirements~~, Technical Specifications Clause 24.2.3, Guaranteed Period of Spare Parts, from the date of completion of the DNP~~.

The Bidder shall also provide the information of full particulars including available sources of all spare parts, special tools, etc., listed under TS Clause 24.2 in accordance with ITB 16.1(b), using **Form SPA** provided in these Bidding Forms.

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Table B. Foreign Currency (FC)

Currency: *[Insert name of currency. If the Bidder wishes to quote in both Japanese Yen and United States Dollars, then this table must be repeated for each currency.]*

(a)	(b)	(c)	(d)	(e)		(f)
Index Code and Factor	**Index Description**	**Source of Index**	**Base Value and Date**	**Bidder's Related Source Currency in Type/Amount**	**Equivalent in FC for Payment**	**Bidder's Proposed Weighting**
Fixed	Non-adjustable	-	-			A: 0.15 (fixed)
L: Labor	Labor Cost Index					B: 0.05-0.10
E: Equipment	Equipment Index					C: 0.40-0.55
M: Materials	Material Index					D: 0.25-0.35
			Total			**1.00**

The foreign currency portion (Japanese Yen) of the fixed portion of the Contract Price shall be adjusted by applying the Consumer Price Index of all Japanese items published by the Statistics Bureau of Japan. The base value and date for the relevant index shall be indicated by the Bidder and the copy of the reference index shall be attached hereto for identification purpose.

The source of index for the foreign currency other than Japanese Yen shall be proposed by the Bidder. The base value and date for the relevant index shall be indicated by the Bidder and the copy of the reference index shall be attached hereto for identification purpose.~~The foreign currency portion (United States Dollars) of the fixed portion of the Contract Price shall be adjusted by applying the Consumer Price Index published by the U.S. Bureau of Labor Statistics.~~

The Bidder shall fill in column (f) and specify a value within the ranges given by the Employer in B, C and D of column (g), so that the total weighting equals 1.00.

The prices quoted by the Bidder shall apply the Price Adjustment for the foreign currency portion per GC Clause 13.8.

Column "(d) Base Value and Date" is the Index value twenty-eight (28) days before the Bid Submission Date, to be provided by the Bidder.

Column "(e) Bidder's Related Currency Amount" is the foreign currency amount of the Total of column (e) (A+B+C+D) multiplied by the Bidder's weighting within the ranges shown in column (f) for each Index Code.

Bidder's Signature _____

Table B. Foreign Currency (FC)

Currency: *[Insert name of currency. If the Bidder wishes to quote in both Japanese Yen and United States Dollars, then this table must be repeated for each currency.]*

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Bidder's Signature _____

Total Percentage of Japanese Content

Exchange rate shall be as provided in ITB 37.1.

Description	Amount		
	Local Currency	Foreign Currency	Equivalent to Japanese Yen
Total Bid Amount excluding Value Added Tax (B)			(B)
General Administration Expenses (C) = (B) x (c) x 7.417%; (i) where the Bidder is a single Japanese entity, (c) is 1.00, or (ii) where the Bidder is a JV consisting of Japanese entities, (c) is 1.00, or (iii) where the Bidder is a JV consisting of a Japanese entity and a Philippines entity, (C) is the total share of the Japanese entity in the JV.			(C)
Total Amount of Japanese Component (D) = (A) + (C)			(D)
Total Bid Amount including Value Added Tax (Equivalent to Japanese Yen)			(E)
Total Percentage of Japanese Component (F) = (D) / (E)			(F)

Bidder's Signature _____

Total Percentage of Japanese Content

Exchange rate shall be as provided in ITB 37.1.

Description	Amount		
	Local Currency	Foreign Currency	Equivalent to Japanese Yen
Total Bid Amount excluding Value Added Tax (B)			(B)
General Administration Expenses (C) = (B) x (c) x 7.41%; (i) where the Bidder is a single Japanese entity, (c) is 1.00, or (ii) where the Bidder is a JV consisting of Japanese entities, (c) is 1.00, or (iii) where the Bidder is a JV consisting of a Japanese entity and a Philippines entity, (C) is the total share of the Japanese entity in the JV.			(C)
Total Amount of Japanese Component (D) = (A) + (C)			(D)
Total Bid Amount including Value Added Tax (Equivalent to Japanese Yen)			(E)
Total Percentage of Japanese Component (F) = (D) / (E)			(F)

Bidder's Signature _____

Form SUB: Proposed Subcontractors/Manufacturers for Major Items of Plant and Installation Services

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
IFB No.: PB20-023-4
Page *[insert page number]* of *[insert total number]*

A list of major items of Plant and Installation Services is provided below.

The following subcontractors and/or manufacturers are proposed for carrying out the item of the facilities indicated. Bidders are free to propose more than one for each item.

Major Items of Plant and Installation Services	Proposed Subcontractors / Manufacturers	Nationality / Country of Manufacturing	Statement of Similar Works Previously Executed
1. Bogie			
2. Wheel and Axle			
3. Tread Brake			
4a. Traction Motor			
4b. Propulsion Unit			
5. Power Conversion Equipment (PCE)			
6. Gear Box			
7. Coupler and Draft-Gear			
8. Brake System with train-set brake control function			
9. Air Compressor			
10. Auxiliary Power Supply Equipment			
11. Air Conditioning Unit			
12. Pantograph			
13. Door system			
14. Train Management System with control transmission			
15. LCD Display System for passenger cabin			
16. Battery			
17. Communications System			
~~18. Train Operation Simulator~~			
~~19.~~18. CCTV System			
19. Carbody			

Form SUB: Proposed Subcontractors/Manufacturers for Major Items of Plant and Installation Services

Date: *[insert day, month, year]*
Bidder's Legal Name: *[insert full name]*
IFB No.: PB20-023-4
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10. Auxiliary Power Supply Equipment			
11. Air Conditioning Unit			
12. Pantograph			
13. Door system			
14. Train Management System with control transmission			
15. LCD Display System for passenger cabin			
16. Battery			
17. Communications System			
18. CCTV System			
19. Carbody			

correspondence, documents, drawings and information and ensure efficient information management on the Project including the tracking of Progress with user friendly Monitoring, Tracker Modules, Dash boards, Triggers and reminders throughout the project life from Design stage to Testing & Commissioning and trial operation.

9.4 Submission of Information – General

9.4.1 The Contractor shall submit to the Engineer, designs, general arrangement and detail drawings, specifications, reports and other technical literature, method statements, calculations, schedules, programs, samples, patterns and models for review in accordance with the requirements of the Contractor's final time schedule.

9.4.2 The Contractor shall be responsible for the completeness of all information submitted.

9.4.3 The Contractor shall submit his designs for the works to the Engineer for review. The design shall be submitted in the following stages as stated in Sub-Clause 22.2 of the Technical Requirements:

a. Conceptual design;

b. Preliminary design; and

c. Final design.

9.5 Submission of Information for Review

9.5.1 Drawings, diagrams, specifications, calculations, technical details, reports, method statements, technical literature, schedules and all other documents submitted by the Contractor for review shall comply with the following:

a. The drawings, diagrams, specifications, calculations, schedules and all other documents shall be complete, duly signed and of good legible quality;

b. Drawings and diagrams shall be submitted on "A" series sheets. Drawings shall be titled, numbered and dated;

c. All specifications, calculations, schedules and documents shall have a front cover sheet stating the title, date and document reference number;

d. When schematics or diagrams are submitted, they shall be accompanied by all of the necessary supplementary information to describe the function and operation of the equipment;

e. When drawings, diagrams, specifications, calculations, schedules and other documents are revised and/or resubmitted for review approval, all the revisions shall be clearly defined and located on all copies, and the document reference number shall contain a revision letter or number. The letter accompanying the drawings shall list the following information in tabular form:

i. The drawing number, including the current revision letter or number;

ii. The drawing title;

iii. A brief description of the latest revision; and

iv. The reference number of the Engineer's letter, to which the revisions correspond.

a. The Contractor shall issue to the Engineer six (6) prints of each drawing and a copy of the electronic files. The electronic format shall be as given Notice of No Objection by the Engineer, but must allow the Engineer to clearly document future changes;

c. The assembling section showing the construction of the car body, piping and wiring, installation of equipment and furnishing of the interior;

d. The Testing section shall show individual car tests and train consist tests;

e. Testing, commissioning and acceptance: the factory and on-site testing and commissioning activities shall present the relationship and duration of those items relating to commissioning tests including those related to the interface contractors. (the activities shall present the testing approach and sequence to be used, the deployment of resources in accordance with Key Dates);

f. Integrated testing: The integrated testing activities indicating the activities required to verify the functioning of the Rolling Stock in conjunction with activities of the interface contractors;

g. Trial ~~Runs~~Operation: After completion of commissioning, the Contractor shall be required to take part in trial ~~runs~~ operation with other interface contractors as decided. The activities shall indicate tests, measurements and interface tests required to be carried out to verify system performance and readiness for revenue service;

h. Times allowed for review of submissions especially where the Engineer or Contractor has to liaise with other parties;

i. The dates by which the Contractor requires information from the Engineer and/or interface contractor(s) (if any);

j. The dates by which the Contractor requires instructions from the Engineer to carry out work described in the Contract under Provisional Sums;

k. The delivery periods and dates of arrival on Site of all major plant and materials and their relationship with any climatic or hydrological constraints; and

l. The dates and periods during which the Contractor shall enter onto Sites allocated to other contracts for execution of its Works (if applicable).

10.2.5 Detailed Works Program Updating and Revisions

10.2.5.1 The Contractor shall revise the initial reviewed (Baseline) detailed Works program and re-submit at intervals as required under the Contract or as directed by the Engineer; however, the period between such updates shall not exceed one month.

10.2.5.2 In addition, the Contractor shall immediately advise the Engineer of any proposed changes in the program.

10.2.5.3 Revised changes in the program shall show all operations of each major item of work from the time of commencement to the anticipated completion date, thereby indicating the periods during which work was previously underway as well as estimated future periods of design/manufacture/construction operations.

10.2.5.4 Each revised program shall indicate time periods ahead or behind the schedule for both completed activities and future activities, relative to the baseline program. The revised program and supporting report shall describe the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the time for completion.

10.2.5.5 No revisions shall be made to the completion date, except as formally instructed by the Engineer through a variation order.

c. The assembling section showing the construction of the car body, piping and wiring, installation of equipment and furnishing of the interior;

d. The Testing section shall show individual car tests and train consist tests;

e. Testing, commissioning and acceptance: the factory and on-site testing and commissioning activities shall present the relationship and duration of those items relating to commissioning tests including those related to the interface contractors. (the activities shall present the testing approach and sequence to be used, the deployment of resources in accordance with Key Dates);

f. Integrated testing: The integrated testing activities indicating the activities required to verify the functioning of the Rolling Stock in conjunction with activities of the interface contractors;

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10.2.5.5 No revisions shall be made to the completion date, except as formally instructed by the Engineer through a variation order.

10.2.6 Three-Monthly Rolling Program

10.2.6.1 Within 15 days from the commencement of the Works, the Contractor shall submit to

k. Material transportation status as per the material transportation plan given Notice of No Objection;

l. Record of documentation submitted within the month including a schedule of all submissions and consents/approvals obtained/outstanding; and

m. Monthly photographs and video productions.

10.4 Meeting Requirements

10.4.1 Progress Meetings

10.4.1.1 The Engineer shall conduct progress meetings with the Contractor throughout the Contract period to enable an orderly review of the progress of the Works to be undertaken, and to provide for systematic discussion of problems and key issues. The Employer may or may not attend the progress meetings.

10.4.1.2 The frequency of the meetings shall be as determined by the Engineer, however, shall not be less than monthly.

10.4.1.3 The Contractor shall attend the meetings including the Contractor's representative QC Manager and Safety ~~Manager~~ Officer and other key personnel as appropriate. Additionally, the Contractor shall ensure that its sub-contractors, suppliers and consultants attend meetings when so required.

10.4.1.4 The meetings shall follow an agenda to be issued forty-eight (48) hours prior to the meeting. The agenda may vary from time to time but shall in general be focused on progress made, measurement against Key Dates and Schedule of Prices, problems encountered and solutions to such problems.

10.4.1.5 Persons designated by the Contractor to attend and participate in the progress meetings shall have all required experience and authority to commit the Contractor to solutions agreed upon in the meetings.

10.4.1.6 The Contractor shall advise the Engineer at least twenty-four (24) hours in advance of progress meetings regarding items to be added to the agenda.

10.4.1.7 The Engineer shall compile minutes of each meeting and shall furnish to the Contractor for review and acceptance prior to issuance by the Engineer.

10.4.1.8 The agreed minutes of meeting shall be considered as formal correspondence and shall be binding on all parties. The meetings shall be held in a venue or by audio / video conference determined by the Engineer; however, to the maximum extent practicable, meetings shall be held at the Engineer's office.

10.4.2 Operation Meetings

10.4.2.1 Besides the progress meetings above, the Employer and the Engineer shall also conduct operational meetings with the Contractor and PNR as required. These meetings shall cover train operation issues related with the construction Works, including train operation, Works in the vicinity of the PNR railway, window time and material transport, etc.

10.4.3 Progress Reporting

10.4.3.1 The Contractor shall submit fortnightly a progress dashboard. This dashboard shall be accompanied by a detailed Material Control Schedule which tracks and records all material procurement activities. The formats used are to be agreed and given Notice of No Objection by the Engineer.

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12.1.4 All tests shall be carried out by the Contractor in the presence of the Employer and the Engineer in accordance with the agreed Quality Management Plan.

12.1.5 The Contractor shall provide testing procedures that shall be in accordance with the Technical Requirements and the International and Philippine Standards (as specified in the Technical Requirement Sub-Clause 1.2.2, Codes, Standards and Requirements).

12.1.6 The Contractor shall appoint a dedicated test and commissioning manager, to coordinate all activities of the commissioning schedule.

12.1.7 All costs associated with testing shall be borne by the Contractor, including any expenses incurred due to re-testing caused by defects or failure of equipment to meet the requirements of the Contract in the first instance.

~~12.1.7~~12.1.8 The Contractor shall provide a sufficient number of train driver for testing and commissioning and any related works utilizing the commuter train.

~~12.1.8~~12.1.9 The cost of permanent power which is consumed in testing and commissioning by the Contractor as part of the Works shall not be the responsibility of the Contractor.

~~12.1.9~~12.1.10 The cost to provide water and other services including train operation personnel (train operators and rolling stock personnel) required for inspection, testing and commissioning including integrated testing and commissioning and trial operation~~run~~ shall be borne by the Contractor. Train operator and associated rolling stock personnel required for all Interfacing Contractors will be provided by the CP NS-02 Contractor (24/7) as required) for the completion of testing & commissioning.

12.2 Inspection, Testing and Commissioning Plan

12.2.1 According to Sub-Clause 20.2.2 of the ERT the Contractor shall submit to the Engineer for review an inspection, testing and commissioning plan giving full details of all tests to be carried out under the Contract with an explanation of the planned achievements.

12.2.2 The plan shall demonstrate that the Rolling Stock conforms to specifications, standards and other normative documents.

12.2.3 Testing and commissioning shall be in accordance with the Railway Application Standard JIS E4041 for testing of Rolling Stock or on completion of construction and before entry into service and according to Clause 20 of the ERT.

12.2.4 The inspection, testing and commissioning plan shall include as a minimum the following tests:

a. Design Qualification Testing: As part of the design verification process, type tests shall be carried out to demonstrate that the design of the Rolling Stock and its systems are in full compliance with the requirements;

b. First Article Inspection: The first component produced shall be subjected to a rigorous test and inspection to confirm that the hardware fully complies with the Contractor's design and manufacturing process requirements;

c. Factory Acceptance Tests: Tests to be performed at the factory, before equipment is shipped as it is set out in the Sub-Clause 20.4.2 of the ERT;

d. On-Site Testing and Commissioning: Tests to be performed after delivery of the Rolling Stock at the Site comprising static and dynamic tests. After static tests at the depot, dynamic tests shall be carried out on the main line; and

e. Trial Operations: The Contractor shall undertake Trial Operations which shall take place at the completion of the testing and commissioning process. The Trial Operations shall be supported by the Engineer and other interested parties. It consists of operating the newly procured Rolling Stock, consideration simulating

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concerning the Project, local residents, property developments, shops, schools and sensitive receivers at least two months prior to the commencement of construction works;

b. Attend and participate in all public consultations and PR exercises;

c. Gain support, ease concerns and minimize objections from the public affected by the construction works through public consultation;

d. Address public concerns and feedback as far as possible to minimize disturbance to the public during construction, at the Contractor's own expenses; and

e. Report and give presentations to the Engineer, Employer, stakeholder agencies, NGOs and local authorities of the affected areas, about the progress of the construction works and other information as requested.

16.3.2 The Contractor shall ensure proper communications with the public by establishing an effective communication channel. The communications shall be open and transparent in the form of an interactive two-way system. Stakeholders and parties concerned shall be updated regularly on the progress of the Works and implementation of the Project through an easily accessible system, in particular on matters relating to local traffic control arrangements, expected delays, etc. Queries, feedback and comments from the stakeholders and parties concerned shall be considered and handled properly in an effective manner. An effective communication system of on-site notices, website and phone hotlines shall be established by the Contractor.

16.4 Public Relations Tools

16.4.1 The Contractor shall provide and make use of, but not be limited to, the following Public Relations tools in carrying out its PR duties.

16.4.2 Newsletter

16.4.2.1 The Contractor shall design and produce newsletters with the guidance of the Engineer at three-monthly intervals throughout the construction period and distribute to concerned Government departments, the Employer, stakeholders, related competent agencies, NGOs or individual members of the public, local authorities and people in the affected areas, etc. The newsletters shall be published in both English and Filipino Language providing in depth descriptions of the MCRP and NSRP-South Project and the latest development and construction progress of the Works. It shall highlight the benefits of the Project, Schedule of Prices events of the construction activities and mitigation measures taken to minimize the impact to the public. Ways of communication channels shall also be published in the newsletters such as the website, and phone numbers of the enquiry hotline.

~~**16.4.3 Website**~~

~~16.4.3.1 The Contractor shall establish a website with the guidance of Engineer and Employer which gives a clear description of the MCRP and NSRP-South Project, the Works, indication of anticipated completion date, public relations exercises, traffic control issues and details of the enquiry hotline. The website shall be updated regularly to ensure that the information is up-to-date. The site shall make provision for the public and stakeholders to submit comments, feedback and complaints, which shall be addressed and responded to by the Contractor as per the PR Plan.~~

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16.4.3 On-Site Notice

16.4.3.1 The Contractor shall post on-site notices with the guidance of the Engineer with a clear description of the Works and indication of anticipated completion dates together with the enquiry hotline and internet website information. Advance notices shall be given in carrying out the Works which maximize the impact on local residents.

Table B.2: Split Responsibility in Special Tools for Rolling Stock and Depot Equipment

ITEM	DESCRIPTION	SUPPLY	North WKS	North LRS	South LRS
1	**Workshop Facilities**				
1.1	Turn table for bogie	CP NS-01			
1.2	Lifting jack for car body	CP NS-01			
2	**Testing Equipment**				
2.1	Portable test unit for traction controller (with software)	CP NS-02	✔	✔	✔
2.2	Portable test unit for auxiliary power supply equipment (with software)	CP NS-02	✔	✔	✔
2.3	Portable test unit for air conditioning unit (with software)	CP NS-02	✔	✔	✔
2.4	Portable test unit for brake control unit (with software)	CP NS-02	✔	✔	✔
2.5	Portable test unit for TMS (with software)	CP NS-02		✔	✔
2.6	Test equipment for ACU	CP NS-02	✔		
2.7	Test equipment for brake control unit	CP NS-02	✔		
2.8	Testing equipment for relays	CP NS-01			
2.9	Testing equipment for magnetic valves	CP NS-01			
3	**Jigs/Test Stands**				
3.1	Test stands for bogie	CP NS-02	✔		
3.2	Lifting jig for ACU	CP NS-02	✔		
3.3	Test stand for ACU	CP NS-02	✔		
4	**Machining Tools**				
4.1	Wheel re-profiling machine	CP NS-01			
4.2	Wheel lathe	CP NS-01			

5	**Tools for Maintenance Work**				
5.1	Refrigerant retainer	CP NS-02	✔		
5.2	Not used.	CP NS-02			
5.3	Window glass lifting fixture (vacuum)	CP NS-02	✔	✔	✔
5.4	Crimping tool for electric connector (for each equipment)	CP NS-02	✔	✔	✔
5.5	Wrenches	CP NS-01			
5.6	Power supply for testing electrical equipment	CP NS-01			
5.7	Welding machine	CP NS-01			
5.8	Soldering iron	CP NS-01			
6	**Cleaning Facilities**				
6.1	Train washing plant	CP NS-01			
6.2	Parts washer	CP NS-01			
7	**Measuring Tools**				
7.1	Digital multi-meter	CP NS-01			
7.2	Ohmmeter	CP NS-01			
7.3	Wheel diameter measuring equipment	CP NS-02	✔	✔	✔
7.4	Back gauge measuring equipment	CP NS-02	✔	✔	✔
7.5	Wheel profile gauge	CP NS-02	✔	✔	✔
7.6	Coupler head wear gauge	CP NS-02	✔	✔	✔
7.7	Leak detector for refrigerant	CP NS-02	✔	✔	✔
7.8	Tension gauge for measuring upward force of pantograph	CP NS-01			
7.9	Vacuum pump for refrigerant	CP NS-01			
8	**Transportation Equipment**				
8.1	Shunting vehicle	CP NS-01			

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7.2	Ohmmeter	CP NS-01			
7.3	Wheel diameter measuring equipment	CP NS-02	✔	✔	✔
7.4	Back gauge measuring equipment	CP NS-02	✔	✔	✔
7.5	Wheel profile gauge	CP NS-02	✔	✔	✔
7.6	Coupler head wear gauge	CP NS-02	✔	✔	✔
7.7	Leak detector for refrigerant	CP NS-02	✔	✔	✔
7.8	Tension gauge for measuring upward force of pantograph	CP NS-01			
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8	**Transportation Equipment**				
8.1	Shunting vehicle	CP NS-01			

and allow for impacts on the schedule to be analyzed by introduction of "what if" statements into the input data.

1.12 The constraint shall be applied to only the Key Dates and Access Dates for calculating the floats. All the schedule assumption shall be described and schedule lag shall be explained in the narrative.

2 Time Scaled Network/Bar Chart Details

2.1 Mobilization: The mobilization network/bar chart shall include key personnel, major team, major subcontractors, and setup of office, camp, plant & equipment, as well as the early procurement for long lead time items. In general, for those activities shall be carried out within first 120 days after the commencement of works, but not specific to the following phases.

2.2 Design: The design network/bar chart shall detail the various design, submission and acceptance stages including approval by local authorities (if any) and no objection from the Engineer, preparation, submission and no objection of drawings, manuals and all other activities related to the design.

2.3 Manufacturing: The manufacturing network chart shall indicate the relationship and duration of the activities necessary to procure, fabricate, manufacture assemble equipment/complete car tests, ship and deliver rolling stock in time to support the activities at the Site. It shall establish milestones for monitoring the progress of the manufacturing process. The network shall also cover activities of Subcontractor as appropriate, including testing.

2.4 Construction and Installation: The on site construction and installation activities shall detail the relationship and duration of the activities required for preparing, constructing, erecting, cabling all the Civil, MEP Trackwork, System works in the final location as per the drawings. The interface should be identified if multiple contractors have to carry out their works in parallel / in specific sequence at the same site throughout a period. Certain intermediate milestones could be added to monitor and measure the key achievement.

2.5 Testing, commissioning and acceptance: The factory and on-site testing and commissioning activities shall present the relationship and duration of those items relating to commissioning tests including those related to the Interface Contractors. The network/bar chart shall present testing approach and sequence to be used, the deployment of resources in accordance with signaling milestone dates.

2.6 Integrated testing: The integrated testing network/bar chart shall indicate the activities required to verify the functioning of all subsystems and the rolling stock in conjunction with activities of the Interface Contractors.

2.7 Trial ~~Runs~~Operation: After completion of commissioning, the Contractor shall be required to take part in trial ~~runs~~ operation with other interface contractors as decided. The network/chart shall indicate tests, measurements and interface tests required to be carried out to verify system performance and readiness for revenue service.

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2.2 Design: The design network/bar chart shall detail the various design, submission and acceptance stages including approval by local authorities (if any) and no objection from the Engineer, preparation, submission and no objection of drawings, manuals and all other activities related to the design.

2.3 Manufacturing: The manufacturing network chart shall indicate the relationship and duration of the activities necessary to procure, fabricate, manufacture assemble equipment/complete car tests, ship and deliver rolling stock in time to support the activities at the Site. It shall establish milestones for monitoring the progress of the manufacturing process. The network shall also cover activities of Subcontractor as appropriate, including testing.

2.4 Construction and Installation: The on site construction and installation activities shall detail the relationship and duration of the activities required for preparing, constructing, erecting, cabling all the Civil, MEP Trackwork, System works in the final location as per the drawings. The interface should be identified if multiple contractors have to carry out their works in parallel / in specific sequence at the same site throughout a period. Certain intermediate milestones could be added to monitor and measure the key achievement.

2.5 Testing, commissioning and acceptance: The factory and on-site testing and commissioning activities shall present the relationship and duration of those items relating to commissioning tests including those related to the Interface Contractors. The network/bar chart shall present testing approach and sequence to be used, the deployment of resources in accordance with signaling milestone dates.

2.6 Integrated testing: The integrated testing network/bar chart shall indicate the activities required to verify the functioning of all subsystems and the rolling stock in conjunction with activities of the Interface Contractors.

2.7 Trial Operation: After completion of commissioning, the Contractor shall be required to take part in trial operation with other interface contractors as decided. The network/chart shall indicate tests, measurements and interface tests required to be carried out to verify system performance and readiness for revenue service.

1.12.5 **Reverse Voltage**

1.12.5.1 Equipment, which may be powered from the battery bus, shall not be damaged by reverse polarity voltage of the same magnitude and duration as the specified positive voltage conditions.

1.12.6 **Transients Generated by Equipment**

1.12.6.1 Equipment connected to the low voltage power supply, including battery and train lines, shall not generate transient voltages in excess of +200 Vpk, with an energy content not to exceed 0.3 joules.

1.12.6.2 The equipment shall be designed such that the rate of change in voltage in any transient conducted from the equipment to the electrical interface shall not exceed 10 kV for up to 1 ms.

1.12.7 **Overhead Line Supply System**

1.12.7.1 Within 28 days of contract award the contractor shall provide pantograph and train characteristics to the NS-01 contractor to enable the computer simulation for the overhead line system / pantograph interface to be undertaken.

1.12.7.2 At a minimum, equipment powered directly from the overhead line power network shall withstand transient voltages with a peak of not less than five times the maximum continuous voltage rating of the overhead line supply. The rise time from 10 to 90 percent of the peak voltage shall be assumed at 1 ms and the fall time from 90 to 50 percent shall be 40 ms. The energy content shall not be less than 1000 joules.

1.13 Installation and Maintenance Requirements of Electric Works

1.13.1 **Printed Circuit Boards**

1.13.1.1 All electronic printed circuit boards shall be of the plug-in type unless subject to review by the Engineer.

1.13.1.2 The type of connector and contact material shall be reviewed by the Engineer.

1.13.1.3 The board material shall be suitable to rail application and the number of layers in a multi-layer board may exceed the currently specified limit of six.

1.13.1.4 Components shall not be installed using sockets unless subject to review by the Engineer.

1.13.1.5 Use of surface mounted devices shall be reviewed by the Engineer.

1.13.1.6 Semiconductor operating temperature rating shall meet or exceed +70~~85~~ °C.

1.13.1.7 Printed Circuit Boards shall be mechanically retained to prevent loosening in service. Circuit boards shall not be hard wired to the equipment, and shall be mechanically keyed to prevent insertion into the wrong rack location. Printed Circuit Boards shall be conformal coated, unless otherwise subjected to review by the Engineer.

1.13.2 **Equipment Accessibility**

1.13.2.1 All gauges, adjustment points, switches, etc., shall be easily accessible and clearly identified with permanent identification markings.

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2.8 Equipment Mounting

2.8.1 General

2.8.1.1 Equipment arrangement, for weight distribution purposes, on all cars shall be as even as possible under W0 loading conditions. Loading difference at W0 condition, between axles in same bogie shall not be more than 1 metric ton and loading between wheels in an axle shall be less than 10%.

2.8.1.2 All equipment mounts shall meet the requirements of Sub-Clauses 1.9 Noise Vibration and Aerodynamics and 1.11 Maintainability Requirements of this ERT and shall have a fatigue life of not less than 30 years.

2.8.1.3 Equipment shall be logically grouped into enclosures, which shall meet the requirements of Clause 21 Material and Workmanship of this ERT. Care shall be taken to ensure that the equipment within the enclosures is readily maintainable, taking into consideration the required maintenance interval. Mounting of equipment enclosures/boxes shall be made to allow easy access and opening given the constraints of the maintenance pit/facility.

2.8.1.4 All equipment and corresponding cases shall be mounted such that removal and replacement of each is possible without requiring the removal of other major equipment or cases. Similar but non-interchangeable parts shall have different mounting arrangements, to ensure against mistakes in fitting.

2.8.1.5 The Contractor shall ensure that safety mounts are provided for all underframe mounted equipment to prevent derailment risk in the event of main mounts failure in service. Similarly, equipment enclosures shall have the doors securely attached to prevent falling off and causing derailment or other damage.

2.8.1.6 The Contractor shall ensure that all fasteners are of the same material when attaching components to the car body and be of the same grade.

2.8.2 Cabin and Saloon Access Handrails and Steps

2.8.2.1 The Contractor shall ensure that a set of steps with non-slip treads and handrails are provided at each driver's door to ensure the drivers safety when boarding and exiting the car when not at platform level.

2.8.2.2 The Contractor shall ensure that easy access steps with non-slip treads and handrails fit for purpose will be provided one (1) ~~at~~ on each ~~passenger~~ side ~~entrance door~~of car on both sides, this will allow passengers to easily and safety exit the cars during evacuation circumstances when the car is not at platform level. Signage and instructions on how to alight from the train safely shall be provided for each passenger door.

2.8.2.3 The stiffness and strength of the handrails and their connections shall be designed and tested to ensure that they shall withstand the rigors of use and the environment. They shall be designed and tested to withstand, without permanent deformation, a load of 1.3 kN applied at the midpoint of the span.

2.8.2.4 The stiffness and strength of the steps and their connections shall be designed and tested to allow use by a person exerting a force of 1.3 kN (load applied at a 45 degree angle), without permanent deformation.

~~2.8.2.4~~2.8.2.5 The steps for evacuation used at there is evacuation passage along the line shall be mounted on the both sides of each saloon, because there is the gap between train and evacuation passage. It is necessary that passengers can use this feature easily.

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~~**2.9 Evacuation**~~

~~2.9.1 The ladders for evacuation at where there are no evacuation passages shall be mounted on the both sides of each vehicle. Two ladders shall be mounted on the one side (The total of four ladders shall be mounted). In case of evacuation from inside of vehicle to on-ground through the saloon doors, the passengers shall be able to evacuate by using these Ladders safe and quickly as possible.~~

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3 Bogies

3.1 General

3.1.1 The Contractor shall ensure the bogies supplied with the cars are of service proven design.

3.1.2 The bogies shall be designed to operate safely and reliably for the service life of the train.

3.1.3 The cars shall be supported on twin axle bogies incorporating a primary and secondary suspension system.

3.1.4 The bogies shall be designed and constructed to minimize the unsprung mass including any attachment to the axle and shall provide service for a period of not less than 30 years, under normal use and maintenance.

3.1.5 Bogies shall be designed and manufactured such that as many components as practicable are fully interchangeable. All motor bogie assemblies shall be fully interchangeable, similarly all trailer bogie assemblies. The entire bogie shall be suitably protected against corrosion and adequately painted.

3.1.6 Provision shall be made in the bogie design to allow vertical mechanical adjustment to compensate for wear. It shall be possible to adjust car body height for wheel wear without having to remove the bogie from the car. The design shall allow for lifting the bogie with the car body.

3.1.7 Sufficient number of shims or liners shall be supplied for adjusting body height.

3.1.8 Motor bogies shall utilize an individual motor driving each axle, and the motors shall be mounted on the bogie frame. Bogies shall be as light as possible, commensurate with meeting the requirements of this ERT.

3.1.9 The bogies shall be compatible with the underfloor wheel turning machine to be installed at the workshop without the need for removal of bogies or disassembly of any major parts from the bogie or the car body or to add interfacing hardware. The Contractor shall ensure that the bogie frames are provided with lifting eyes of sufficient strength at four points to permit level lifting and transportation by shop crane of the fully assembled bogie.

3.1.10 Slewing rings shall be provided with an adequate number of standard grease fittings. If a bolster-less connection is used, equipped with center pin and friction plates, the material and design of the friction plates shall not cause undue noise or any residual sound during start of traction and braking. The Contractor shall submit a detailed study of the friction plate properties and performance for review by the Engineer.

3.1.11 The bogies shall be capable of being disconnected and reconnected to the car body with minimal operational requirements. The maximum time to remove and replace a bogie with an exchange bogie shall be less than two (2) hours.

3.1.12 The bogie shall be configured such that equipment is positioned and oriented in a manner that facilitates access for maintenance. The bogie design shall include the mounting arrangements for the on-board signaling equipment, which shall include, but not be limited to:

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3.1.12 The bogie shall be configured such that equipment is positioned and oriented in a manner that facilitates access for maintenance. The bogie design shall include the mounting arrangements for the on-board signaling equipment, which shall include, but not be limited to:

a. the location and mounting of velocity sensors (considering signalling system and ATO)

b. mounting arrangements and termination of the associated cabling.

3.4 Wheels, Wheel Sets and Axles

3.4.1 Wheels shall be of a proven design from a reputable manufacturer.

3.4.2 The wheels shall be compliant with the requirements for JIS E4502 or equivalent standards for 1435 mm gauge.

3.4.3 Wheel sets shall be protected using a paint system, which shall protect the wheel sets from damage by corrosion for at least the period between bogie overhauls without maintenance.

3.4.4 The Contractor shall submit comprehensive details of the wheel set design. The submission shall include, as a minimum, axle detail drawings, axle design calculations, wheel detail drawings, wheel design calculations and wheel sets assembly drawings and procedures.

~~3.4.5 Easy access shall be provided to both ends of all axles to allow ultrasonic testing of the axles. It shall be possible to carry out ultrasonic testing with the wheel set in situ under the cars.~~

~~3.4.6~~3.4.5 ~~The Contractor shall submit procedures for testing of a free-standing assembled wheel~~ set and for testing of a wheel set in situ under a car. It shall include the location of testing and refer to test standards.

~~3.4.7~~3.4.6 The wheel set shall be in compliance with requirements as per JIS E 4504 or equivalent standards.

~~3.4.8~~3.4.7 The axle shall be designed in accordance with JIS E 4502 or equivalent standards.

~~3.4.9~~3.4.8 Wheels, axles, drive gears and axle bearings shall be assembled on axles by an interference fit method.

~~3.4.10~~3.4.9 The objective is that the wheels shall achieve a wheel flange wear rate of less than 0.02 mm/1000 km under the designed civil and track work maintenance tolerance.

~~3.4.11~~3.4.10 The Contractor shall carry out bearing life calculations to demonstrate that the selected size of bearing is adequate for L10 bearing life of 1,200,000 km.

~~3.4.12~~3.4.11 The housings shall incorporate seals to prevent leakage of grease and infiltration of water and dirt and maximize lubricant life. Bearing lubricant shall not, in any circumstances, be allowed to leak or discharge onto the wheel or rail surface. Axles shall be provided with mounting arrangement electrical current return assemblies.

~~3.4.13~~3.4.12 Axles shall be designed to withstand the maximum axle load of 16,000 kg and have a fatigue life of not less than 30 years.

~~3.4.14~~3.4.13 Full details of the axle, wheel and gear machining details shall be provided, together with process details, including the specific type of lubricants used. The Contractor shall provide the pressing records of all wheel sets in the Car History Books.

~~3.4.15~~3.4.14 The wheel back-to-back dimension shall be between 1,359 and 1,362 mm.

3.5 Axle Boxes

3.5.1 Axle box bearings shall be of the grease self-lubricated roller type, sealed for life.

3.5.2 Bearings shall be sealed by labyrinth seals and if replenishment of grease is required between overhauls, this shall be possible without removing any other equipment. Suitable standard grease fittings shall be provided for this purpose.

3.5.3 Any design incorporating a wearing surface between the axle box and the bogie frame shall not be accepted.

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6.4.2 Emergency lighting at a minimum average illumination of 10 lux shall be provided by LED lighting with the capacity to allow lighting to be provided within all passenger saloons, at all inter-car locations and in the doorway areas, which shall be powered from the battery for at least 90 minutes.

6.4.3 The emergency passenger lights circuit shall be protected from abnormal currents via a separate miniature circuit breaker.

6.4.4 When the Auxiliary Power Supply Equipment (APSE) stops, appropriate pieces of these LED lights in one car shall be powered from the battery. Namely, this means these LED lights have also the role of emergency lights.

6.5 Exterior Lights

6.5.1 The Contractor shall provide LED-type headlights.

6.5.2 The headlight shall have two functions. One is down lighting mode; another is high-beam mode. The Contractor shall ensure that TMS monitor displays when the light is in either state.

6.5.3 The Contractor shall ensure that a headlight fault detection system is provided for each train cab, providing fault indication and status information to the driver by TMS monitor.

6.5.4 The light intensity of headlights shall comply with Table.7 in the item 5.2.1 of JRIS R 16465 or other equivalent standards.

6.5.5 Headlight lamps shall be capable of being replaced, aimed correctly from the outside or inside of the driver's cab easily. The optical axis of the head lamps shall be capable of being adjusted easily.

6.5.6 The Contractor shall ensure that the red tail lights or white marker lights are automatically activated based upon the cab activation status as follows:

a. Red tail lights displayed - associated cab is not activated, or non-activated cab is at rear of the train, or when both cabs in the train are inactive; and

b. White marker light displayed - associated cab has been activated, indicating this shall be the front of the train. The white marker lights on the inactive end cab shall be lit when cars are driven in reverse direction.

6.5.7 LED type marker lights shall be provided and combination red/white units may be proposed.

6.5.8 The Contractor shall ensure that inspection lights are provided in the vicinity of the underframe mounted equipment. The inspection lights shall be push-button activated from the cab and underframe and shall incorporate design features to ensure that the lights are not inadvertently left on when the train is in operation.

6.5.9 Locally switched maintenance/inspection lights shall be installed in the equipment boxes which may need to be accessed periodically (i.e. equipment boxes containing circuit breakers, switches).

6.5.10 The Contractor shall ensure that two indicating lights are installed above each door, one inside and one outside. The lights shall be illuminated when the doors open while not lit up when the doors are closed. The lights shall be blinking during the opening and closing cycle of the doors. The lights shall be illuminated together with an indication on the driver's panel or the TMS monitor when the door is faulty and/or isolated.

6.5.11 The Contractor shall ensure that all lights are powered from the low voltage DC power supply system. Should the auxiliary power supply equipment not be operational, the lights shall be powered from the batteries.

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6.5.11 The Contractor shall ensure that all lights are powered from the low voltage DC power supply system. Should the auxiliary power supply equipment not be operational, the lights shall be powered from the batteries.

11.1.9 The propulsion system design shall automatically compensate for wheel diameter variations between axles on the same car of no less than 6 mm. The Contractor shall incorporate the function that each car wheel diameter is input from the TMS. If this function is not used or used incorrectly, the propulsion system shall operate recognizing the wheel diameter as 820 mm.

11.1.10 The Contractor shall be required to perform a combined propulsion system test in accordance with a procedure which shall be reviewed by the Engineer. This test shall consist of installing the entire propulsion system, including the power conversion equipment (PCE), traction motors and associated cabling. The temperature of critical components, amongst other parameters, shall be monitored to gauge suitability for the intended service.

11.1.11 The equipment to be supplied shall require minimal maintenance, and any items requiring periodic attention shall not require such at intervals less than monthly.

11.1.12 The propulsion system shall be provided by a supplier having had a minimum of 5 years of demonstrable experience in supplying service-proven, considerably reliable 3-phase AC propulsion equipment in a similar operating environment to that in Manila.

11.1.13 Speed estimation during the initial stage of both acceleration and deceleration shall be within 200 ms after motor current begins to flow. In particular, even in the case of low speed range and the recession starts, speed estimation shall be completed successfully to prevent unnecessary vibration, overcurrent to the motor. In addition, the speed sensor design shall prevent unnecessary vibration in the event of start-up during roll-back.

11.1.14 For the parts that shall be considered exothermic, thermal simulation shall be performed, e.g. switching device module, HSCB, LB, and main circuit wires. This simulation shall be performed based on the run curve at the most severe riding rate, taking into account the heat dissipation environment inside the box. Simulation results shall be validated during testing and commissioning with and without load.

11.1.15 The design life of the main circuit semiconductors ~~and the filter capacitors~~ shall be 30 years or more, PECE and filter capacitor shall have the design life of 12 years or more.

11.1.16 Constant speed and low-speed operation function shall be provided.

11.1.17 ATO and PSD will be installed in the future. Therefore, the propulsion system shall be designed to be able to interface ATO and PSD easily and shall be considered about the ATO running pattern mentioned as below.

11.1.18 The capacity of propulsion system shall be determined at 20t/car load condition provided following table. The Contractor shall calculate capacity based on data shown in Appendix H, I, J, and K. Provisions of calculation shall be determined based on discussion between the Engineer and the Contractor.

Alignment	Running Pattern	Traction Performance
MCRP	All-Out Re-propulsion when train speed downed under predetermined values (-5km/h) from speed limited	Appendix E
NSCR	All-Out Re-propulsion when train speed downed under predetermined values (-5km/h) from speed limited	Appendix E
NSRP-South	All-Out	Appendix E

11.1.9 The propulsion system design shall automatically compensate for wheel diameter variations between axles on the same car of no less than 6 mm. The Contractor shall incorporate the function that each car wheel diameter is input from the TMS. If this function is not used or used incorrectly, the propulsion system shall operate recognizing the wheel diameter as 820 mm.

11.1.10 The Contractor shall be required to perform a combined propulsion system test in accordance with a procedure which shall be reviewed by the Engineer. This test shall consist of installing the entire propulsion system, including the power conversion equipment (PCE), traction motors and associated cabling. The temperature of critical components, amongst other parameters, shall be monitored to gauge suitability for the intended service.

11.1.11 The equipment to be supplied shall require minimal maintenance, and any items requiring periodic attention shall not require such at intervals less than monthly.

11.1.12 The propulsion system shall be provided by a supplier having had a minimum of 5 years of demonstrable experience in supplying service-proven, considerably reliable 3-phase AC propulsion equipment in a similar operating environment to that in Manila.

11.1.13 Speed estimation during the initial stage of both acceleration and deceleration shall be within 200 ms after motor current begins to flow. In particular, even in the case of low speed range and the recession starts, speed estimation shall be completed successfully to prevent unnecessary vibration, overcurrent to the motor. In addition, the speed sensor design shall prevent unnecessary vibration in the event of start-up during roll-back.

11.1.14 For the parts that shall be considered exothermic, thermal simulation shall be performed, e.g. switching device module, HSCB, LB, and main circuit wires. This simulation shall be performed based on the run curve at the most severe riding rate, taking into account the heat dissipation environment inside the box. Simulation results shall be validated during testing and commissioning with and without load.

11.1.15 The design life of the main circuit semiconductors shall be 30 years or more, PECE and filter capacitor shall have the design life of 12 years or more.

11.1.16 Constant speed and low-speed operation function shall be provided.

11.1.17 ATO and PSD will be installed in the future. Therefore, the propulsion system shall be designed to be able to interface ATO and PSD easily and shall be considered about the ATO running pattern mentioned as below.

11.1.18 The capacity of propulsion system shall be determined at 20t/car load condition provided following table. The Contractor shall calculate capacity based on data shown in Appendix H, I, J, and K. Provisions of calculation shall be determined based on discussion between the Engineer and the Contractor.

Alignment	Running Pattern	Traction Performance
MCRP	All-Out Re-propulsion when train speed downed under predetermined values (-5km/h) from speed limited	Appendix E
NSCR	All-Out Re-propulsion when train speed downed under predetermined values (-5km/h) from speed limited	Appendix E
NSRP-South	All-Out	Appendix E

12 Primary Power System

12.1 Current Collection

12.1.1 The 1500 V dc power shall be collected from the overhead line system using electrically operated pantographs. The pantograph assembly shall permit all necessary movement, taking into account the overhead line installation tolerances/clearances, vibration of Rolling Stock, deflation of suspension etc. and maintain the complete and effective collection of electrical power. Sintered alloy shall be used as the material of the contact strip. The pantograph within the train shall be equipped with both the function to raise and lower all at the same time and the function to raise and lower individually.

12.1.2 The upper structure of the pantograph shall be equipped with a pair of parallel guide bars for supporting the current collector and to provide a higher guidance function to prevent shaking of the catenary. Spring structure shall be designed to suppress the current collector from leaving the overhead catenary.

12.1.3 A lightning arrester shall be installed on the appropriate position adjacent to the pantograph.

12.1.4 The pantograph shall be mounted on the roof with double insulation.

12.1.5 The pantograph shall be in compliance to JIS E 6302 or other equivalent standards.

~~12.1.6 The rigid overhead conductor shall be used in some section. For rigid overhead conductor, since detachment tends to occur easily, the spring structure to suppress detachment shall be equipped.~~

12.2 Not Used

12.3 Input Protection (HSCB)

12.3.1 The power supply shall be protected by a heavy duty, transit proven, ultra-high speed circuit breaker, which shall be capable of handling the short circuit capacity of the PCE. The High Speed Circuit Breaker (HSCB) shall be installed in a dedicated explosion-proof enclosure.

12.3.2 The Contractor shall select the HSCB with sufficient capacity to break the short-circuit current. The set value to trip shall be appropriate so as not to trip unnecessarily when the catenary voltage changes rapidly in actual operation. The Contractor shall submit the Technical Requirement of the HSCB including tripping performance for the review by the Engineer.

12.3.3 Tripping of the HSCB shall be displayed in the driver's cab and shall be registered in the event recorder of the TMS and PECE. The HSCB shall be resettable from within the driver's cab.

12.3.4 Sufficient attention about HSCB, conductor to be connected, the performance of the grease to be used and fastening torque of conductor, etc. shall be given to the heat generated by the current which is assumed in the maximum actual operation current pattern.

12.4 Current Return

12.4.1 The negative return current from the 1500 V dc circuits shall run to an insulated common point located under the car and shall be submitted for review by the Engineer. The insulated common point shall be connected to 4 axle ground brushes per car through removable jumper cables. The cable and cable arrangement shall be carefully chosen and installed to withstand all car service conditions and shall not be subject to induced premature failure.

12.4.2 The car body grounding shall be separated from the power return circuits and the car structure shall not be used as normal circuit return path for any electrical equipment. Separate current return assemblies shall be provided for the 1500 V dc and car body ground respectively.

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13.6.3 **Battery Contactor**

13.6.3.1 The battery contactor shall be a non-contact contactor for the opening and closing control of the 100 V dc circuit from the storage battery in the control voltage 100 V dc system and shall be composed of a control unit, the main circuit unit in which a semiconductor shall be incorporated and the circuit that shall be operated from the driver's cab. Other type of contact for the contactor is open for proposal and subject to engineer review.

13.6.3.2 The circuit to confirm whether the storage battery contactor is ON or OFF shall be incorporated, and the actual condition of the storage battery contactor shall be displayed in the TMS.

13.6.4 **Battery Circuit Open Switch**

13.6.4.1 The battery circuit open switch shall be equipped to work safely for maintenance, replacement or construction, etc.

13.6.4.2 When this switch is opened, it shall be necessary to make it clear that the state is clear, for example that the lid is not closed.

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15.3.10 The message library shall be dimensioned with a minimum storage capacity proposed by the Contractor.

15.3.11 Message categories shall include service status, places of interest, safety messages, emergency messages, details of train start location and train destination along with next station details, etc.

15.3.12 The PA system shall be interfaced to enable selected safety and emergency messages broadcast on the train PA system within each train.

15.3.13 Within each train cab a PA Control unit shall be supplied.

15.3.14 PA broadcasts initiated by the train driver shall have priority over other broadcasts.

15.4 Internal Guidance Display

15.4.1 The guidance display shall be digital-signage to present on dedicated TV style color monitors, (17-inch LCD), a display to show typically, the destination, the next station, which side door opening, transit information, line map, time to arrive at each stations, the guidance of the next station, etc.

15.4.2 The displays for advertisement (21.5-inch or more LCD) shall be installed between doors on both sides (total 6 displays per car). These displays shall be mounted above the window. Advertisement contents shall be installed into this system directly. ~~Also, it shall be prepared to be able to be installed remotely by interfacing with the wireless another system~~Provision for the data uploading using wireless system shall be provided for future upgrade..

15.5 External Destination Sign System

15.5.1 The destination sign located at the end of the consist shall provide, as a minimum, information on the train running number along with the start and destination locations of the train service and any special information such as 'Not in Service', etc.

15.5.2 The destination sign shall be installed externally on each cab car above the windshield and two units on each side of each car above the window.

15.5.3 A hinged panel shall be installed in the driver's cab to provide ready access to the destination sign unit.

15.5.4 The destination sign shall be suitably sized with text colors such that passengers waiting on platforms shall be able to see clearly the information displayed on the train approach to the platform under all conditions.

15.5.5 The destination sign shall be programmable from the TMS in the driver's cab.

15.5.6 The destination sign in the non-active cab and on the side of the car shall automatically indicate the same destination as in the active cab.

15.5.7 The design of the destination sign shall allow manual override in the case of a defect in the electronics system.

15.5.8 The Contractor shall propose options for the electronic destination display sign system for the Engineer's review.

15.5.9 Choosing optimal colors according to train type, guidance content and display that is easy for the user to understand shall be implemented.

15.5.10 Display contents, colors, fonts, etc. shall be reviewed by the Engineer.

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24 Spare Parts and Special Tools

24.1 General

24.1.1 The Contractor shall provide spare parts, special tools as specified in both the General Requirement as well as this Clause.

24.1.2 Prior to the issuance of the Taking Over Certificate (TOC), the Contractor shall deliver the spares and consumables, special tools and diagnose test equipment to the Site.

24.2 Spare Parts

24.2.1 The Contractor shall provide a list of capital spares and consumables (spares and consumables) and supply for the Defects Notification Period (DNP).

24.2.2 The Employer may order additional spares required for the following 15 years from the recommended spare parts and consumables list as provided by the Contractor.

24.2.3 The Contractor shall provide a complete listing of spares and consumables to be supplied, including the following information:

a. Contractor part number;
b. Original equipment manufacturer part number; and
c. Part description.
d. Price
e. Primary Vendor name/contact/address
f. Secondary Vendor name/ contact/ address

24.2.4 The contractor shall submit the final list of capital spare during the design stage.

24.2.5 The spare part supplied during DNP shall include at least the below list of spare parts as minimum. The quantity shall be based on one (1) trainset basis. If necessary, the Contractor shall adjust the quantity of each parts where required, considering two (2) depots and maintainability and reliability, and actual fault record submitted by the Contractor for the Engineer review. Also, parts that are not on the list but are considered necessary for the train proposed by the Contractor shall be included in" Any other item". Final list (item and quantity) shall be confirmed during design stage.

No	Description
1	Wheel and Axle Assembly for Motor;
2	Wheel and Axle Assembly for Trailer Bogie;
3	Wheel Assembly;
4	Primary Suspension;
5	Secondary Suspension;
6	Tread Brake Assembles;
7	Gearbox Assembly;
8	Flexible Coupling Assembly (link for Gear box and Traction Motor);
9	Traction Motor Assembly;
10	Current Return Assembly;

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6	Tread Brake Assembles;
7	Gearbox Assembly;
8	Flexible Coupling Assembly (link for Gear box and Traction Motor);
9	Traction Motor Assembly;
10	Current Return Assembly;

24.8 Main Special Tools and Diagnostic Test Equipment

24.8.1 The main Special Tools and Diagnostic Test Equipment is listed, but not limited, as follows:

Table 24.1 Main Special Tools and Diagnostic Test Equipment

ID	Name	North WKS	North LRS	South LRS
Light repair（2 depots）	Safety device tester		✓	✓
	Event recorder reader		✓	✓
	VVVF log reader		✓	✓
	Brake control unit log reader		✓	✓
	Rewriting device for internal display system		✓	✓
	Rewriting device for external display system		✓	✓
	Rewriting device for public address system		✓	✓
	Brake-pad replacement tool		✓	✓
PTU	VVVF	✓	✓	✓
	BCU	✓	✓	✓
	ACU	✓	✓	✓
	Doors	✓	✓	✓
	TMS	✓	✓	✓
	APSE	✓	✓	✓
Bogie removal	Radius arm gauge	✓		
Traction Motor	Motor disassembling/reassembling tools	✓		
	WM coupling extractor	✓		
	Non-disassembling bearing exchange special tool	✓		
Bogie	Bogie disassembling/reassembling special tools	✓		
	Lock bolt for axle spring	✓		
Tight lock coupler and draft gear	Special tool for draft gear	✓		
Air Conditioner	Special tool for air conditioner overhaul	✓		
	Refrigerant extractor	✓		
	Refrigerant filler	✓		
	Gas leak tester	✓		✓

ID	Name	North WKS	North LRS	South LRS
	Cleaner for special parts	✓	✓	✓
Electric Shop	HB tester	✓	✓	✓
	High voltage device tester	✓	✓	✓
	Contactor tester	✓	✓	✓
	Solenoid valve tester (supplied by CP NS-01)			
	Electronic relay tester (supplied by CP NS-01)			
	Door operating device tester	✓	✓	✓
	Safety device tester	✓		
	Event recorder reader and analyzer	✓		
	Failure data reading device	✓		
	Train radio tester (supplied by CP NS-01)			
	Speed sensor tester	✓	✓	✓
	VVVF inverter tester	✓	✓	✓
	VVVF log reader	✓		
	Cleaner for special parts	✓	✓	✓
Bearings	Special tool for bearing overhaul	✓		
Spring, Air Spring & Iron work	Special tool for air-spring overhaul	✓		
	Special tool for damper overhaul	✓		
Air Brake valve	Brake test equipment	✓		
	Brake control unit log reader	✓		
	Special tool for air valve overhaul	✓		
	Special tool for compressor overhaul	✓		
Final adjustment	Safety device tester	✓		
	Event recorder reader	✓		

24.8.2 The final special tools and diagnostic test equipment list shall be determined after the Operation and Maintenance (O&M) Manuals have been concluded.

24.8.3 If any additional special tools and diagnostic test equipment are identified during the development of the (O&M) Manuals, those items shall be added to the list proposed during the Bid and shall be provided by the Contractor. The cost for the additional special tools and diagnostic test equipment shall be deemed to have been included in the Price Schedules.

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ID	Name	North WKS	North LRS	South LRS
Light repair（2 depots）	Safety device tester		✔	✔
	Event recorder reader		✔	✔
	VVVF log reader		✔	✔
	Brake control unit log reader		✔	✔
	Rewriting device for internal display system		✔	✔
	Rewriting device for external display system		✔	✔
	Rewriting device for public address system		✔	✔
	Brake-pad replacement tool		✔	✔
PTU	VVVF	✔	✔	✔
	BCU	✔	✔	✔
	ACU	✔	✔	✔
	Doors	✔	✔	✔
	TMS	✔	✔	✔
	APSE	✔	✔	✔
Bogie removal	Radius arm gauge	✔		
Traction Motor	Motor disassembling/reassembling tools	✔		
	WM coupling extractor	✔		
	Non-disassembling bearing exchange special tool	✔		
Bogie	Bogie disassembling/reassembling special tools	✔		
	Lock bolt for axle spring	✔		
Tight lock coupler and draft gear	Special tool for draft gear	✔		
Air Conditioner	Special tool for air conditioner overhaul	✔		
	Refrigerant extractor	✔		
	Refrigerant filler	✔		
	Gas leak tester	✔		✔

ID	Name	North WKS	North LRS	South LRS
	Cleaner for special parts	✔	✔	✔
Electric Shop	HB tester	✔	✔	✔
	High voltage device tester	✔	✔	✔
	Contactor tester	✔	✔	✔
	Solenoid valve tester (supplied by CP NS-01)			
	Electronic relay tester (supplied by CP NS-01)			
	Door operating device tester	✔	✔	✔
	Safety device tester	✔		
	Event recorder reader and analyzer	✔		
	Failure data reading device	✔		
	Train radio tester (supplied by CP NS-01)			
	Speed sensor tester	✔	✔	✔
	VVVF inverter tester	✔	✔	✔
	VVVF log reader	✔		
	Cleaner for special parts	✔	✔	✔
Bearings	Special tool for bearing overhaul	✔		
Spring, Air Spring & Iron work	Special tool for air-spring overhaul	✔		
	Special tool for damper overhaul	✔		
Air Brake valve	Brake test equipment	✔		
	Brake control unit log reader	✔		
	Special tool for air valve overhaul	✔		
	Special tool for compressor overhaul	✔		
Final adjustment	Safety device tester	✔		
	Event recorder reader	✔		

24.8.2 The final special tools and diagnostic test equipment list shall be determined after the Operation and Maintenance (O&M) Manuals have been concluded.

24.8.3 If any additional special tools and diagnostic test equipment are identified during the development of the (O&M) Manuals, those items shall be added to the list proposed during the Bid and shall be provided by the Contractor. The cost for the additional special tools and diagnostic test equipment shall be deemed to have been included in the Price Schedules.

27 Shipping and Delivery

27.1 Shipping

27.1.1 At no time shall cars or other parts be exposed to salt water or spray when unprotected, loading on deck shall not be allowed.

27.1.2 The Contractor shall prepare a shipping manual to cover the shipping of all items covered under the Contract, including cars, spare parts and simulator part. The shipping manual shall detail the method, packaging and other details required to ensure the safe shipment to the delivery point. The shipping manual shall be submitted for review by the Engineer prior to the shipment of any equipment.

27.1.3 The Contractor shall notify the Engineer ten days in advance of any expected shipment date and give further notification of the actual shipment date and routing when established. This shall complement the inspection requirements prior to delivery as specified herein.

27.1.4 Unless otherwise reviewed by the Engineer, no loose or boxed equipment shall be permitted to be shipped in the cars.

27.1.5 The Contractor shall be responsible for the insurance for shipping.

27.2 Delivery

27.2.1 The Contractor shall be responsible for delivery of all items to be supplied under this Contract to the Site, as designated by the Engineer.

27.2.2 The Contractor shall be responsible for the loading, transport and unloading of cars and spare parts from the factory site to the designated delivery point and locating them as instructed by the Engineer.

27.2.3 Cars, parts or items damaged in transit shall not be considered as delivered until all repairs or replacements have been completed and all necessary spare parts or items have been delivered to the Site.

27.2.4 All documents, manuals, drawings and other deliverables shall be delivered to MCRP&NSRP-South operator, Philippines.

27.2.5 The Contractor shall be responsible for all storage and security of cars, spare parts and other items until the items have been inspected and are considered delivered at the point designated by the Engineer.

27.2.6 Removal of all temporary fittings required for shipment and re-assembly of equipment shall be the responsibility of the Contractor, and shall be completed prior to the car parts being inspected and considered delivered.

27.2.7 Prior to delivery, the Contractor is recommended to plan the route to ensure they are aware of actual road conditions, underpasses, bridges and potentially other construction work which may hinder his delivery from port to the Site.

27.2.8 The Contractor shall comply with the requirements of the Employer or any relevant section of local government and/or any other relevant authority regarding any traffic arrangements that may be necessary for delivery of the car plus other equipment from port to the Site. The Contractor shall make all arrangements and assume full responsibility for transportation to the Site.

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